## Visual connectivity of the everyday outdoors as landmark in the dense vernacular fabric of central Tokyo:

## Morphological approach in Wakaba, Shinjuku

(東京都心の高密度都市組織内における都市の目印としての日常屋外空間の視覚的接続性に関する研究: 新宿区若葉地区を対象とした形態学的アプローチ)

### Mireille MAVOUNGOU-TCHAPI マフング チャピ ミレイ

Thesis presented to the Department of Urban Engineering, Graduate School of Engineering from University of Tokyo. Submitted in partial fulfillment of the requirements For the degree of Doctor of Philosophy

> The University of Tokyo Graduate School of Engineering December 2014

Thesis under the supervision of Professor NISHIMURAYukio and Professor KUBOTA Aya, from the Urban Design Laboratory.

Examination Committee:

Professor DEGUCHI Atsushi Professor KUBOTA Aya Associate Professor MURAYAMA Akito Professor NISHIMURAYukio Professor OTA Hiroshi

Note on the English translation (romanization) of Japanese characters

In this thesis, the method of translation from Japanese characters into roman alphabet is based on standard phonetic transcription. Japanese long vowell, either transcripted with a macron or a circumflex, will be here written by adding a u ( $\bar{o}$  becomes ou). Translated proper and common nouns will be distinguished by the use of italics for common nouns, occasionaly accompanied by the original Japanese characters and/or the meaning into bracket, and vice versa. (ex: Kantou instead of Kant  $\bar{o}$ )

#### ABSTRACT

Strolling among the small pockets of narrow back alleys in an otherwise globalized central Tokyo weaves a singular relationship to the urban space and leave the impression of coherent fabrics with a good readability. The eye of the observer can be stimulated by the everyday urban landscapes embedded in densely built-up neighbourhoods of the old town and their unique identities: It finds beauty in the quiet atmospheres displayed within often carefully planted resident's outdoors, the complexity of the visual skins made of different materials from the buildings to the open spaces and their arrangements, but also the continuous homogenization with global standards constructions (standard designs for massive buildings and their outdoors) and scale (large against small human scale). The vernacular landscapes of privately owned outdoor spaces made by residents are concerned by this anonymous and continuous mechanism of transformation. Despite the lack of built legacy from the premodern Edo period and the dynamic of global transformations coupled with a perpetual incremental renewal and change, there is a persistence of a distinct local identity, visually assessable (given the presence of many devices for the creation of privacy, in spatially cramped conditions). The analysis of such singular cognition attached to the small-scaled neighbourhoods can help to apprehend vital elements shaping their atmosphere, somehow picturesque.

The dense small-grained urban fabrics of the historic urban landscape (HUL) in metropolis, some of them qualified as informal patterns or hotspots of disaster hazards- because of their narrow streets and flammable materials, were often the urban popular pockets for a long time and mostly the target of slum clearances and redevelopments. However they display distinct atmospheres and can help to apprehend and mitigate the overpowering large scale of the metropolis<sup>1</sup>. In Tokyo, the regeneration of these areas is complicated by the mix of modern and older urban forms, combined with economical pressures from the global real estate market and political choices. The fragile conditions of these densely built-up urban patterns cannot resist the quick turnovers of urban shapes<sup>2</sup>. However, the evaluation criteria for the old dense urban fabric, hardly takes into consideration the atmosphere emanating from the morphogenetic singularities of these patterns or the value of small proportions in narrow alleys and carefully tended outdoor structures, as landmark. These features are easily

<sup>&</sup>lt;sup>1</sup> Down and Stea, 1977 cited in Jiang et al., 2000.

 $<sup>^{2}</sup>$  The legislation favors real estate companies and focus on transportation, security and fire fighting issues. The new Landscape Law of 2006 is a step forward the recognizance of such neighborhood's singularities within the cultural landscape.

destroyed or affected by such transformations like merging of formerly small-scal-plots, broadening of alleys that were only accessible for pedestrian or cats, and government-advocated "consolidation" of the urban fabric with inappropriately huge condominium towers right next to tiny wooden buildings. The small proportions, the connective characteristics of outdoors' fabric and the richness of the ambiguous public-private status are highly vulnerable to careless redevelopment. The emphasis of conventional planning is mostly on the streetscape of main thoroughfares, whereas the interior of urban blocks is neglected, forgetting subtle types of small outdoors, such as tiny lanes, pocket backyards, or "residual" spaces in between houses. I argue therefore that, the perceived atmosphere results, in some cases, from a coherent dense structure at the smallest scale.

The distinct method I introduced, belongs to the fields of morphology and phenomenology by interrogating the relationship between a subject and the urban space<sup>1</sup>. It refers to some extent to spatio- configurational analysis, however being distinct from network study field and their tools attached to the Graph theory. The first approach to the field, while strolling in neighbourhoods of Shinjuku ward in central Tokyo, the site- selection process and the resulting analytical method, focused on the visual sense and the behaviour impacted by the sight. Such "visual behaviour" toward the different outdoors led to an analytical method based on the field's viewpoint assessment, with restricted visual tools. The curiosity stimulated my stops in some vernacular small-grained fabric from the old centre, whether through the tiny visual breakthroughs toward the block's innermost, the wellbeing in nice green displays made by residents, the evidences of landscape elements and more fundamentally the possibility to get a coherent image of the place. Such aspects reinforced intuitively the sight, as being a strong media to isolate urban entity and to shape a language ("visual behaviour") adapted to each specific structure of the urban fabric and its scale. Besides the reading of the element of the landscape and the urban morphologies, the viewpoints give precise information on the transparency or the blockage, the long or short visual occurrences, etc. They draw a sort of "visual pattern", elaborated by each walker and which shape the walker appropriation and imaginary of the place<sup>2</sup>. Hence, the viewpoints on the contrasting outdoors became not only a tool for electing the area of study but the object itself of this research. I focused on the living areas of Wakaba's 2<sup>nd</sup> and 3<sup>rd</sup> districts as a case study of the vernacular dense fabric of the capital. Wakaba was an informal and popular neighbourhood during the late Meiji. It

<sup>&</sup>lt;sup>1</sup> It could be akin the Situationist drift method, among which the psycho-geographical aspect of the urban fabric.

<sup>&</sup>lt;sup>2</sup> Some scholars illustrated this aspect, as the example of Lynch's cognitive maps of Boston.

consolidated over the time and shaped a strong community, which overcame the WWII damages. During Japan's inflated asset bubble of the 1980s with skyrocketing land prices, in between the *nagaya* of Wakaba, named "the Little Asakusa", the atmosphere used to be very lively. The place slowly transformed into a service and quiet residential area. The resulting densely built-up fabric, carefully arranged with greenery, contributes to the beauty, the wellbeing of the place and the pride of the elder residents, evoking a nostalgic "atmosphere of Shitamachi". However, Wakaba is nowadays labelled at the highest risk's rate in case of disaster because of its dense fabric of juxtaposed wood houses and tiny outdoors. There is a need for elaborating further specific designs and criteria of analysis to underline the specificities of their distinct atmospheres, for a better regeneration of such urban fabric of the landscape. Fundamentally it pledges for the reconsideration of the multiplicity, the complexity and the elementary organic scale. Such criteria are attached to the cognition of a place and shape the intelligibility/ readability of Wakaba's vernacular and densely built-up structure. Some scholars analysed the spatial conditions of the vernacular old urban fabric: Conzen studied its morphogenesis; Sitte found rules behind the artistic effect emanating from the outdoors' arrangements of the organic old center; Alexander also highlighted the organic process behind such (small or average scale) urban composition. In parallel, Lynch, Gehl, Salingaros, Antrop, the biophilic urban design group, and other scientific approaches from the phenomenology<sup>1</sup> emphasized the cognition of space and its emotional relationships, by stating as an example, different criteria [such as complexity, human scale, coherence, enclosure, transparency, imageability, linkage, etc] behind the readability of a place and its perceived positive or anxiogenic assessment. The latest works on small Tokyo also emphasized this aspect, by binding density, intensity and resilience<sup>2</sup>. The Vienna Memorandum, apprehended the visual relationships within the HUL with methods applied mostly for the long distance scenic views or the skylines at the large scale, or through the transmitted visual illustrations. However the small scale viewpoints, as valuable landmark from the cultural landscape was never approached. Actually, additional criteria on a cognitive basis could help in determining the local visual landmark, part of the identity of such small-grained densely built-up urban features. The analysis of the viewpoints on their outdoors can subtly reveal another type of cognitive landmark for such place.

<sup>&</sup>lt;sup>11</sup> A scientific approach to tackle with the experience, by binding multiple empirical observations into theoretical fundaments. <sup>2</sup> see the work from Shulz (2007, p19-28) and Radovic and Boontharm (2012).

The morphological characteristics of the field and the modes of appropriation from the residents, partly define what they consider as valuable from their plot to the neighbourhood. Using analytical tools based on the eyesight is an alternative on the evaluation of the richness of a place. I introduced the viewpoints analysis in Wakaba neighbourhood, as both sides: a morphogenetic and configurational spatial analysis of outdoors' transformation and the cognitive observations of the features on the field. It is based on the elaboration of a range of visual tools applied to a layered analysis of the outdoors, through maps from different periods for the first side. Such tools are simple view lines from the public space, which are blocked by a construction or transversal. The method supposes different statistics on the evolution of the resulting view lines' maps. It permitted to get an analysis, adapted to the small-grained fabric, finer than with usual morphological approaches, and to define a sort of visual landmark of the place. By overlapping layers of outdoors from the past times to nowadays, the embedded structural spatial arrangements can be highlighted. The observation of the field's "visual skins" secondly implemented the approach with usual criteria of the spatial readability. The visual tools can also functionally help to apprehend the rules behind the positive emotion provoked by the complexity of the visual field, by identifying the visual connective capacities of such outdoors, and by introducing a new notion, the visual connectivity.

I borrowed the notion of connectivity, stemmed from the Graph Theory, to better grasp the structural and functional characteristics of the dense outdoors that I identified with the visual tools. For Diestel (2005, p.12), the connectivity "corresponds to the minimum number of elements (nodes or edges) to be removed in order to disconnect the remaining nodes from each other" (e.g. for the structure to lose its viability)<sup>1</sup>. Thus, in the nodes and paths dialectic, the connectivity can be used for spatial configurational and urban network analysis, whether through calculations or through field's analytical methods. With calculations and observations of the nature, the ecological landscape field proposed both respectively structural and functional connectivity for fauna and flora. The space syntax *analysis* used the notion of connectivity, exclusively as calculation results to predict human behavioural responses in public spaces of the cities. Differently, I developed the notion of *visual connectivity* from the *viewpoint analysis*, as a landmark specificity of Wakaba dense patterns. It supposes supplementary tools based on visual nodes and paths and their evolving structuring, shaping a sort of visual "skeleton" or a visual structural matrix, that I named the *structural visual* 

<sup>&</sup>lt;sup>1</sup> The notion of connectivity is used for dynamic network systems (economics, physics, botanic, computer, medical and environmental sciences, etc...) to deal with notions such as speed, movement, complexity and space.

*connectivity*. The field's analysis of the "visual skin" comforted such model with the definition of the *functional visual connectivity*.

The viewpoints analysis is a singular and not yet implemented approach for the consideration of a local visual urban identity and a contribution to the ongoing research on the outdoors morphogenesis, in the case of very dense fabric in the vernacular Tokyo. The visual tools can evaluate the richness displayed through the tiny everyday open spaces in such small-grained blocks. It reveals singular visual patterns/identity in the different parts of the neighbourhood. The method could highlight some qualities of the visual scenery in the blocks and their innermost, such as being visually open/closed, lively/monotonous, etc, but also their organicity. The structures of the visual connectivity represent richer visual experiences, where the walking paths in private areas of the block are limited to few accesses. They highlight the inner-richness of the block and the back alleys. They call back to the embedded vernacular/ organic order, shared by the individuals/walker, through the layers of spatial appropriation's practices, but also the stimuli from the outdoors at the smallest and densest scale of the fabric. Such distinct outdoors are not residual and play a role for the maintenance of the local atmosphere. Moreover, I identified the dis-connective configurations, which are potential threats impacting on the fabric's dislocation and the atmosphere. They can benefit any placemaking stakeholders, starting by designers. The method is refined and enabled observation of processes, usually taken over from emotional expressiveness of the place. It is a contribution to the place making analyses, by broadening the scope and the ordinary practices. Each actors shaping and regenerating the space should recognize and compose with the *visual landmark*, the visual connectivity in such place, as a supplementary criteria, but also pay attention to the threatening dis-connective patterns. In conclusion, the methodological advancements of the viewpoint analysis [as both, a visual spatio-configurational approach to get the coherent visual structuring of Wakaba and a cognitive functional approach on the field to correlate the structural results with the reality of the atmosphere perceived], is a contribution to the analysis of the dynamic fields of morphogenesis of the small-grained dense fabrics and their regeneration processes. The visual landmark and visual connectivity underline part of the visual identity perceived in vernacular place and could further ahead be used for issues regarding the preservation of the HUL.

**Keywords:** morphology and morphogenesis of outdoors, spatial cognition, visual landmark, connectivity, viewpoints, small-grained densely built-up urban fabric, urban vernacular atmosphere, organic urban fabric, biophilia, complexity and beauty.

#### 研究旨

紙 狭い路地裏を散策すると、グローバル都市東京とは信じ難い光影がそこには有る。こうした場所は、都市空間と独自の関系性 を維持し、建築物が如何に密接し合っているかを認識する良い例だ。人々は、建物が林立する古い街並み、都市景観の混在という 、その特出した個当に刺激を受け日々生活する。彼らは時折、入念に認られた建築物もしくは居住者の屋外空間こ、異なる資材 で造られた視覚的質感、またそれら配置方法の複雑当に静寂の美を見出す。加えて、世界水準の建築技術巨大建築物及び屋外空 間の標準が認けと共存する運動が統一や規模ヒューマンスケールと比較し大規模である)もまた同様だ。個人所有地の屋外空間こ は、住人が着手した特有の景観が存在し、この匿名かつ継続が変化の構造への一種の貢献となる。江戸期建築物の残存数は限定的 である上、日本の世界化は極めて顕著。また、再開発も増加傾向にある。しかし実際、その根亀、地域が個当よ一目瞭然だ。(空 間が角條の下、個人的自由を保護する手段が多く存在する)小規模区域研究に付随するこうした得意性は、街所成の重要な要素及 び、その一種絵画的風情を理解する上で有益だ。

大都市の歴史的都市景観こおける密集した木造建築。一部地域では、その火災危険が指摘される。狭小路地に加え、木造という 脆 弱性故だ。長年、都市の袋小路よ人々の関心を集めると同時こ、その殆どが貧民窟の一掃や再開発の標準となって来た。しかし、 こうした木造住宅密集地動が醸す独自の空気は、大都市特有の田白感を軽減し、都市への理発を深化させる<sup>1</sup>。東京こおける、住 宅密集地区の再開発は複雑だ。新古の都市形態が世界的不動産市場や政治的選択という経済が重正と共工動、為だ。都市部におけ る、脆弱な密集住宅建築の割合を考慮すると、新たな都市形態への急速な移行は医難であろう<sup>2</sup>。しかし、古い密集住宅市街地の 査定基準においては、一種の傾向としての形態形成が特異性から来る「精神、狭小路地の希少価値」屋が構造の目印としての価値 は殆ど考慮されない。こうした地域の特性は、区画整理、又は人や猫専用の通り道であった路地の拡張工事こより容易こ失われ影 響を受ける。そして、再開発支持派による「整理統合」と称された都市型建造物、巨大タワーマンションが不適切にも小型木造住 宅の真描に建定すれ続ける。屋外構造の希少性、接続が特徴、私有地・公有地の曖昧地が生み出す豊かな個性は、軽率な再開発に より破壊される可能地が高い。従来型都市設行では、大通りを中心とした街站みの美化が重要発起れる。一方、街区内設には軽視 され、狭小路地、裏庭、家国部の「余利」空間といった小規模な屋外空間に渡ろにされる。よって、ここで要を唱えたい。時こ、 密集地において、最小区分は、風読を認識する要因と成り得る。

本論は、対象物と都市空間の関連性を問う事で導き出される現象論に基づく <sup>3</sup>。しかし同時に、地部外空間が分析にも言及す る。しかし、第一段階として、研究対象地選択に向けた東京新宿区内の散策の過勤が、分析的手段の発見に結び付いた。視覚的歩 行の結果、景色からの影響により行動が引き起こされるというものだ。こうした、異なる屋外空間に関する「視覚が行動」は視覚 的制修の下、研究対象地の観察が評価に基づく分析的手段に繋がった。好奇心に刺激され、旧中心地特有の木齿建築に足が止まる 。道は街区の最奥に向け紙 なり、住人により 整備された美しい緑は、彼らの生活に潤いを与えている事が解る。景観要因の確認 の進行と 同時に、この地が密集地であると 再認識させられる。こうした密集地の風景は、人々に瞬時に視覚的歓喜を与え、都市の 本質から乖離するための強力な媒体ともなる。また各都市型建造物及びその規模の明確な構造に順応した言語(「視覚的行動」) 形成を 司る。観点より、景観・都市形態論要素の認識地、妨害物の有無、距離に関する厳密な「静観双集等が可能だ。これを各歩行 者による精巧な「視覚的模様」の描写だと捉えるのも良い。そうすることで、彼らは土地の所有感を得る<sup>4</sup>。よって、対照的な屋 外空間への観点は、研究が像地選択手段、そして研究自体の目的となった。本研究では、首都における密集住宅市街地の事例研究

<sup>1</sup>ダウン、スティ 共著書(1977年)、ジャンその他学者による引用(2000年)参照。

<sup>&</sup>lt;sup>2</sup> 法律では、不動産会社が「昇赴れる他、交通、安全、消火活動を優先する内容となっている。2006年、新たに改正された景観法は、 文化的景観における地域の特異性を認識する第一歩となった。

<sup>3</sup>都市構造の心理地理学的側面は、状況主義者の漂流手法に類似。

<sup>4</sup> 一部学者は、本側面をリンチによるボストンの認識地図の例として説明。

として若葉2丁目・3丁目を対象とした。明治時代後期、若葉地図は、庶民的地域として人気の高い場所であった。時代と 共こ区 画整理が進み、強力な地域社会も構築された。 第二次世界大戦後も、その絆が復興を支えた。 日本がバブル景気に沸いた1980 年代、地価は高騰し、若葉地区の長屋は「小浅草」と命名され、非常に活気付いていた。その後徐々に、商工業者の町、閑静な住 宅地へと変化した。結果、密集住宅地が誕生し、意図的に配置された緑は街に彩りを添えた。快適な佇まいと、年間の住人が抱く 地域への誇りにより、哀愁に満ちた「下町の雰囲気」が形成された。しかし若葉地図は近年、その木造住宅と狭小屋外空間の密集 率から、災害時に著しく危険な密集市街地の一つに挙げられる。今後、より優れた都市景観再生に向け、若葉地区独自の風話を強 調する分析、明確な誤悰、並に基準には不可欠だ。基整設ける事で、多様生、複雑生、基本的尺度を見直す事も可能な る。また、土地の認識に伴い、若葉地区の独自性と密集市街地への理解度も向上する。一部学者は、土地に根本「日都市型建造物 の空間状況を分析している。コンゼンは、その形態形成を研究。ジッテは、有機的日中心地における屋外空間の配置より生じる芸 術的効果に潜む法則を発見。アレグザンダーもまた、同様の(小規模又は平均的規模)都市構造の背景から見える有機的研究強 調している。また平行して、リンチ、ゲール、サリンガロス、アントロップ、生命愛的都市語情派、その他現象学「からの科学的 手段は、その土地の存在意義への共感や安全性の評価又は危険生への懸念の背景こ存在する、異なる基準の挙例[複雑性、ヒュー マンスケール、密着性、囲縛性、透明性、印象形成の度合、相関関係等目により空間認識やその感情が関系性を強制した。都内の 小区域に関する最新研究もまた、密度、強度、弾力の結合により同側面を重視している<sup>2</sup>。ウイーン・メモランダムではおよそ、 遠隔地の風景、広端、建造物の輪部、又は視覚的図解経由の伝達手段を用いると共こ、歴史的都市景観内の視覚が摂動生が捉えら れた。しかし、文化的風景の貴重な目印として認識される事が無かった為、その観点は小規模に留まる。実際、認识思想の追加基 増は、地域の視覚的目印決定に有益だ。これは木造密集市街地という都市の特徴の一つでもある。屋外空間における観点の分析は 、僅かながら、こうした場所での別の認知的目印の発見こも繋がる。

屋外空間の形態学的特徴や、住人がそこに抱く緊密さにより、門前の小区画から地域全体に至るまで、彼らが定める価値の一部は 決定付けられる。視覚に基づく分析的手段の活用は、土地の個地を評価する上で一つの選択を成り得る。ここでは、土地が持つ 特徴的屋外空間の変化や認識が観察の形態形成的及び地形が空間分析という二つの観点から若葉地区における「視点型分析」を提 唱する。本分析は、第一過をして、各時代の地図収集により可能となる、屋外空間の層状分析に適応された一連の視覚的手段を 用いた綿密な作業に基づく。このような手段は単純に、公が空間において、建築物や横断線の存在により阻止されるが、視覚線よ り誕生する。本手法は、視覚線地図の進出に関する複数の結底を基に仮定される。本研究法は、形態学がものと同時に行われる場 合と比較し、より具体性に富む。よって所謂土地の「視覚的目印」を定義する為の木造建築に関する分析結果の入手に成功した。 年月が生んだ屋外空間の構築層により、そこに組み込まれる構造的空間配置は強いたれる。続いて土地の「視覚的質感」を観察す ることで、空間が理解の一般基準を研究。視覚的手段はまた、こうした屋外空間の視覚的描述の空か行した。「視覚的描述」と いう新概念の導入は、視聴の複雑性が誘発する前向きな感情の背景に存在する法則を機能的に感味する一切と成り得る。

視覚的手段により確認された、密集する屋外空間の構造か、機能が持ちより深、理解する目的で、グラフ理論に由来する接続性の概念を用いた。著者ディーステルは、論文(2005年出版/12頁)の中で、接続地を「残留ノードを互いに切断し合う目的で動かされる要素(ノード又はエッジ)の最小数に一致する」との解釈を示している<sup>3</sup>(例:構造の生存能力紛失)。よって、ノードや道の理論に関し、接続地は、計算又は土地の分析的手段による空間形状及び都市ネットワークの解析に応用可能だ。自然の計算・観察により、生態学的景観は、動植物の構造又は機能が接続地を提案した。空間的構成分析」は専ら、都市の公共空間における人間で動の反応予測計算に接続地の概念を用いた。本研究では新たに、若葉地区の密集住宅地を例こ、目印としての特異性

<sup>&</sup>lt;sup>1</sup> 複数の実験型観察を理論的基礎へと結合させ、経験と同時に取り組む科学的アプローチ。

<sup>&</sup>lt;sup>2</sup>シュルツ(2007年出版/19-28頁)及びラドヴィチ/ブンタム共著(2012年出版)書参照。

<sup>&</sup>lt;sup>3</sup> 接続地の概念は、速度、動作、複雑性、空間の処理目的で、動がネットワークシステム(経済、物理が避動植物、コンピューター、医学、環境 科学等) に利用される。

を「視点分析」から「視覚的接続性」へと展開した。即ち視覚的ノードと道、またそれらが進化する構造や、一種の視覚的「骨格 」又は視覚的構造基盤形成に基づく補足手段の提案だ。ここでは、それを「構造型視覚的接続生」と命名する。「視覚的質感」に よる土地の分析は、「 機構捏視覚的接続生」の定義の下、こうした理論の意味合いを強化する。「 視点分析」は、その強い独自性 にも関わらず、東京特有の過密性宅地のような、都市における特定地域の固有性を視覚的に考慮し、既存の屋外空間が態形な研究 への貢献、配慮する段階には未だ到達していない。視覚的手段により、木街建築密集地図における日常の狭小屋外空間から見える 風情は評価可能である。それにより、地域内各地こおける独特な視覚的模様又は個性は明らかとなる。本手段では往区、またその 最奥こおける開放度、活気度、有機生物の視覚的景観の側面を強制する事が可能で。「視覚的接続性」の構造は、後区私有地内で 歩道利用が制成れる場合の、より豊かな視覚的研究を代表する例だ。また、街区や裏面の内的価値、強制する。よって、空間 的配当により誕生する層や、最小規算かつ最密集状態の下、建物は外的空間から刺激を受ける。そして、各個人又は歩行者が共有 する、本来の土地固有型・有機が秩序は呼び戻される。このような特特な屋外空間は、決して無疑では無い。むしろ土地の風情こ 不可欠な要素だ。加えて、建築物の解本・景観破索といった危険生を招、非務部価置も特定された。その応用は認識社を始め、 全土地監視脈者に有益となる。その方法とは、通常土地への感情表現に取って代わる、全断記の厳密かつ効果的観察だ。それは 、知覚範囲や一般作業の拡大を通じた、土地55分析への貢献でもある。空間が成・再生の各種要因よ、こうした場所において、 補足基準として「視覚的目印」や「視覚的接続性」と共に認識・構成されるべきだ。また、脅威的な非務続的傾向も考慮すべきで ある。結論として、「視点分析」(若葉地区の視覚が密集構造器織目的の視覚型空間・地形が取り組み、また、認知的風情の現実 という構造は結果との相互関系は特目的の土地認識が経察地に)の方法論が発展は、木造住宅密集地域及び、その再生過程の形 態形成の動的土地の分析に貢献する。「視覚的目印」及び「視覚的接続性」は、特定地域において認識される視覚的独自性の一部 

重要語句: 屋外空間の形態学及び形態形成、空間器織、視覚的目印、接続性、観点、木造密集市街地、都市独自の風情、有機が都 市型建造物、生命愛、複雑性と美。

#### ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to all those who have contributed to the completion of this thesis to whatever extend through their advices, expertise and encouragement.

Firstly I want to cordially address my special appreciation to the Ministry of Education, Culture, Sports, Science and Technology (MEXT, Monbukagakusho) for awarding me a doctoral scholarship without which this research wouldn't have been possible. Additionaly, I wish to thank GCOE for their financial support regarding international conferences and research funds.

In second I wish to deeply thank my main supervisor, Prof. NISHIMURA Yukio for his help, the precious advices, encouragements he displayed to me, through the tumultuous aspects and changing patterns my research took. Together with Prof. Nishimura, I benefited from support from my 2<sup>nd</sup> mentor, Prof. KUBOTA Aya, who generously shared her expertise and material, with whom I could have long discussions and exchanges while finalizing this work and showing wholehearted more confidence in me and my research than I did in myself. I am also grateful to the members of my final defense committee, Prof. DEGUCHI Atsushi, Prof. MURAYAMA Akito and Prof.r OTA Hiroshi for their orientations, advices and the fruitful discussions we shared. I am very lucky and rewarded to have received such knowledge and long discussions from very open-minded, supportive and engaged individuals. It enrich my research, brought me to re-question fundamental issues, but also help me to apprehend the reality of Japanese conditions regarding Tokyo HUL and morphological studies.

Further ahead, I wish to thank also professors from our Urban Design Laboratory for their help, sharing precious comments and sources, as DIMMER Christian, KUROSE Takefumi, MATSUDA Tatsu, NAGASE Setsuji, and NAKAJIMA Naoto.

In parallel, I wish to thank all the members of the APIEL program (Asian Program for Incubation of environmental leaders), from my coworkers, the professionals and academics I collaborated with during the OASIS field workshop in ZhangYe and Ejina cities of China, and to the different professors of the field. In that regard, I deeply wish to thank Prof. AKIYAMA Tomohiro, Prof. AN Kyoung Jin, Prof. LI Jia, and Prof. ONUKI Motoharu for their enthusiasms and strong encouragements. This experience broadened my perspectives, my understanding of Asian issues through the multi-disciplinary approach provided.

Conducting a research is a rather collective process involving the cooperation of many stakeholders upstream, especially during the maturing of the main questions and the study

field process. In that regard I would like to address my deep thanks to all the members of Wakaba area living in the district 2 and 3, for their hospitality and their generosity in taking actively part in discussing and answering the questionnaire I submitted to them. Upstream, I wish to thank as well Prof. CHIU Alice, Prof. LIEBS Chester and Prof. KULSRISOMBAT Niramon for their encouragements.

I also wish to thank all the present and ex Urban design laboratory members and friends who contributed to help me to any kinds of extend, through simple words, technical help and with encouragements. I wish to address my sincere thanks to administrative help and daily life advices provided by the secretaries from our laboratory Ms IKARASHI and Ms SUZUKI, and the administrative members of our department of urban engineering, especially Ms KAKIZAKI Yasuko and Ms IKEDA Izumi from APIEL program.

I deeply thank my friends in Japan and in France for their unconditional support and friendship during difficult times, especially teachers of tea-ceremony Ms OKUYAMA Hatsuko, shamisen Ms NISHIMURA Makoto, M. AWABAYASHI Masataka, my violinmaker and his family, and the family friends KOBAYASHI Marie-France and Kaoru. I am particularly indebted to AROZ Aingeru, doctoral student at Tokyo University as well, for his supportive friendship, the wonderful work of interpreter he made, during the field survey in Wakaba. I thank deeply my friends AROZ Aingeru, GONZALEZ SEGOVIA Octavio, WU William, for their helps in the proofreading and their comments on my draft; Many thanks to SAAL Samuel and MANZONE Salvo for their supportive coaching and for assisting me in any computer system problems. A special thank to Boogie the family cat for his warmth.

I apology in advance, if I inadvertently omitted anyone to whom acknowledgment is due. I emphasize my sympathy and kind considerations for their contribution in this research.

Lastly, but not the least, I want to thank from the bottom of my heart, my mother RADU Emilia, whom unconditional love, support and confidence provided me the energy and the positive feelings, during all the different steps and state of my life in Japan, with the up and down that such hard and fascinating work of research can bring.

#### TABLE OF CONTENTS

ABSTRACT	III
LIST OF ILLUSTRATIONS AND TABLES	XVI
LIST OF APPENDIX	XVIII
INTRODUCTION	
1. Research questions	3
2. Hypothesis and significance	8
3. Methodology and limitations	12
4. Chapter outlines	
PART I: LITERATURE REVIEW APPROACHING THE QUESTION	
1. THE NOTION OF CONNECTIVITY AND ITS USES IN LANDSCAPE AND URBAN FIELD	os 26
1.2. General definitions of connectivity	
1.3 Connectivity in the urban web theory	
1.5. Connectivity in the urban web meory	
1.5. The connectivity graph in the space syntax analysis	
1.5.1 Space syntax approaches and critics	
1.5.1. Space syntax approaches and entries	
1.6 Conclusion	48
OUTDOORS	
2.1. Introduction	53
2.2. First morphological characterizations of outdoors spaces in old cities	53
2.2.1. Brief review on the roots of morphological studies of historical urban complexes	53
2.2.2. Sitte: the art of composing outdoors spaces in old cities	55
2.2.3. The Beauty through the picturesque effect	58
2.3. Review on the visual field research: the spatial readability and some visual methods	60
2.3.1 Notions around the perception of a place	
2.3.2. Discussion on visual approaches for the outdoors	64
2.3.3. The visual relationships through methods used for the HUL	71
2.4. Other approaches on the urban environment: Biophilia and the organic order	73
2.4.1. Biophilic design approach on the outdoors	73
2.4.2. The organic order to regenerate the small part of the city	80
2.5. Conclusion	84
PART II: CASE STUDY ON OUTDOOR SPACES IN WAKABA AREA OF SHINJUI	KU 97
WARD, IUNYU	ð/
3. THE CHOICE OF THE CASE STUDY AREA: CONTEXT, CHALLENGES OF THE URBAN I FABRIC OF TOKYO	DENSE 90
5111 IIII VWWVWVII	

3 2 1		
5.4.1	. Edo and its urban settlements' morphological roots	
3.2.2	. Structure of Shitamachi: the nagaya-system, a socio-spatial urban dense entity	
3.2.3	. From Meiji restauration to modern shapes in urban traditions	
3.3.	Major issues for the dense urban fabric of Tokyo in a globalizing post-war context	101
3.3.1	. Review on a set of policies and urban regulation tools affecting urban neighbourhoods structure fr	om the Post-
war,	to the Bubble burst and the lost decades	
3.3.2	. Review on the local urban impacts from the waves of deregulations and re-regulation	
3.3.3	. Tokyo urban legacy	
3.4.	Shinjuku cultural landscape	113
3.4.1	. Information on Shinjuku ward	
3.4.2	. Cultural landscape division map	
3.5.	Selecting the case study area of Wakaba in Shinjuku ward	117
3.5.1	. Precising my position of stroller, as a foreign architect	
3.5.2	. Visual behaviours on outdoors defining characteristics for the selection	
3.5.3	. Narrowing the choices toward Wakaba neighborhood	
3.6.	Wakaba area: background and data collecting	128
3.7.	Conclusion	
HE CHC		
не сно 4.1. 4.2	Introduction	143 144
4.1. 4.2.	Introduction Premiminary notes on Wakaba analysis and methodology Precise delineation of the study area in Wakaba: 2 types of visual relationships	143 144 144
<b>4.1.</b> <b>4.2.</b> 4.2.1 4.2.2	Introduction Premiminary notes on Wakaba analysis and methodology Precise delineation of the study area in Wakaba: 2 types of visual relationships The choice of the Map supports	143 144 
<b>HE CHC</b> <b>4.1.</b> <b>4.2.</b> 4.2.1 4.2.2 4.2.3	Introduction Premiminary notes on Wakaba analysis and methodology Precise delineation of the study area in Wakaba: 2 types of visual relationships The choice of the Map supports Notes on the chosen outdoor spaces	143 144 
<b>4.1.</b> <b>4.2.</b> 4.2.1 4.2.2 4.2.3 4.2.4	Introduction Premiminary notes on Wakaba analysis and methodology Precise delineation of the study area in Wakaba: 2 types of visual relationships The choice of the Map supports Notes on the chosen outdoor spaces Notes on the method to approach the present situation through comparative old maps	143 144 144 146 147 
<b>HE CHC</b> <b>4.1.</b> <b>4.2.</b> 4.2.1 4.2.2 4.2.3 4.2.4 <b>4.3.</b>	Introduction Premiminary notes on Wakaba analysis and methodology Precise delineation of the study area in Wakaba: 2 types of visual relationships The choice of the Map supports Notes on the chosen outdoor spaces Notes on the method to approach the present situation through comparative old maps Primary analysis on outdoors	
<b>HE CHC</b> <b>4.1.</b> <b>4.2.</b> 4.2.1 4.2.2 4.2.3 4.2.4 <b>4.3.</b>	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps         Primary analysis on outdoors         Approach on built and public space changes	143 144 144 146 147 148 148 148
HE CHC 4.1. 4.2. 4.2.1 4.2.2 4.2.3 4.2.4 4.3. 4.3.1 4.3.2	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps         Primary analysis on outdoors         Approach on built and public space changes	143 144 144 146 146 148 148 148 148 148 
HE CHC 4.1. 4.2. 4.2.1 4.2.2 4.2.3 4.2.4 4.3. 4.3.1 4.3.2 4.3.3	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps         Primary analysis on outdoors         Approach on built and public space changes         Conclusion- discussion	
HE CHC 4.1. 4.2. 4.2.1 4.2.2 4.2.3 4.2.4 4.3. 4.3.1 4.3.2 4.3.3 4.4.	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports.         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps.         Primary analysis on outdoors         Approach on built and public space changes         Approach on density of the outdoor spaces         Conclusion- discussion         Viewpoints morphological analysis on the outdoors of Wakaba	
<ul> <li>HE CHC</li> <li>4.1.</li> <li>4.2.</li> <li>4.2.1</li> <li>4.2.2</li> <li>4.2.3</li> <li>4.2.4</li> <li>4.3.1</li> <li>4.3.2</li> <li>4.3.3</li> <li>4.4.</li> <li>4.4.1</li> </ul>	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps         Primary analysis on outdoors         Approach on built and public space changes         Conclusion- discussion         Viewpoints morphological analysis on the outdoors of Wakaba         Viewpoints tools description and methodology	
<ul> <li>HE CHC</li> <li>4.1.</li> <li>4.2.</li> <li>4.2.1</li> <li>4.2.2</li> <li>4.2.3</li> <li>4.2.4</li> <li>4.3.1</li> <li>4.3.2</li> <li>4.3.3</li> <li>4.4.</li> <li>4.4.1</li> <li>4.4.2</li> </ul>	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps         Primary analysis on outdoors         Approach on built and public space changes         Approach on density of the outdoor spaces         Conclusion- discussion         Viewpoints morphological analysis on the outdoors of Wakaba         Outcomes: viewpoints analysis maps	
<ul> <li>HE CHC</li> <li>4.1.</li> <li>4.2.</li> <li>4.2.1</li> <li>4.2.2</li> <li>4.2.3</li> <li>4.2.4</li> <li>4.3.1</li> <li>4.3.2</li> <li>4.3.3</li> <li>4.4.</li> <li>4.4.1</li> <li>4.4.2</li> <li>4.4.3</li> </ul>	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps.         Primary analysis on outdoors         Approach on built and public space changes         Approach on density of the outdoor spaces         Conclusion- discussion         Viewpoints morphological analysis on the outdoors of Wakaba         Viewpoints tools description and methodology         Outcomes: viewpoints analysis maps         Data processing and results	
HE CHC 4.1. 4.2. 4.2.1 4.2.2 4.2.3 4.2.4 4.3. 4.3.1 4.3.2 4.3.3 4.4.1 4.4.2 4.4.3 4.4.4	Introduction. Premiminary notes on Wakaba analysis and methodology	
HE CHC 4.1. 4.2. 4.2.1 4.2.2 4.2.3 4.2.4 4.3.1 4.3.2 4.3.3 4.4.4 4.4.1 4.4.2 4.4.3 4.4.4 4.4.3 4.4.4 4.4.5	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps.         Primary analysis on outdoors         Approach on built and public space changes         Approach on density of the outdoor spaces         Conclusion- discussion.         Viewpoints morphological analysis on the outdoors of Wakaba         Outcomes: viewpoints analysis maps         Data processing and results         Conclusion and discussion: the visual landmark         Accurate approach on the viewpoints analysis: toward structural visual connectivity	
HE CHC 4.1. 4.2. 4.2.1 4.2.2 4.2.3 4.2.4 4.3. 4.3.1 4.3.2 4.3.3 4.4.4 4.4.1 4.4.2 4.4.3 4.4.4 4.4.5 4.5.1	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps.         Primary analysis on outdoors         Approach on built and public space changes         Approach on density of the outdoor spaces         Conclusion- discussion         Viewpoints morphological analysis on the outdoors of Wakaba         Viewpoints tools description and methodology         Outcomes: viewpoints analysis maps         Data processing and results         Conclusion and discussion: the visual landmark         Accurate approach on the viewpoints analysis: toward structural visual connectivity         Purpose and description for additional viewpoints tools, as visual connectivity tools	
HE CHC 4.1. 4.2. 4.2.1 4.2.2 4.2.3 4.2.4 4.3.1 4.3.2 4.3.3 4.4. 4.4.1 4.4.2 4.4.3 4.4.4 4.4.2 4.4.3 4.4.4 4.5.1 4.5.2	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps.         Primary analysis on outdoors         Approach on built and public space changes         Conclusion- discussion         Viewpoints morphological analysis on the outdoors of Wakaba         Viewpoints tools description and methodology         Outcomes: viewpoints analysis maps         Data processing and results         Conclusion and discussion: the visual landmark         Accurate approach on the viewpoints analysis: toward structural visual connectivity         Purpose and description for additional viewpoints tools, as visual connectivity tools.         Resulting maps analysis	
HE CHC 4.1. 4.2. 4.2.1 4.2.2 4.2.3 4.2.4 4.3. 4.3.1 4.3.2 4.3.3 4.4.4 4.4.1 4.4.2 4.4.3 4.4.4 4.4.5 4.5.1 4.5.2 4.5.3	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps.         Primary analysis on outdoors         Approach on built and public space changes         Approach on density of the outdoor spaces         Conclusion- discussion         Viewpoints morphological analysis on the outdoors of Wakaba         Viewpoints tools description and methodology         Outcomes: viewpoints analysis maps         Data processing and results         Conclusion and discussion: the visual landmark         Accurate approach on the viewpoints analysis: toward structural visual connectivity.         Purpose and description for additional viewpoints tools, as visual connectivity tools.         Resulting maps analysis.         Further interpretations and the four viewpoints features ABCD.	
HE CHC 4.1. 4.2. 4.2.1 4.2.2 4.2.3 4.2.4 4.3. 4.3.1 4.3.2 4.3.3 4.4. 4.4.1 4.4.2 4.4.3 4.4.4 4.4.2 4.4.3 4.4.4 4.5.1 4.5.2 4.5.3 4.5.4	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps.         Primary analysis on outdoors         Approach on built and public space changes         Approach on density of the outdoor spaces         Conclusion- discussion         Viewpoints morphological analysis on the outdoors of Wakaba         Viewpoints tools description and methodology         Outcomes: viewpoints analysis maps         Data processing and results         Conclusion and discussion: the visual landmark         Accurate approach on the viewpoints analysis: toward structural visual connectivity         Purpose and description for additional viewpoints tools, as visual connectivity tools.         Resulting maps analysis.         Further interpretations and the four viewpoints features ABCD.         Conclusion - Discussion on visual structural connectivity and its interpretations	
HE CHC 4.1. 4.2. 4.2.1 4.2.2 4.2.3 4.2.4 4.3. 4.3.1 4.3.2 4.3.3 4.4.4 4.4.1 4.4.2 4.4.3 4.4.4 4.4.2 4.4.3 4.4.4 4.5.1 4.5.2 4.5.3 4.5.4 4.6.	Introduction         Premiminary notes on Wakaba analysis and methodology         Precise delineation of the study area in Wakaba: 2 types of visual relationships         The choice of the Map supports         Notes on the chosen outdoor spaces         Notes on the method to approach the present situation through comparative old maps         Primary analysis on outdoors         Approach on built and public space changes         Approach on density of the outdoor spaces         Conclusion- discussion         Viewpoints morphological analysis on the outdoors of Wakaba         Viewpoints tools description and methodology         Outcomes: viewpoints analysis maps         Data processing and results         Conclusion and discussion: the visual landmark         Accurate approach on the viewpoints analysis: toward structural visual connectivity         Purpose and description for additional viewpoints tools, as visual connectivity tools         Resulting maps analysis.         Further interpretations and the four viewpoints features ABCD         Conclusion- Discussion on visual structural connectivity and its interpretations         Conclusion: viewpoint tools, visual spatial configurations and structural visual connectivity and its interpretations	

5.1.	Introduction	202
5.2.	General observations on the outdoors in the neighborhood	203
5.2.	1. Words from the residents of Wakaba 2 <sup>nd</sup> and 3 <sup>rd</sup> districts: mapping their place's image	
5.2.	2. Mapping the different uses of the outdoors in the neighbourhood	209
5.3.	The elements of the visual field and the outdoors' appropriation	214
5.3.	1. Selection of three main criteria for describing the visual skins in small Wakaba	
5.3.	2. The elements of visual disconnection threatening the local visual scene	221
5.3.	3. Emotional criteria on the perception of the outdoors in the four visual typologies ABCD	
5.4.	Structural visual connectivity and functional visual connectivity in Wakaba	232
5.4.	1. Confronting the view-crossings and the view-axes with the reality of the field	
5.4.	2. Experiencing the functional visual connectivity	239
5.4.	3. Discussion on the outcomes of the functional and structural visual connectivity	
5.5.	Discussion: visual connectivity, as a singular local urban landmark in Wakaba	250
5.5.	1. Visual connectivity emphasizing the local scenic features in Wakaba	
5.5.	2. The contribution of Wakaba's viewpoints analysis for designers and the community	
5.5.	3. Opening the debate on the visual connectivity of vernacular small outdoors	
5.6.	Conclusion	266
CONCLU	ISION	
1.	Chapters'summaries	271
2.	Main outcomes of the research	276
3.	Further questions and possible studies	278
APPEND	IX	
BIBLIOG	SRAPHY	

#### LIST OF ILLUSTRATIONS AND TABLES

Figure 1: From top to bottom, Königsberg bridge and its associated graph/ Transition stage with a critic probablity/ Random graph: Abstract stone by a grid 50*50 with representations of the channels/ Directed Random graph, 20 nodes, probability p = 0.1, instance 1	al 27
Figure 2: From top to bottom and left to right: Concept for landscape corridors/ Four types of measures	
to counter the effects of habitat fragmentation/ The hypothetical landscape from graph theory/	
Concentual model for the connectivity conservation.	37
Figure 3: a-The Gibson's ambient optic array/b- The relationship between Isovists, Lines of sight and axial lines/ c- from axial line to the isovist as a set of radiating sightlines/Schema interpreting conve	ex
and concave shapes from Mireille Tchapi.	40
Figure 4: Top, the greater London, global and local integration maps / Down, a part of the greater	
London, global and local integration maps and graph	41
Figure 5: Visual influence of configurations in network	44
Figure 6: 5 morphological principles for piazzas of a traditional town by Sitte	56
Figure 7: Characteristics of visual encounter within urban environment	70
Figure 8 : Different visual methods for the scenic viewpoint of the HUL	72
Figure 9 : Biophilic design patterns and biological responses	78
Figure 10 : Detail on the 14 patterns	79
Figure 11: left, Edo urban pattern on topography, east side of the castle. / right, topography of Tokyo	92
Figure 12: Spectrum of Shitamachi, within Edo spatial structure 1859	93
Figure 13: Hatamoto organization, topography, plot and blocks	94
Figure 14: Top, block division system in Edo: A-Hatamoto residences, B- models for Shitamachi, C grid	
found in Nihonbashi / Middle, photo from Anjincho (安針町) in the Nihonbashi district in 1872/	
down, the entrance of an alley of Shitamachi	95
Figure 15: Top, Nihonbashi modernized window in 1928/Middle, Outdoors from nagaya in Tokyo, 1928/	/
Down, Street re-allotment campaign from Ministry of interior poster/ 1	.00
Figure 16 : Different types of urban fragments (planned and unplanned) in Shinjuku ward from late 50'	's 102
Figure 17: Successive deregulation and incentives to contruct more FAR	.08
Figure 18: Panel with different maps (From left to right and top to bottom, Shinjuku ward maps of district map, topography, Zoning areas, fire disaster map, FAR, activities, master plan, green map	p). 14
Figure 19: Selection of areas in Shinjuku ward (red colour and circles) for their morphological specificities and high densities of their outdoor spaces	16
Figure 20: The viewnoints and visual behaviour:	21
Figure 20: The viewpoints and visual benaviour manual field of the selection of the site selection process in Shinjuku ward, focusing on the specificities of their outdoors (morphology and	21
densitiy) 1	.25
Figure 22 : Wakaba zoom on topography and street's slopes1	26
Figure 23 : Top-down, from left to right: Among the main signals- elements that attract the view for the walker, as the wide open spaces from temples, shrine and their cemeteries, perspective within sharp slopes of streets, important elements from the local history or attesting the topography ( <i>tori</i> from	р
shrine, stairs, wells, old small channel), singular houses (old deteriorated house, traditional red hou	ise
and <i>kura</i> house), small lanes inspiring curiosity	27
Figure 24 : Extract from 1883 map, Yotsuya area1	28
Figure 25 : Left (top and down), localization of wakaba area in extracts' maps of informal patterns in Edo/ Right, Wakaba topographical curves	29
Figure 26 : Wakaba district and surroundings, walking tour and cultural assets	29
Figure 27: Left- The shark river bridge dinner time, October 1903/Right- "Leftover store-Tokyo dark"   Matsubara	by 30
Figure 28: Water elements in Wakaba area, in Edo, Meiji and Heisei	31
Figure 29: Wakaba 2-3-chome area, historical maps' extracts 1	32
Figure 30: Wakaba area before and after US raids in 1944 and 1947, extracts from photo archives 1	33
Figure 31: Wakaba area, extracts from Shinjuku ward maps (topography, district map, zoning map,	
landscape division map, activities map, fire disaster map, FAR map, green map)	34
Figure 32: Wakaba area, extracts from Shinjuku ward maps (topography, district map, zoning map,	36
ranuscape urrision map, acurrico map, me uisasier map, rAK map, green map) Figure 33: Walaaha 2-3 chome selection oritoria/ hottom laft 10 samnlas division for analysis	11
rigure 55. Wakaba 2-5 chome, sciecuon crneria/ bouom ich, ro samples uivision ior analysis	

Figure 34: Wakaba 2-3 chome, 15 to 10 samples division for analysis	145
Figure 35: Extract from Zenrin row map of Wakaba 3 <sup>rd</sup> district	146
Figure 36: Right, streets' evolution maps from 1850 to 2008 in Wakaba sample 1/ Left, Built changes	s from
1999 to 2008	149
Figure 37: Public streets evolution: superposition from different periods (1967 to 2008)	150
Figure 38: Streets evolution from 1967 to 2008	151
Figure 39: Main street length 2008	152
Figure 40: Evolution of alley's length and total length (in meter) from 1967 to 2008	152
Figure 41: Wakaba 2-3-chome fabric evolution from 1967 to 2008	156
Figure 42: Wakaba 10 block-samples, metric data on built and alleys from 1999 to 2008	159
Figure 43: top: Position of my viewpoints line regarding academic field (a.b.c)/ middle: Principles/ D	own:
views' tools (zoom on sample 1)	163
Figure 44: Evolution of viewpoints from 1967 to 2008	172
Figure 45: 6 panels for evaluation and calculation by sample-block of view's evolution	174
Figure 46: graphs on evolutions (1967-2008) of views' length and numbers by types for each sample	and
their total number Source: Author work with Autocad software	176
Figure 47: 2008 vs 1976 viewnaints	178
Figure 48: Principles for selecting the viewpoints and defining the 2 connectivity tools (ex. sample 1)	182
Figure 49: View axes and crossing noint's evolutions from 1967 to 2008	185
Figure 50: Table by sample from view-crossing points and view-aves by year of study	185
Figure 50: Fable by sample from data made for each samples analyzed from 1067 to 2008 samples 1.5.6 an	103 d 2
Figure 51. Extracts from data made for each samples analyzed from 1907 to 2000, samples 1-5-0, and	u 2 186
Figure 52: Creant for numbers of view prossings and view areas valution from 1967 to 2009	100
Figure 52: Graph for humbers of view-crossings and view-axes evolution from 1907 to 2000	100
Figure 55: Drameters from view-crossing points and evolutions from 1907 to 2000	190
rigure 54: Preserved and disappeared view-axes and view-crossing spots between 1970- 2008 / select	1011
singular outdoors from the viewing analysis Source: Author work	191
Figure 55: Outdoor spaces with high visual connectivity value since more than 50 years	192
Figure 56: Broad characterization of the outdour spaces	194
Figure 57: Photo from Wakaba 3 chome in 1956 and in 2011, at the crossing of two main streets	203
Figure 58: Wakaba 2-3 chome image from resident's words	206
Figure 59: Functions and outdoor's perception in Wakaba 2-3- chome	210
Figure 60: Left, three examples for the rich multiplicity of objects at a glance/ Right, two examples o	t poor
multiplicity in a visual field.	216
Figure 61: multiplicity of pavement patterns in private outdoor spaces by a group of neighbours (on	the
top, five types for the neighbours' group, stones, gravels, tar, soil and concrete/ down left, two	•10
separate private pavement/ down right, coal tar used for public space of street and alleys)	218
Figure 62: Complex and non-complex patterns	219
Figure 63: Following visual scaling paths in Wakaba sample 7 (from left to right) - starting on the m	ain
street (1 <sup>st</sup> photo) - an access to an old wheel small piazza (2 <sup>st</sup> to 4 <sup>st</sup> ) - inner-block house's access	(5 <sup>th</sup>
photo) - inner block alleys and private paths (6 <sup>th</sup> to 8 <sup>th</sup> ) -back to the main street (9 <sup>th</sup> photo)	220
Figure 64: Wall-constructions injected in old frame and destroying visual paths, Wakaba-3-chome (f	from
left to right, 1 <sup>st</sup> -sample 3, an office building, 2 <sup>nd</sup> sample 2, a large condominium, 3 <sup>rd</sup> to 5 <sup>th</sup> , path	in an
alley, from the street to a blocking house, not respecting long depth perspective morphology fro	m
sample 3)	221
Figure 65: parkings & car oriented construction of space in the enlarged alleys of Wakaba-sample 3.	224
Figure 66: Outdoor spaces' evaluation, by using pair adjectives for selected ABCD typologies	226
Figure 67: Outdoors evaluation and functions for the selected ABCD typologies	228
Figure 68: Photos from selected positive-negative viewpoints in the typology A of the sample 10	229
Figure 69: General perception and feelings on Wakaba 2-3 chome's outdoors spaces	230
Figure 70: localisation on site and appearance of the view crossing spots and view axes from viewpoi	nt
methodology Source: photos taken in 2012, from author observations, author work	237
Figure 71: Selected outoor spaces in Wakaba	240
Figure 72: Confusions emanating from the aesthetic role of the housing estate and its POPS, playing	the
similar role of a piazza with poor artistic qualities and low complexity. The building becomes a	-
monument in front of houses with richer complexity.	241
Figure 73: Wakaba sample 10- piazza with a nicturesque effect for outdoor space	242
Figure 74: Wakaba sample 11- piazza with a picturesque effect for outdoor space	
Figure 75: Wakaba- sample 3. about proportions in alleys	
Figure 76: Wakaba- sample 1, irregular nath/ small shrine in a corner/ irregular outdoors underlini	ng ald
cannal/irregularity used as vegetables garden/storage	243

Figure 81:Tsukishima (middle right and bottom illustrations), photos from Tsukishima 3-chome, Yanaka and Bangkok historical core (middle left), Dharavi informal city of Mumbai (top illustrations). .... 266

#### **Illustrations for chapter covers**

#### Part I

Left, *omatsuri* scenery from early Showa period (1926-1989) in Shinjuku municipality / Right, Shinjuku station- East exit in 1954

Source: Historical Photo Book of Shinjuku municipality

Part II

**Outdoors in Wakaba 3-chome (sample 7), vulnerable fabric in Shinjuku 6-chome** Source: author's photos in 2010

#### **Tables**

Table 2 : Positive and negative landscape assessment accepted by people	D
Table 3: Main issues and challenges of outdoor snaces from Edo to Takyo (outbor work) 13	1
Table 5. Main issues and chancinges of outdoor spaces from Edo to Tokyo (author work)	9
Table 4 : Evolution of percentage from outdoor spaces surface in a block by sample	Ð
Table 5 : Recurrences of different physical uses of the outdoor spaces in Wakaba 2-3- chome, as observed	
at a given time	2
Table 6 : table of the identified view-axes and view-crossing through the field reality	4

#### **LIST OF APPENDIX**

Appendix A : Review table on landscape connectivity terminology	. 281
Appendix B : Some principles of urban web theory, on connectivity by Salingaros's approach	. 282
Appendix C: Space synthax, the dual approach, from Porta et al., 2006	. 283
Appendix D : 5 Lynchian elements through the axial map interpretaion: similarities, differences, and	
complementary nature; Resume and extracts from the article of Conroy and Bafna (2003)	. 285
Appendix E : Qualitative assessment model for evaluation of the open spaces	. 287
Appendix F :Survey and factors on creation of lively streets/ criteria at eye level for urban street	. 288
Appendix G : The biophilic cities from T. Beatley project	. 289
Appendix H : A study on health and comfort issues for outdoors in the traditional frame of Tokyo	. 290
Appendix I : Key moments and recommandations on the historic landscape and HUL	. 291
Appendix J : Edo low-high cities and segregated residential sections	. 292
Appendix K : Global city and new urban cores	. 292
Appendix L : Japanese central government as main actor shaping the global city	. 294
Appendix M : the Bubble burst and "lost decades"	. 295
Appendix N : Data on recentralization and decentralization processes in Tokyo	. 296
Appendix O : Some examples of communities fighting for their living environment	. 297
Appendix P : Extracts from the guideline for reconstruction in dense urban areas, misshū shigai ichi	. 301
Appendix Q : Taishido-3-chome reconfiguration following guideline in the 1980's	. 303
Appendix R :Some characteristics of the streets and open space in Tokyo's neighborhoods/ block	
densification process and configuration with the street's at 4m wide	. 304
Appendix S : Some documents from Shinjuku municipality	. 306
Appendix T : Survey questionnaire sample: for residents of Wakaba	. 307
Appendix U : Some results from the survey of the residents of Wakaba	. 309

To the stunning Japan I had the chance to see,

## INTRODUCTION



#### **INTRODUCTION**

#### 1. Research questions

#### 1- The transformation of the urban landscape

- Landscapes are the expression of the dynamic interaction between natural and cultural forces. The rate and magnitude of the changes occurring in the landscape are the most important factors affecting its evolution. Moreover, the landscapes evolve continuously by means of internal (e.g. controlled on a local level) and external (e.g. indirect) factors<sup>1</sup>. It is the result of consecutive reorganizations of the land, in order to better suit its use and spatial structure to the changing societal demands. They result in perceivable complex forms of multifunctional land use. To some extent, preserving landscapes assumes controlling their functionality in the changing spatial context of society.

- The notion of landscape refers to our perceivable environment and is considered as a common cultural commodity<sup>2</sup>. Hence, landscapes should be regarded as holistic, relativistic and dynamic structures. Since the revival of landscape ecology in the 1980s, more integrated and trans-disciplinary approaches have emerged. At the turn of 20<sup>th</sup> and 21<sup>st</sup> century did concerns about cultural landscape emerged again, facing the threat of the global landscapes homogenization. The notion of cultural landscape refers to "those where human interactions with natural systems have, over a long time, formed a distinctive landscape. These interactions arise from, and cause, cultural values to develop."<sup>3</sup>Several breaks have occurred in the development of the cultural landscape. However, the frequency and magnitude of changes have both increased almost exponentially during History: from the *genius loci* of the traditional landscape, to the 19<sup>th</sup> and 20<sup>th</sup> centuries of the industrialization and the new post-modern landscapes, with an acceleration of the landscape dynamics after the WWII, characterized by new driving forces and the increase of the global dependency against the decrease of the local autonomy. It precipitated the changes and the people's perception of landscape<sup>4</sup>.

<sup>&</sup>lt;sup>1</sup> For example, inhabitant influence is regarded as an internal factor whereas international economical strategies and policies which are responsible for influence in the long term are categorized as external factors.

 $<sup>^{2}</sup>$  It"covers natural, rural, urban and peri-urban areas... It concerns landscapes that might be considered outstanding as well as everyday or degraded landscapes"(Article 2: European Landscape Convention signed on the 20<sup>th</sup> of Oct. 2000).

<sup>&</sup>lt;sup>3</sup> World Heritage Cultural Landscapes, a category adopted by the World Heritage Committee in 1992, at the UN Conference on Environment and Development in Rio de Janeiro, "Earth Summit". This paved the way for a new thinking on human beings and their environment, linking culture and nature, with a vision of sustainable development.)...Managing these values, with their material, physical evidence and non material associations, so that they remain of outstanding universal value, is the particular challenge for World Heritage cultural landscape managers (World heritage paper n°26, 2009)

<sup>&</sup>lt;sup>4</sup> (1) The concept of genius loci is closely associated with the identity of each landscape and emphasizes its uniqueness. This relatively sustainable period where landscape planning and design emerged, was qualified as *involution* (Klijn and Vos, 2000). Important changes occurred in a limited number and were followed by long periods of stabilization (from hundreds to thousands of years). During the consolidation periods, the environment gradually adapted and incorporated the innovations. The harmonization of the existing and the new had time to be locally implemented. (2) The landscape of the revolution ages from the 19th and 20th centuries, characterized by the industrialization processes accompanying the demographic changes, as well as the "superimposition of new landscapes upon traditional ones by the intensification of land use and innovative techniques and notably the birth of the 1st legislation on nature and landscape"; (3) The new post-modern landscapes combine major

- The issue is complex as values change accordingly and so does the way of using and shaping the landscape. Thus the process of identifying elements, landmarks, identities of an overall value in the spatial context, for the legibility of a place to represent a viable perceptible landscape or to have the ability to represent a cultural landscape at a given moment, is an arguable fact in itself. Several questions are to be considered: Which information is significant? What are the criteria which define the value of a place? What do we perceive and through which common values? Since each traditional landscape stands as a unique creation with a spirit of the place (eg. *genius loci*), what magnitude of change could cause a landscape to lose its identity and to become unrecognizable? Under which mechanism of change? How does one control the changes while coping with future demands and needs, without denaturing the spirit of the place (its atmosphere)? How severe may be the impact of a particular factor on the cultural values of a landscape? Shall we absolutely protect singular places?

- The legitimacy of a landscape upon another is concerned by the change, especially in metropolis such as Tokyo where the degree, rhythm of the urban transformations, the land and construction's turn-over are sharp. Beyond the question of sustainable landscape<sup>1</sup>, it necessitates to look at the endogenous and exogenous causes of its transformation. Toyko welcomes a unique type of "urbanicity", invented in Edo and the marks of its later numerous re-modelling, driven by the tendency to radically modernize urban space. Major accidents <sup>2</sup> contributed to the destructions and exogenous of the urban fabric, but the capital became a laboratory of numerous urban experiments, as the global economy pleases. The resulting cultural landscape in central Tokyo is highly fragmented and overlaps multiple elements (periods, global and local scales, building types, urban fabrics and networks, population and activity types, etc...), engraved in the layers of morphological patterns of the different neighbourhoods. Although the memory of old street patterns remains on the ground delineations of the metropolis, the patterns of buildings are versatile, roughly renewed on average every 20 years and welcome mixed-up configurations. The central old neighbourhoods face constant economic pressures of redevelopment for land convey and for security issues. Some of them welcomes singular features characterized by small grained densely built-up

driving forces (urbanization, accessibility, globalization and calamities). "People became increasingly mobile, the speed and scale of changing perceptions, values, and behaviours (ecological footprint) of their users accentuated the difference between those new landscapes and traditional ones...Too many changes happen to be, in too many places in the world, faster than it is possible to record and study them." (Antrop, 2000)

<sup>&</sup>lt;sup>1</sup> "Improving the quality of life in a city, including ecological, cultural, political, institutional, social and economic components without leaving a burden on the future generations" (preparatory meetings for the URBAN21 Conference of Berlin, July 2000). The idea of sustainability can be interpreted in two ways, whether referring to the conservation of certain landscape types or values and implicitly the continuation of practices that maintain and organize these landscapes; or as the main principle for future landscaping. Since it also needs to be understood in the context of irreversible processes of urbanization and globalization, the concept of sustainability cannot be easily implemented in a practical world. Sustainable preservation of cultural landscapes is often based upon developing new functions that have economical significance. They often lead to the loss of natural capital, since economic developments also mean destruction of the original qualities, and the re-appropriation with the industries of tourism and recreation, through "urban nostalgia"(Choay, cited in Berque, 1994, p. 225).

<sup>&</sup>lt;sup>2</sup> the Meiji Restoration, the 1923 Kantou region earthquake, the WWII damage, the experiments of the 1964 Olympics and the ear of globalizations that turned the vocation of the places into exclusive economic space.

patterns with traces attesting from the popular urban system of *nagaya*. As such local landscape is changing more drastically, it questions the limits of viability of an old or singular landscape upon the settling of a new one.

- Another aspect of the landscape transformation sees the market value of land. Land is commonly considered as private property in contemporary civilizations, and the usufruct is seen as an important right for the landowner. Conversely, the landscape refers to our common identity and heritage is some cases. It transcends boundaries, as it benefit not only the landowners, but also the citizen, as well as the temporary visitors. Hence, the blur boundaries between private and public spaces, characterizing previous systems of the ground appropriations by the inhabitants in Tokyo's neighborhoods, are concerned when conquerred by the strict and economic divisions of the plots, from the modernization<sup>1</sup>. On the opposite side, the conquest of clearer and readable separations between the public and private dimensions supposes another land relationship of appropriation by the inhabitants, and changes drastically the landscape perception and identity.

#### 2- The readability/intelligibility of the urban landscape

- Concretely the notion of the readability of a place and its related studies, appeared in reaction to the unreadable spaces produced during the 50's and 60's massive industrialization and urbanization machines, advocated by the CIAM<sup>2</sup>. Within a sharp landscape's dynamic of change, the legibility of some patterns over others is questionable. Lowenthal evoked the landscape as a legible legacy in terms of its: (1) materiality (the landscape is perceived with all our senses, which makes them tangible);(2) enhanced singular value among the variety of artefacts contained in a given landscape; (3) stability as a landscape is the most fixed, immovable phenomenon in our environment. It is a quality that conveys feelings of security and reliability<sup>3</sup>. Humans live in a physical and symbolical space that has both a direct relationship to the "readability" or "legibility" of a place. The notion of readability within a built environment, is difficult to implement in practical terms, but incited heuristic interests. It involves the perception of shapes in an urban reality not through a map or an aerial view, as drawn by designers, but by including a range of cognitive interests, issued from various fields such as environmental psychology, philosophy or anthropology. The methodologies to approach such dimension encompass cross-disciplinary aspects, involving procedures from mathematics, biology, engineering, ecology,

<sup>&</sup>lt;sup>1</sup> In Tokyo, demolished many times during its History, the notion of old urban centralities is nuanced. It would propose architecture remaining for 50 to 100 years upon the Edo time landmark. Additionally, in traditional neighbourhoods, some local outdoors spaces and their delineation, kept until nowadays an unclear status. This cultural fact contributes to the transmission of the "floating" landscape image, in reference to the work of Jinnai. However, the urban typologies tend to offer nowadays a clear delineation between private and public space.

<sup>&</sup>lt;sup>2</sup> CIAM: International Congress for Modern Architecture. The *progressists* developped models for architecture and urban planning, with architects such as Le Corbusier and Walter Gropius. They were strongly opposed to the *culturalists*' concepts, praised by Sitte, Ruskin and to some extends E. Howard, who regretted the disappearance of art, urban memory and human scale, resumed in projects such as the *vertical garden city* from Le Corbusier, from which effects disorientated individual practice of space.

<sup>&</sup>lt;sup>3</sup> Cited in Bressi and Groth, 1997, chapter 15- "European landscape transformation: the rural residue", p 180-188.

geography, extended to the field of phenomenology with discourses from the social sciences, psychology, linguistic, semiology and more recently from all forms of literary theories. Such approaches involving the readability of the urban landscape, are based upon holism<sup>1</sup>, perception<sup>2</sup> and evolution, in order to better understand the way architecture, urban space can affect people's lives.

- The urban morphology studies approached the readability of the urban space: Conzen (1960, 1988) introduced the notion of spatial morphogenesis over the historical layers of the built dimension, which identifies spatiotemporal landmarks. In spatio-configurational analysis, the behavioral and spatial rules aim at supporting each other with reciprocity. The *space syntax theory* from Hillier and Hanson (1989) mainly tried to look into the elements (included the tension between the built and non-built dimension) that determine human behaviours within the open spaces of the streets and their spatial appropriation. It results in diverse graphs of "integration", based on the topological and network analysis; Lynch (1960) and Gehl (1987) developed cognitive approaches based on the readability of the city open spaces and the human behavioural lines. They introduced the senses to describe the process of imageability for an urban space and the impact of urban elements on the feeling of appropriation. However, additional contributions are needed to understand the complex phenomenon, binding the urban morphogenesis, the forms of visual perception, with the urban identity.

#### 3- The cognition of small-scaled vernacular landmark, a necessity in globalized city?

- What do they represent? The only memory of a landmark and human-scaled features? Do they carry a nostalgic and picturesque value? The morphological studies on outdoor spaces from Sitte (1889) and Giovannoni (1931) on the old European cities acknowledged the benefice of keeping the dense traditional frames in aesthetical and scaling terms, as being a small-scaled and organic urban landmark, which helps to assess all the different scales of the city's features: the perceived artistic effect helps to the spatial appropriation and the readability of the place. In *space syntax* discourses, the vernacular entity, elaborated over layers of times, is also the primary intelligible system. The architect Alexander (2001-2005) and mathematician Salingaros (2006, 2010) worked on the necessity of scaling entities

<sup>&</sup>lt;sup>1</sup> Holism emphasizes the concept that the whole is more than the sum of its composing parts, and that each component's significance depends solely on its position and relationship with its surrounding. It allows links between landscape ecology and perception. [Landscape ecology is the science of studying and improving relationships between ecological processes in the environment and particular ecosystems. This is done within a variety of landscape scales, development spatial patterns, and organizational levels of research and policy. (Wu, 2006)]

<sup>&</sup>lt;sup>2</sup> If we focus on the biological definition of perception given by F. J. J. Buytendijk (1958), while comparing animals and humans: "human perception is at the same time a sensitive and acquainted knowledge" (Buytendijk, 1958); Senses, ie. local physiologic answers, cannot be isolated despite their specificity. For this reason, they cannot build up consciousness. With biological fundamental significations- different but also similar between animals and humans- can be added significations resulting from the subject's self-creating process as a human individual and as a social individual." (translated from the original text in French: « la perception humaine est « un savoir à la fois connaissant et sensible » (Buytendijk, 1958); les sensations, c'est-à-dire les réponses physiologiques locales, ne sont pas isolables malgré leur spécificité. Elles ne peuvent, pour cette raison, constituer par elles-mêmes un champ de conscience… Aux significations biologiques fondamentales – qui, tout en étant différentes, sont comparables chez l'animal et chez l'homme – viennent se joindre celles qui résultent des créations propres du sujet comme individu et comme être social. » (Thines, in Encyclopaedia Universalis, n.d.)

and small organic features, to obtain human wellbeing in urban spatial composition. They ackowledged the genetic aspect engraved in our senses, leading to emotional and often positive feeling. - Moreover it confronts the individual to the choice of small human scale and density upon global or larger advocated scales and patterns. The density<sup>1</sup> refers to the floor area ratio (FAR, square meters built). In small-grained densely built-up frames, the density is understood as the built density or the floor space or the built footprint in the plot on the groundfloor (in comparison to the remaining area in the plot or the block). Such frames are mostly the result of an organic incremental processes, as referred as traditional features. Here, the density encompasses a vernacular and morphological dimension at the scale of the block<sup>2</sup>. More fundamentally, it questioned the human dimension of architecture and urbanism and the necessity to read the distinct small scales of a city. "Quantitative" architecture of the post-modernism period is characterized by an anarchical production of scales and shapes (including the condominium designs, highly promoted in Tokyo). Kitayama, Tsukamoto, and Nishizawa "proposed an urbanism based on aggregation of certain urbo-architectural micro-typologies, trying to capitalise on what they see as the most democratic urban fabric in the world, ... they seek to reenergize an autochtonous urbanity,...embedded in the historic conditions of place"<sup>3</sup> (Radovic and Boontharm, 2012, p108) and contained at the finest-scale of the small-grained fabrics in Tokyo, as in YaNeSen<sup>4</sup>, Tsukishima or Wakaba.

- As space evolves to structure, often to maximize the encounter density (Ratti, 2004), the smallgrained vernacular features answer to local spatial functionning within the global scale. Hillier (1996) underlined that local physical changes in a spatial system always have more or less global configurational effects. As all the buildings' spatial structures<sup>5</sup> are already profoundly influenced by the human functioning in the space<sup>6</sup>. The readability of the urban landscape of densely built-up pockets from the fragmented Tokyo questions also the late Edo period's landmarks. Jinnai (1985) evoked the water city, where the vernacular undertakes a floating dimension. Maki (2001) wrote about the mystery of the innermost from the vernacular blocks in popular neighborhoods, as a landmark structuring the local spatial identity. Such local fragmented identities represent small-scale processes from the bottom-up power, acting with defensive mechanisms against advocated larger scale gentrification processes.

<sup>&</sup>lt;sup>1</sup> The density is the ratio between a statistical indicator (population, housing, employment, etc.) and surface. The density of population in a block or a neighbourhood can be measured, as number of people per surface unit. Density is a complex measure, as it can be variable, even when measured in a very homogenous frame, according to the chosen scale (density within the plot, the block, the neighbourhood...)(Merlin and Choay, 1988). <sup>2</sup> A six-storey condominium might have a higher built-density, however small grained pattern of houses display the sharpest relationship of density from an house toward another, at the ground scale.

<sup>&</sup>lt;sup>3</sup> The most recent proposal for Tokyo itself, presented, under the title Tokyo Metabolizing, in the Japanese Pavilion at the bienale in Venice 2010.

<sup>&</sup>lt;sup>4</sup> YaNeSen, word, representing the 3 districts of Tokyo, Yanaka, Nezu, and Sendagi.

<sup>&</sup>lt;sup>5</sup> He defined the "generic function" of buildings, which have consequences on local and global scales.

<sup>&</sup>lt;sup>6</sup> There is context that stimulates the production of form and the impacts are indirect. The parallel can be traced with the structure of language, where there are laws restricting the combinatorial possibilities of words, so that the sayable and the meaningful can be constructed. "The laws of language do not therefore tell us what to say, but prescribe the structure and limits of the sayable" (Ratti, 2004).

- The Wakaba neighbourhood, chosen as this research's case study, was one of the three slums of Edo in the 19<sup>th</sup> century and remained a very poor area until the early 60's, when land price was booming in central Tokyo. The scale and density of the built fabric is very high<sup>1</sup>, compared to the scales of the surrounding urban fabrics. It represents a little nostalgic atmosphere of "shitamachi" for its inhabitants, which nurture such local memory as a poetic collective fantasy. The walker also unconsciously perceive such aspect of the place and his behavioural sights might be stimulated. What kinds of notions are engaged? Is it related to the small-grained scale, the complexity and multiplicity of the elements' displays in a single eye-shot, the human dimension of the open space nicely arranged by each different owners, the organicity of the paths, or more generally the calling back of an engraved way to connect to the place that some scholars named "the urban genetic code" (Salingaros, 2010)? There are very few remainings of such fabrics in the neighborhoods of central Tokyo. By looking at the slums of yesteryears, their testimonies of popular life, their successive redevelopment and adaptation through centuries and their present status within the metropolis, we hope to open the debate toward the consideration of the organic scale, encompassed in the high density of its vernacular builtup fabric. They are often despised but nowadays also the last testimonies of organic settlement following an incremental participative growth in their structures. Many scholars raised up attention on the value of the small-scaled Tokyo: "the loss is immense. Smallness is about density about intensity, not only physical but also of the social fabric of the city" (Radovic and Boontharm, 2012, p108-109). "Smallness is a critical ingredient for the sustainable future of building environements in Japan. In that culture, a peculiar, historically induced ability to live small, may prove to be an invaluable internalised knowledge, a unique cultural asset and the key survival skill in times of crisis and scarcity, which environmental crisis might be bringing about" (Radovic, 2008). Lately phenomenologic approaches tried to encompass the complexity of the different langages engaged in such atmosphere of the small vernacular landscape of Tokyo. In that field, the object of this research is unique, as it analyzes the small-grained and high-density Tokyo by deepening the visual processes, which catches the singularities of the vernacular atmosphere.

#### 2. Hypothesis and significance

<u>1- The outdoors of the small-grained densely built-up neighborhood lead to a distinct visual cognition</u>
The 'Open Space' is a planning concept, but open spaces match a physical reality as a result of the densely built-up land<sup>2</sup>. It corresponds to a natural resource to a limited extent that can be exploited as

<sup>&</sup>lt;sup>1</sup> The neighbourhood has been classified at the highest risk- level, (level 5), in case of disaster, because of the high density of wood houses' arrangements and the small outdoors, difficult to access in case of emergency. <sup>2</sup> Multifunctional space with occurrences of open spaces of diverse size, shape, arrangement and borders.

long as 'stock' is available<sup>1</sup> (Antrop, 2000). As a matter of fact, open spaces were often assimilated with green spaces. The concept of controlled and managed green areas for the open spaces subsequently evolved gradually, from the moment when the countryside landscapes disappeared in the city. Nowadays, green spaces are planned, quantified by planning authorities, and can be divided into many categories and different level of green spaces<sup>2</sup>. In the last sixty years, the developed countries have generally treated public green spaces as a calculated urban furniture and equipment, according to the urban necessities, safety, and the human intended needs<sup>3</sup>. This period of functional green spaces approach showed great limitations and failures<sup>4</sup>. Cassegard (2012) evoked such "oppressive features of mainstream arenas" and the necessity to have "alternative places", experienced as "liberated or nonoppresive space"<sup>5</sup>. Especially, he noticed for Japan, three types of spaces in social movements empowerment: mainstream public sphere/ space of withdrawal or private space/ and the alternative space or counterpublic. The outdoors landscape of Tokyo appears to be modelled by very different intertwined green trends, with various shapes, production and management processes, stakeholders, functions. Unlike the concrete plaza of a condominium, the little juxtaposed private gardens and pots in small alleys stimulated the imagination of numerous writers, film makers and walkers until nowadays. Such singular production of landscape through private outdoors is not officially recognized by planning authorities, but would gained as they also take part to the cultural landscape. A whole range of possibilities in shapes, needs and functions, have been pushed aside among which, the symbolical capacity and role of outdoors and green spaces to stimulate imagination, the aesthetical sensitiveness, the health benefits<sup>6</sup> (Takano, Nakamura & Watanabe, 2002) or the relief from sociospatial constraints of urban lifestyle<sup>7</sup>. Furthermore, the inhabitant's right to appropriate the outdoors through urban gardening activities, pots or plants in balconies, can generate a positive feeling and social linkage qualities, playing a vital role in sustaining and revitalizing the densely built-up frame

<sup>&</sup>lt;sup>1</sup> Economically speaking, this means that the value of 'open space' increases as the resource becomes scarce.

<sup>&</sup>lt;sup>2</sup> Categories according to its localization (urban, suburban, rural), the degree of improvement, property status (public and private, private open to public, etc.), types of users, traffic (daily, weekly, occasionally use); The different level of green spaces such as for dwelling unit: private garden or a building's garden / neighbour unit: plaza, squares, publics garden, sports and small parks facilities, etc./ neighbourhood: parks, pathways, sport's fields, etc./city: urban parks, attraction parks, botanical and zoological garden, multipurpose sport's equipment, etc./ peri-urban areas: pathways in forests, countryside green accessible spaces, attraction parks, outdoor recreation spaces, etc.

<sup>&</sup>lt;sup>3</sup> Calculation and technical tools permitted to evaluate the need for specific green spaces: parks for evacuation in the case of disaster, parking or running water drainage, the possibility of exercise for citizens, children facilities... <sup>4</sup> Such as the examples of strictly functional green spaces around some dwellings units, undefined and where no ones goes and a source of anxiety (also called no man's land)

<sup>&</sup>lt;sup>5</sup> "Alternative spaces can thus be created in public, in moments when mainstream society is felt to shed at least part of its oppresive features. This means that they are not necessarily tied to any particular place. Although they usually need distance from the mainstream public in order to thrive, the distance can be closed. In fact, it is often a sign of successful empowerment that subaltern groups return to the mainstream areas of society and manage to at least temporarily experience them as liberated or non-oppressive space." (Cassegard, 2012, p2)

<sup>&</sup>lt;sup>6</sup> They studied the health and comfort issues provided by the small outdoors and walkable green in Tokyo small neighborhoods and established their benefit for longevity, especially for aged-people. (appendix H)

<sup>&</sup>lt;sup>7</sup> The resourcing green alcove balances with artificial dimension from built and mineral spaces. Such feeling (metaphoric and physical well-being emotion) is said to be engraved in the human biological memory, as nearly all human history has been within green environment. (Salingaros, 2010)

(Schultz, 2007). Such practices in outdoors are also culturally determined<sup>1</sup>, and can sew historically and traditionally the sense of appropriation to the city. However in Tokyo, the"globalized"<sup>2</sup> models for green and outdoors along with standard condominiums, can be often pledged by people (Tchapi, 2013). - Hypothesis: Un-ordered<sup>3</sup> developments of greeneries appropriated by every owner and small vacant plots can still be observed in each corner of alleys, within of private pockets of outdoors offered to the public view. They characterize many neighbourhoods of Tokyo and in the cases of the few small-grained densely built-up neighborhood of Tokyo, they go futher by shaping a local landmark of the perceived vernacular dimension. Not only the greenery, but the diverse elements displayed interact with the density, scale and outdoors' organic compositions themselves. The walker distinguishes such complex landscape of outdoors, as a distinct alternative of greenery from the other open spaces. The visual processes to assess such dimension play a vital role and gain to be studied. This aspect lacks in the academical researches of the small vernacular Tokyo.

#### 2- The visual processes and the readability of an inherent order in such outdoors

- My intensive strolling experience, by feet and bicycle, in different neighbourhoods of central Tokyo and the stimulating feeling I consistently observed within the distinct vernacular atmospheres, lead me to understand more the visual identification processes, which bind such stimulation with the distinct urban fabrics. In the field of the *phenomenology of the perception* (Merleau-Ponty, 1945), much has been written, starting with the Situationists' method of *the drift* (Debord, 1958)<sup>4</sup>, which apprehend the relationship between urban space and the individuals through the psychogeography of places. For Sansot (1973), *the poetic of the city* binds the subjective strolls toward the resident's appropriations of a place with the objectivivity of the places<sup>5</sup>. For Antrop (2000), there are three values, which permit the evaluation of the atmosphere emanating from a landscape: the natural framework, touched by increasing fragmentation and loss of their connectivity; the cultural inheritance, reflecting the

<sup>&</sup>lt;sup>1</sup> As an example, in Paris, greenery has been planned on the public space and private initiatives of green are limited to balconies and rarely displayed on the public spaces; whereas in metropolises like Bangkok or Tokyo, the greenery shows a wider range of appropriations spontaneously made by the citizen. Moreover, the inbetweeness public-private status provides more opportunities for the people expression.

<sup>&</sup>lt;sup>2</sup> Globalized outdoor spaces and green refers to POPS (Privately Owned Public Space) and plaza developments, which started in the 60s and strongly accelerated since the 1980's, consequently to a global economy marketland orientation for planning decision within the metropolis. It shaped many outdoor spaces in similar modes in most of the world, that can be easily recognized through condominiums and dwelling towers with their urban furniture, outdoors' arrangements, plazas in big stations and nodes of the city (in the case of Tokyo).

<sup>&</sup>lt;sup>3</sup> Un-ordered refers to the image that can emerge from such arrangements of green, however it does not mean that there is no fundamental order behind (Ashihara, 1979, 1983).

<sup>&</sup>lt;sup>4</sup> In reaction to the progessist urbanism, they shaped an ambulatory method based on the playful and constructive behaviour within the city [which is different from the promenade, as the random conditions are excluded]. It results into a poetic and non-random way of observing the diverse and necessary units of atmospheres. It is also a citizen act to look and search for the emergence of the collective conscientiousness within the public space, against standardized space from the modern urban design. After the Situationists, sociologists and geographers (Lefebvre, 1968, Harvey, 1973) developped theories on the political dimension of the public space and the famous "droit à la ville".

<sup>&</sup>lt;sup>5</sup>Through the objectivity, Sansot brings up the place's atmosphere or essence, which corresponds to the phenomenological side. For him, the poetics of a place is both esthetic and ethical.

superposition of all attempts to adapt to the environment and to improve living conditions<sup>1</sup>; the aesthetics proffering a feeling of wellness.

- After a certain time being exposed to the profusion of materials and signages in the Tokyo citv<sup>2</sup>, and after getting somehow jaded by the similarity of common construction of houses and mansions, my eyes paid attention to what happened in between the built dimension, the complex arrangements, scales and the multiplicity of small-scaled elements of the outdoors (greeneries and furniture) and the distinct atmospheres in the vernacular neighbourhoods. Hence, I chose the case study site of Wakaba, a small-grained neighbourhood with high built-up density. This appealing place, situated in the hollow of a valley from the Yotsuya area in the Shinjuku municipality, used to shelter one of the three slums of Edo. This cognitive experience did not appear to be the result of a random fact, but on the contrary, the specific task to grasp the atmosphere of such place (subjective) with the characteristics (objectivity) that define its richness, attractiveness, but also its borders and inner structure, perceptible for any stroller (residents or foreigners). This process of identification questions the peculiar visual qualities of such vernacular landscape in Tokyo, and was at the origin of this research theme. The sight becomes a very accurate tool for small-grained densely built-up features, as the viewpoints can reach paths, unattainable to the walking experience. In such conditions, the outdoors, which carry visual enhancement qualities, can also take another vital definition, as a network of visual breath and heuristic experiences. My research aims at looking at the inner properties and rules from such network of viewpoints on the outdoors. They participate to distinghuish a local visual landmark, which underline the historicity of the place and refer to the layers of small outdoors' transformations.

- In field of the dynamic of networks, the notion of connectivity is relevant to my study: the spatial appropriation relies on the degree of interaction/connection (functional aspect) and the viability/readability of the spatial configuration (structural order found in the given urban landscape). Additionaly, the way a network weave a viable entity over layers of transformations, is another mark. In urban landscape and architecture disciplines, the notion of connectivity adapted from the initial mathematical Graphs Theory (Euler, 1735) is relatively new and appeared in the 90's in only three fields: the Space syntax analysis (Hillier and Hanson, 1989) with the *connectivity graph*; The urban web theory (Salingaros, 2006) proposed the *connectivity of an urban network*; The landscape ecology (Taylor *et al.*, 1993) developed the notions of *structural and functional connectivity*, which aim at analysing the impact of the climate change and rapid urban growth threats, on the natural corridors.

- Hypothesis: Given the physical conditions of small-grained and scaled features<sup>3</sup>, the sight can be an efficient tool, to assess the phenomenology of the vernacular fabric of Tokyo. Many types and criteria of the viewpoints can be associated with the description of the visual field itself, shaping a visual

<sup>&</sup>lt;sup>1</sup> A landscape is full of past memories, which still have a strong symbolical value. Local scale changes and long time scale offers a great diversity of traditional landscapes.

<sup>&</sup>lt;sup>2</sup> The advertising signs, lights, noise of the station nodes, crowded parts of the city, became very tiring.

<sup>&</sup>lt;sup>3</sup> unreachable by walking paths, but easily grasped with the viewpoints (from different types, such as short, long, multiple, transversal, etc...), the complexity of the elements displayed to the view, etc...

method, adapted to the distinct atmosphere, from which an order can be visually grasped. The *visual connectivity* is a notion newly introduced with this research and specifically relevant for the small-grained features, as a spatial visual landmark. How does the *visual connectivity* highlights such distinct small outdoors over layers of small-scaled transformation, their appropriation by the residents, and how it represents a vital element structuring and sustaining the vernacular atmosphere of such place, embedded in historic peculiarities? How learning on the readability of this particular type of tiny landscapes in Tokyo, through their visual landmarks and their *visual connectivity*, can help placemakers to sustain the smallness as a valuable order in the city, by learning on good and bad visual configurations?

#### 3. Methodology and limitations

The methodology follows a holistic approach, based on a set of visual tools, in order to identify singularities in the landscape of Wakaba's outdoors. It focuses on the viewpoints through the non-built dimension of the small-grained fabric landscape to sort out visual singularities from such spatial configuration. The outstanding assets have been excluded from the spatial analysis for their different outdoors' shapes, as they can induce false or ambiguous findings. The method is based first on the row analysis of maps from different periods through a set of viewpoint tools, that I introduced, and secondly on the observation on the field of such viewpoint lines, their patterns and the skin<sup>1</sup> of the visual field. Hence, the methodology is not following network analysis tools<sup>2</sup>, but implementing singular tools, encompassing the morphology and the cognitive studies and locally determined for Wakaba. The challenge is to find some visual criteria and rules to evaluate such a rich atmosphere, its mechanism of transformation and to point out the potential threats. The outcomes of the viewpoints analysis, as a morphogenetic approach, highlight the *visual landmark* of Wakaba, and define *the visual connectivity* (structural and functional order), as being part of the local visual identity.

Let's question the aim of this research methodology and establish the possible limitations.

WHY: - as an attempt, in the field of place's phenomenology and its perception, to more objectively understand the visual singularity and the attractiveness from outdoors spaces and to propose a "rational" tool for the irrational dimension of catching an atmosphere - as a way to bind the visual practices with the outdoors' morphologies and their evolutions - to highlight a specificity of the local identity in such dense patterns;

<sup>&</sup>lt;sup>1</sup> Skin is understood as the materials of the different facades, their visible textures and composition, scales and the light or shadow reflected, etc., from the ground to the buildings and vegetals. It is the body of the visual field. <sup>2</sup> The Network theory is concerned with the study of graphs. It introduces algorithms and matrics to obtain diverse metrics tools of connections, distributions, segmentation, but also modelling and visualization of networks. The measurements deal with tools such as centrality, density, distance, strength, structural holes, bridge, cohesion, etc...

Limitation: I admitted that the visual relationship to the small outdoors is a singular and positive characteristic of dense neighbourhoods. Consequently, I proposed a set of visual tools specific to my observations. However in a culture-based approach, positive and negative aspects would be locally defined and represent what the society at a given time admit or not.

WHAT: - evaluating the tangible dimension<sup>1</sup> of the small scale outdoors, as the space that can be physically apprehended by the sight and not through their real measurements; - binding the walker's possible visual practice of a place at a given time, with such possibility over layers of outdoors from past periods, in order to find a structural order between viewpoints and spatial arrangements.

Limitation: Such methodology, on viewpoint patterns with the introduction of the notion of visual connectivity encompassed by the structural order hypothesis, might be possible only for very dense parts of the city and heavily depends on the language developed by the urban fabric itself. The visual tools I ntroduced, work for places like Taishido-*1chome* in Setagaya ward or Tsukishima in Chuo ward; However the fact can be arguable and possibly different for other spatial configurations of central Tokyo, less dense, for which supplementary tools and aspects could be added. Further research is required on the appliance of the methodology to other urban frames of Tokyo or vernacular patterns elsewhere. In my personal researches, I noticed that some old neighborhoods of the urban core in Bangkok or the vivid small-grained and densely built-up frames of Dharavi in Mumbai would be good candidates.

HOW: Humans live in a physical dimension that can be 'supposedly' apprehended. The analysis aims at addressing the question of the visual identity' at the small scale of dense patterns, from which a special atmosphere emanates. However it could be hardly highlighted with common landscape analysis<sup>2</sup>. For this research, I will instead seek the outdoors' network's properties, by using viewpoints, in order to avoid easy standard shortcuts of what is acceptable or not as a measurement for human living spaces. It allows the diversity of cultural and geographical contexts. The viewpoint as a tool permits to explore further properties attached to small-scaled features.

Limitations: The metrics can bring further information, in a culture-based approach. Some methodologies overcome the question of measurement, by following the frames of a social survey such as the *qualitative assessment model*<sup>3</sup>.

# **Detail of the different steps of the methodology developped in this research and their limitations:** (1) The choice of the case study

<sup>&</sup>lt;sup>1</sup> The tangible dimension represents the space that eyes and hands can understand rapidly. Some alleys or spaces in between two houses are sometimes so tiny, that you can measure them with your own hands and body.

<sup>&</sup>lt;sup>2</sup> In general landscape analysis, metrics are an attempt to quantify holistic characteristics. The set of quantitative data allows a more objective comparison of different landscape for the grouping or the differentiation, by using the technique of spatial analysis of raster maps, or with basic morphological analysis, etc...

<sup>&</sup>lt;sup>3</sup> It focuses on the resident's use of the physical outdoor spaces. The method proposes criteria, objects, facts that are more or less tolerated by the users and thereafter a certain optimization of the place with the possibility to transform certain conditions and improving them. Such analysis can be interesting for planning and designing better outdoors in residential areas, or to evaluate the livelihood in new redevelopment projects (Appendix E).

I started my walks with the five central wards of Tokyo and I decided to look at each different referenced cultural landscapes in Shinjuku ward, using the map displayed and the atlas map of Tokyo. Cycling in the different parts of Tokyo created a mechanism of looking at the city, which helped the selection, based on:

- The outdoors with deep appropriation by their residents through nice displays; the feelings of positive stimulation and visual curiosity (against anxiogenic places);

- The places that give favour to a more organized visual behaviour (not dissipated/fragmented) and the sense of enclosure. It is a positive qualitative feeling and permits as well to mentally shape a coherent urban entity (Kuipers *et al.*, 2003);

- the small-grained fabrics, which display complex visual openings to the variety of outdoors;

- The blocks with contrasting visual breakthrough in between constructions or following alleys. They refer to the transparency of a place, which permit a better imageability of the whole entity<sup>1</sup>;

- The places that encourage the artistic or a picturesque effect and mostly referred as vernacular (favored by the walker and mentioned in walking guides for Shinjuku ward).

Hence, I could narrow the choices with neighborhoods as Arakichou, Shinjuku-7- chome, Tomihisachou, Okubo-1-chome and Wakaba. Afterward, in order to isolate interesting alcoves from the network and look at its configurational effect, visually assessable: I focus on the densities of outdoors'networks that visually detach themselves from the rest of the urban fabrics in the neighbourhood; I removed the outstanding elements of the cultural landscape (temples, shrines, historical and cultural assets, or specific vocation of the place, such as Kagurazaka<sup>2</sup>); I distinguished places with more "local" outdoors (vernacular dimension) against the outdoors from redevelopment projects<sup>3</sup>. Hence, I isolated the hollow of the valley of Wakaba neighborhood, excluding the topstream's temples and their cemeteries outdoors. Wakaba's 2<sup>nd</sup> and 3<sup>rd</sup> districts represent the ten block-samples of small grained densely built-up network of outdoors, emanating from the previous nagaya system and the past vocation of an informal settlement.

Limitation: the 'visual behaviour' (and the viewpoints) is specific to the singularity of Wakaba's small networks, as in Tomihisachou, Tsukishima, or in Yanesen small-scaled outdoors. In larger-scaled arrangments, as for Okubo, supplementary visual elements might conditionned the perception. So the method I introduced starts rather specifically, in terms of the selected urban fabric and the visual restricted behaviour. Such restriction is locally determined and provides finner information on the spatial peculiarities, avoiding the confsion with other spatial determinants.

<sup>&</sup>lt;sup>1</sup> In the old fabrics of Tokyo, the blocks are important element of the historical urban frame: Maki evoked their innermost and Jinnai their floating dimension.

 $<sup>^{2}</sup>$  Kagurazaka was a popular neighborhood during Edo and Meiji and used to be a place for meiko and geisha.

<sup>&</sup>lt;sup>3</sup> POPS: privately owned public spaces

#### (2) The common morphological analysis of the site

I used the Zenrin map starting from 1967 to nowadays, as support to look at the outdoor's layers of 50 years evolution. I looked at the public space changes, the buildings' evolution and the block's density evolution (proportion built-non built). In this research the density is understood as the built density or the floor on the groundfloor, compared to the non-built at the scale of the plot or the block. I am not considering the different floors of a building but only the groundfloor footprint. This first basic approch highlighted the comb-arrangment of alleys, the loss of walking capacity, and the local density, however it is not enough performant to analyse the fine-grained structure, or the singularity of the perceived atmosphere. This aspect permitted me to implement a new method, based on the sight.

Limitation: I made the difficult work on the oldest Zenrin maps, of replacing the early buildings with the help of precise locations of later Zenrin maps. It is rather important for the study of outdoors at such small scale. However, some imprecisions remain on earlier maps, where the owners' name prevailed over the precise built positions.

#### (3) The viewpoint analysis

- By using the same maps as layers on the ten block-samples, I intoduced four viewpoint tools: two blocked and two transversal viewpoint lines, from the main street and from an alley, on a straight eye level toward the block's outdoors. Since, the range of view lines in the visual field, I consider the longest view line from from the border of the public space to an obstacle. Concretely, the method consists in drawing, on the maps of different periods, such four types of viewlines from the imaginary stroller on the public space. The results are the viewpoint maps for each year studied (1967, 1976, 1989, 1999 and 2008-2010). A wide range of calculations on those four types of viewpoints and their evolutions from 1967 to 2008-2010, have been done in the shape of graphics from the cumulated length and the number of viewpoints, by types of view, by block-sample and for the whole area. I used Autocad drawing for the calculations and to redraw the urban fabrics. The analysis aims at highlighting visual inner qualities, leading to the consideration of a visual landmark, resulting from the viewpoint maps and the analysis of the graphics. Hene, the visual scenary in the blocks could be described as visually open/closed, lively/monotonous, etc.

- In a second attemps to reveal networks' properties, I introduced connectivity tools on the same layers of maps as support. The connectivity notion/measurement is used as a tool/way to deal with complexity by selecting the elements among the numerous information data, by finding an order or the potencial of a given network, and by identifying spinal nodes and paths sustaining the whole network. The new *visual connectivity* tools are inspired from the basic geometrical interpretation<sup>1</sup> of a crossing, and a simple way to find a hierarchical order and added value among the numerous viewlines from the viewpoints maps. Since, the results need to be coherent, with suffisant information but not too few or

<sup>&</sup>lt;sup>1</sup> imprinted from the isovist concave shapes (geometrical necessity for connectivity)

too many information, I tried different parameters according to Wakaba's viewpoints information<sup>1</sup>, in order to find the critical values for each of the two new connectivity tools: the "view-axe" (axe cumulating a minimum of six view lines of three different kinds or more) and the "view-crossings" (the place of intersection for three view lines or more). The results are proposed through a matrix of nodes and paths that I named the structural visual connectivity. It grasps the main nodes-paths, which sustain the whole network. I consider outdoors with the interaction of multiple viewpoints as a positive value in densely built-up outdoors as it offers a rich visual landscape at small scale, the stimulating potential of visual signage and visual encounters for the different blocks. The evolution of the tools shows the loss of visual marks but the maintenance of such structural matrix among the blocks, featuring four distinct models of structural visual connectivity. They encompass the intelligibility of the local visual scene. Hence, various interpretations can be further studied: the measurements and evolutions of the space advocated for the visual encounter, represented by the view-crossing nodes; the observation of disappeared and persistant view-axes and view-crossings by overlapping old and new maps; and the vernacular outdoors they are materialized into, compared to the rest of outdoors (condomoniums' open spaces designs, parkings, parks, etc...). The method proposes a refined way to characterize outdoors, which appear, in the first place to hold a similar value. It distinguishes their visual capacity (structural connectivity- order), richness (occurences of visual marks) and qualities of persistance (layers of visual marks).

- Imitations: The six tools are place-determined and could be implemented, if applied to other areas. The visual structural order (matrix or skeleton visual map or visual structural connectivity) is defined through a spatio-configurational work, made by the layers of outdoor's evolution, readable exclusivelly on maps. However the maps does not show all the urban furniture displayed in the reality of the field. Especially the fences, walls and their height or big trees can be an obstacle to the transversal viewline (considered at the average eye level of 1.6m) and visual breakthrough. Thus, there is a small range of uncertainty in the four structural models (ABCD) and the visual landmark that field's observations can further enlight (next part of the methoddology).
- The visual landmark and the visual connectivity's viability to overcome the transformations of the neighborhood, is part of the connectivity notion. It is diretly related to the question of capacity of a network to maintain a spatial configuration and the critical moment where the network does not make sense anymore. The abundant viewlines information permitted me to define the connectivity tools at the critical level and to propose coherent visual configurations among the blocks of Wakaba (the typologies ABCD). Some patterns lost intelligibility and the

<sup>&</sup>lt;sup>1</sup> I did in my autocad work different models, testing the view-axes with 4,5, and 6 cumul of viewlines or the view-crossing with 2,3,4 etc... I came with the result of 6 viewlines for the view-axes as an example. In other fields, they can use connectivity algorithm and similarly they will test different value from 1,2,3...,n. (part 4.5.1). The network of Wakaba's area of study is small enough to get such result, without introducing algorythms.

remaining viewlines from the previous fabric, are not suffisant enough to represent a structural order anymore. They do have less meaning comparing to the new visual relationship established with the new typologies and fabrics. So the visual connectivity is related to the capacity to continue being a structural visual entity (intelligible/readable network). Over such capacity, the system starts to be affected, eventually brings a new langage and can be lost as a visual landmark.

#### (4) The implementation of the viewpoint analysis with the field's observation

The next step proceeds to the field's observations of the visual landscape and its complexity, in order to propose a functional response to the four isolated structural matrix. It aims at describing the previous outdoor's characterizations with criteria from the *visual skin* and their perception.

- First, I broadly carried out surveys, resulting in the cognitive map on the image of Wakaba for their inhabitants, mostly elders. They described their place as a "little Asakusa", favoured by many walkers on a daily base, surrounded by parks, temples, famous graves. The old alleys in the 3rd district are the most enjoyable, characteristic of the place's spirit, where the *kizuna* (the community linkage) expresses itself strongly. However some residents considered such area, threatfull in case of disaster.

- I also proceeded in looking at the different functions expressed in the outdoors (storage, parkings for cars or bicycles, garden, garbage disposal,etc...).

Imitation: the survey brought precious information, however it is not sociologically relevant. The methodology is based on a spatio-configurational and morphogenetic analysis of the visual networks and skins, but further researches on the outdoors' cognition for the residents could highlight cultural aspects of the perception and help to grasp how the visual scene on outdoors play a role for the neighborhood's community and if it is part of their local memory.

- I established criteria from the visual field to describe the skin of the outdoors and bind them with the different emotions/elements of the perception. Hence, I defined positive and negative assements of the place and their related spatial functionning, their qualities and their threathening configurations, in reference to cognitive approaches developped by different scholars. In that sense, I referred to cognitive criteria such as multiplicity, organized or not complexity, scaling factors, coherence, enclosure, transparency, imageability, linkage. Such criteria are bound to emotional feelings proceeding to the readability of a place and to the perceived positive or anxiogenic assessment, as stated by various scholars (Alexander *et al.*, 1977, Debord, 1958, Ewing and Handy, 2009, Gehl, 1987, Jacobs and Appleyard, 1987, Lynch, 1960, etc..). I focused on height main pair-adjective of those feelings: bright/dark, appealing/repulsive, ugly/beautiful, spatious/narrow, proportionate or not, ordened or not, calm/noisy, secure/unsecure. Such basic method permitted me to get a more objective analysis of the visual skin from a subjective perception, to functionnally confront the four models of *structural visual connectivity* (obtained in the spatio-configurational analysis) with the field's criteria, and then to implement *the functional visual connectivity*, as a result of matching. It appears that the
four structural models ABCD highlight different, singular and rich visual landscapes, in comparison to the rest of the Wakaba's outdoors' landscape. The refined method supposes a configurational time-layered analysis of the visual network to find an order in the system (structural), confronted to the field's morphological analysis (functional): implementation of the visual connectivity (structurally and functionnaly), as an element part of the persisting visual identity and landmark of Wakaba place. The interest of outdoors within visual connectivity remains in the fact that: they are not only spontenaous enhancement but they shape and perpetrate a visual order<sup>1</sup> (attached to the unique small-grained fabric); Such order is viable and underlines the network capacity to overcome the neighborhood's transformations<sup>2</sup>.Hence the typologies ABCD in some sample-blocks are notable, but not all the blocks of Wakaba. Some of them lost intelligibility and the remaining viewlines are not suffisant enough to represent a structural order (intelligible/readable network). The visual connectivity is related to the capacity to continue being a structural visual entity. Over such capacity, the system starts to be affected, eventually brings a new langage and can be lost as a visual landmark.

Limitations: Additional visual tools and criteria functionaly implemented could enrich or restict the resulting models of connectivity: Further studies could explore the community opinion on the visual scenary in the past, by surveying the elder residents to get an image of the last 50 years of outdoors' appropriation on the nodes and paths of connectivity. The most appealing places with the strongest spatial appropriation belong to the area of visual connectivity. Poor resident's outdoors were noticed after a loss of visual connectivity. However the viewpoint method cannot confirm that all the nicely arranged outdoors are excusively emanating from the visual connectivity, as spontaneous appealing greeneries were observed in and out of the structural visual connectivity area.

#### 4. Chapter outlines

**Part I** will define the notion of connectivity, and look at the different criteria developped in outdoors' morphological analysis, spatio-configurational and cognitive approaches and the HUL visual tools. <u>Chapter 1</u>, defines the notion of connectivity and its applications in many fields. From the mathematical Graph Theory (Euler, 1735), the connectivity has found relevances within natural and urban landscape's fields: the space syntax (Hillier and Hanson, 1989) attaching the notion of

<sup>&</sup>lt;sup>1</sup> We can make the parallel with line of trees in the avenue. The angle trees are signals in the landscape and most probably, the first, middle and last trees added to the respect of an equal distance between trees can suggest an ordered row-structure of trees; however with less or more trees in between the row, the alignment would still be understood, but if signals trees are suppressed as an example, then the visual order of alignment is suppressed and a different visual structure and behaviour appears.

 $<sup>^{2}</sup>$  It is diretly related to the question of capacity of a network to maintain/highlight a spatial configuration and the critical moment/stage where the network does not make sense anymore or is not viable. It is part of the connectivity notion.

connectivity with the open spaces' intelligibillity; the landscape ecology (Taylor *et al.*, 1993), which defines structural and functional connectivity for the study and preservation of corridors from fauna and flora; and the urban web theory (Salingaros, 2006). However, the notion of *visual connectivity* and its conditions for the small-grained fabric of the urban core developped in this research, were never approached.

<u>Chapter 2</u> proposes a review of the morphological and cognitive approaches on the outdoor spaces. They have taken various directions: Sitte (1889) first analysis of the outdoors' rules in the old city<sup>1</sup> and the necessity of the artistic effect in Italian piazza, the morphogenesis of historic town with Conzen (1960, 1988), the diverse cognitive approaches on the imageability and readability of the urban environment with Lynch (1960), Gombrich (1980), Gehl (1987), Csikszent (1991), Kuipers *et al.* (2003), Ewing and Handy (2009), etc.; the visual methods implemented within the HUL for the skylines and long scenic views, but not yet at the small scale of an urban neighborhood; and finally the emotional aspect of the urban perception through different models or the qualitative assessment models (Antrop, 2000), the biophilic design statements (Beatley, 2009), on the rules binding human with the appropriation of outdoors, such as the urban genetic code, with Salingaros (2010), Alexander (2001-2005), or diverse approaches in the field of phenomenology, etc. I also refer to the organic order process proposed by Alexander (1978) for small and average urban features/cores. A cognitive approach of the outdoors morphogenesis and their visual specificities at short scale still need to be developed, enriching the debate on the visual identity of a place and its characteristics. It will be at the heart of this research.

**Part II** is divided into three chapters and is dedicated to the case study, from the site selection process and its context to the viewpoint analysis and the discussion.

<u>Chapter 3</u> stated historical and physical contexts of the *Shitamachi* of Edo-Tokyo, their evolution and perspectives (threats, transformations and challenges), as a unique socio-spatial system of the popular life and often the traditional urban dense pockets of the capital. Then I browse the steps for the selection of Wakaba as case study site and the first elaboration of the methodology based on the visual behavior I developped in some particular places, through my diverse walks and quest for a certain authenticity. Such places are visually distinctive, within the cultural landscapes of central Tokyo. I selected the downstream area of Wakaba 2<sup>nd</sup> and 3<sup>rd</sup> districts, once an informal settlement in Shinjuku ward. Surrounded on the topstream by large viewpoints on the landscape evidences, the hollow has a long lasting high density of its blocks. They comparatively manage different viewpoints, locally relevant and consistant enough to mentally draw a sort of visual urban structural mark for the walker. It is the premice of the viewpoint analysis.

<sup>&</sup>lt;sup>1</sup> Also referred as the traditional core, or the vernacular fabric.

<u>Chapter 4</u> starts with a primary rather common morphological analysis of the evolution from the buildings, the public spaces and the outdoors' density by block-sample. The viewpoint analysis was introduced as a finer process to grasp the local singularities of small-grained fabric. It is a spatio-configurational approach on outdoors of the site, through the introduction of range of visual tools: four viewlines issued from the behavioural practice of the place and two accurate tools from the connectivity (visual nodes and paths). It proceeds through the overlapping of historical maps with outdoors' layers, above which the tools are applied. The resulting schemas and graphs are quantified and underline the local visual and configurational singularities of the place, part of the visual identity: (1) a *visual landmark* highlighting the block's specificities (lively and diverse visual scenes and transparency through visual breakthroughs toward the block's innermost, etc); (2) the *structural visual connectivity*, which localized four patterns of outdoors with a visual persistency over the years, within four blocks. They play a structural role, as the notion of connectivity supposes a value for the capacity order from the visual network on the outdoors displays. The viewpoint analysis appears to be a morphogenetic approach, looking at a tangible order behind the outdoors arrangements, through the visual media.

<u>Chapter 5</u> proceeds through field analysis, to comfort the viewpoint analysis results and enrich the visual criteria in functionnal terms by understanding some codes behind the composition of the visual field on the outdoors' appropriations made by the residents and the positive behavioral emotion emanating from the fabrics. Due to its densely built-up frame, the attractive displays of outdoors shape the peculiar atmosphere, which enhance the visitors. It questions the value of the vernacular beauty of the multiplicity and the human scale, often experiencied in traditional urban core, and recalls the participative incremental growth behind informal settlement. The four *structural visual connectivity* patterns propose different atmospheres with singular visual specificities on the field. Hence, I introduced the notion of *functional visual connectivity*, in complement, as being part of the local visual identity. The hollow of Wakaba is an area favored for redevelopments with fire disaster warnings. Through the observations of good and threatening configurations, affecting the *visual connectivity (structural and functional)*, the *visual landmark* and by consequence the readability of the place, I address the challenges and the modalities of intervention for shapers (designers, developers and the neighborhood community) in order to compose without denaturing the local visual identity.

**In the conclusion** I stated questions, which emerged from this work and can be the object of future researches: (1) a social survey on the visual behaviour of inhabitants in their outdoors; (2) the possibility for the visual connectivity of outdoors to be part of the urban heritage in small-grained and densely built-up fabric of the HUL; (3) the application of the viewpoint analysis and its enrichment

with additional visual tools, in other urban fabrics of central Tokyo (Tsukyshima or Nippori) or for small grained entities, such as ancient but also new informal settlements.

### Research structure diagram

Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5
Scholars' review:	Scholars' review:	Historic review:	Research contributions:	Research contributions:
- Definitions of the	- Morphogenesis of	- The vernacular small	- The viewpoint method	- Implementing the
connectivity	vernacular fabric	Tokyo: a threathened	on the layers of	viewpoint method with
- The connectivity applied	- The cognition of a	landscape	vernacular outdoors	the field's observations/
to the landscapes studies	place and the readability/	Start of the analysis		cognition
-> notion of visual	intelligibility of the	- The process of		- for designers:
connectivity (newly	urban fabric	choosing the case study:		beneficial and threathful
defined in this research)	- the perception of	Wakaba small-grained		visual configurations for
	vernacular fabric	fabric		viability of the network
	-> cognitive approach	-> the outdoors visual		-> visual connectivity
	on the outdoors	identity for the small-		as a visual landmark
	morphogenesis and	grained densely built-		/identity for small-
	their visual specificities	up fabric of Tokyo		grained vernacular
	(singularity of this	vernacular landscape,		fabric of Tokyo;
	research)	(singularity of this		threathening and good
		research)		visual practices to
				sustain such landscape
Key words:	Key words:	Key words:	Key words:	Key words:
- Graph theory	- vernacular city,	- Shitamachi	- viewpoints (blocked or	- visual skin
- Connectivity of the	morphology, artistic and	- cultural landscape	transversal)	- binding cognitive and
urban web	picturesque effects	- vernacular Tokyo	- morphogenesis of the	emotional criteria
- Space syntax and the	- complexity, readability,	- visual 'behaviour'/	viewpoints	- functional visual
connectivity:intelligibility,	imageability, enclosure,	visual process	- visual landmark	connectivity
axial maps and visual	human scale, integration,		- structural visual	- visual identity
encounter	transparency,		connectivity	
- Structural and functional	- 5 lynchian elements		- connectivity tools:	
connectivity in ecological	(nodes, paths, districts,		view-axe and view-spot	
landscape	edges, landmarks)		(node)	
	- positive and negative			
	ladnscape assessment			
	- HUL skyline and long			
	distance scenic view			
	- biophilia, urban genetic			
	code and organic order			
	- wellbeing in urban			
	space			

## **PART I: Literature review approaching the question**



## 1. THE NOTION OF CONNECTIVITY AND ITS USES IN LANDSCAPE AND URBAN FIELDS

### **INTRODUCTION**



**CONCLUSION** 

#### 1. The notion of connectivity and its uses in landscape and urban fields

#### **1.1. Introduction**

This first chapter will be devoted to defining the main notions of connectivity through their literature reviews, in order to bind them to the notions I introduced in this research of *visual connectivity* in specific urban configurations. I will expose the definition of connectivity and its uses in several fields, ranging from mathematics to the environmental sciences. Mostly the connectivity graph and notion is used to manage complexity and movement speed in networks. The notion of connectivity appears notably in the urban web theory, associated with the study of networks and urban configarations; and in the space syntax analysis, as a rather systemic approach, where Hillier and Hanson (1989) and their followers developed variations of the connectivity graph<sup>1</sup>. The ecological landscape field developped structural and functional connectivity and introduced the concept of conservation from the ecological landscape connectivity for the preservation of the flora and fauna. Therefore, the notion of connectivity reached a supplementary dimension.

#### 1.2. General definitions of connectivity

The term connectivity has been defined in numerous fields. In general terms, connectivity refers to "the quality or condition of being connected or connective or the property of being connected or the degree to which something has connections."<sup>2</sup> Originally, the notion of connectivity belongs to the field of mathematics with the Theory of graph, in the beginning of the 18<sup>th</sup> century.

Connectivity is one of the basic concepts of graph theory: it corresponds to the minimum number of elements (nodes or edges) to be removed in order to disconnect the remaining nodes from each other. It is closely related to the theory of network flow problems. The connectivity of a graph is an important measure of its robustness as a network...<sup>3</sup>

- The mathematician Leonhard Euler first developed this theory by establishing a relationship between a network and its topology<sup>4</sup>. In 1735, one of his articles was presented at the Saint-Petersburg Academy and later published in 1741 (Raynaud, n.d.). It developed the problem of seven bridges from the city of Königsberg. It aimed at finding a path starting and finishing at the same place (point) in the

<sup>&</sup>lt;sup>1</sup> Space syntax analyis tries to define the holistic phenomena of human behaviour within spatial configurations, by establishing the degree of "integration" of such a system, through the connectivity graph.

<sup>&</sup>lt;sup>2</sup> Translated from the Robert French Dictionary

<sup>&</sup>lt;sup>3</sup>Additionaly: "In an undirected graph G, two vertices u and v are called connected if G contains a path from u to v. Otherwise, they are called disconnected. If the two vertices are additionally connected by a path of length 1, i.e. by a single edge, the vertices are called adjacent. A graph is said to be connected if every pair of vertices in the graph is connected." (Diestel, 2005, p 12).

<sup>&</sup>lt;sup>4</sup> The notion of the now called "topology" was firstly stated by Euler with the seven bridges of Königsberg problem. Source from Encyclopoedia Universalis (Houzel, n.d.); Topology is a branch of mathematics that studies the intuitive notions of continuity and limits. Source from Encyclopoedia Universalis (Morlet, n.d.)

city of Königsberg, crossing each of the seven bridges of the city only once. This way was found and named the Eulerian path (i. e. a path going through different edges only once) (see figure 1-top).



By extension, the Eulerian graph represents the first property from a graph, referenced by the theorem of Euler, who was the first to find a mathematical answer to this question of paths and edges. Over the centuries, various models of graphs were proposed by different mathematicians. For example in the mid-19<sup>th</sup> century, Arthur Cayley proposed the *tree* graph, where the reverse path is performed to reach the starting point. He opened the way to the combinatorial list. The graph theory was also used by mathematicians during the 19<sup>th</sup> century, to overcome the question of flows within the networks and its capacity in terms of minimum and maximum for nodes and paths to be maximized. For example an electric circuit can be seen as a graph with nodes as summits and edges as physical connections between those nodes. Each edge received a flow of energy, which was also transmitted to the summits.

- Until the mid-20<sup>th</sup> century, the graph algorithm was not random (see figure 1-middle and bottom). The probability in graph algorithms was first introduced with the Russian mathematician 1957 with Anatol Ropoport, in and the Hungarian mathematicians Paul Erdos and Alfréd Rényi, in 1959. They asked themselves which properties could be found for a graph with n summits and m edges. Each edge would exist with a probability p. The random graphs were born, under the question of which probability p would be interesting enough to bring a certain property to a graph, with *n* summits. The resulting graph is not linear and a critical probability is observed, which radically changes the properties of the graph (see figure 1, 2nd illustration). Further theories have been developed in statistic physics, especially for the study of fluids and their applications. In the beginning of the 2000's, numerous models have been proposed for random graphs, concomitant to the logic of web and growing networks.

Figure 1: From top to bottom, Königsberg bridge and its associated graph/ Transition stage with a critical probablity/ Random graph: Abstract stone by a grid 50\*50 with representations of the channels/ Directed Random graph, 20 nodes, probability p = 0.1, instance 1.

Source: Encyclopoedia Universalis (Raynaud, n.d.)

- From the beginning, the *Graph theory* found an immediate application to the field of computer sciences, through the *connectivity graph*. The theoretical part of this field stated the *algorithm analysis*, also called *complexity of algorithm*. It can also be related to the time needed and the necessary space within the machine, to solve a given problem. In that regard, branches and arborescence permit representing graph models more efficiently than others. The mathematicians Robertson and Seymour (1983), in their *Graph minors*, explained their concepts of arborescence and branches deconstructions. Such illustration processes are used for dynamic programming issues.

- For more practical applications, the connectivity graphs are used within computing sciences to evaluate the efficiency of multiple objects of a telecommunications network<sup>1</sup>.

The ability to make and maintain a stable connection between two or more points in a telecommunications system (eg. a phone company that offers excellent Internet connectivity)<sup>2</sup>.
The ability of computers and other types of electronic equipment to connect successfully with other computers or programs <sup>3</sup>.

- In economics, connectivity is a measure of the extent to which the components of a network (ie. nodes) are connected to one another and the ease (ie. the speed) with which they can converse<sup>4</sup>. Thus, the concept of connectivity is based on the fact that *movement* became a sort of norm and the management of change turned to be the main interest of firms. As everything is perpetually changing, the dimensions of speed and the immaterial, assimilated as connectivity, is at the heart of an economic system in mutation (David and Meyer, 1998). Thus, "connectivity is the entirety of affiliations interweaved between individuals and organizations, organizations themselves, between buyers and sellers, collectivities etc. Those affiliations, generating connections, mergers and handovers, became everyday economical and industrial news"<sup>5</sup> (David and Meyer, 1992, p. 10). Our system is not rigid anymore and pyramidal structures might disappear progressively to adapt to a more dynamic system based on the exchange networks. Managing complexity, accessing information and rallying collective intelligence are at the heart of an economic system, governed more and more by the rules and the speed of the internet. The internet represents the model of a technology binding individuals, arousing the collective need for exchanging information and apprehending the human inclination to work

<sup>&</sup>lt;sup>1</sup> A generic term for connecting devices to each other in order to transfer data back and forth. It often refers to network connections, which embrace bridges, routers, switches and gateways as well as backbone networks. It may also refer to connecting a home or office to the Internet or connecting a digital camera to a computer or printer ( Derfler, 1992).

<sup>&</sup>lt;sup>2</sup> Source: http://www.thefreedictionary.com/connectivity

<sup>&</sup>lt;sup>3</sup> Source: http://www.macmillandictionary.com/dictionary/british/connectivity

<sup>&</sup>lt;sup>4</sup> The business dictionary, online: http://www.businessdictionary.com/

<sup>&</sup>lt;sup>5</sup> French translation from: "Nous appellerons la connectivité, l'ensemble des liens qui se tissent entre les organisations, entre les individus et les organisations, entre les acheteurs et les vendeurs, les collectivités, etc. Ces liens, qui génèrent des connections, fusions, cessions, sont devenus quotidiens et ont la une de l'actualité économique et industrielles. Les entreprises n'hésitent plus à se restructurer, à externaliser, à céder, à former des alliances, et pour certaines même à adopter des organisations dites « virtuelles » : le mouvement devient désormais la norme et la gestion du changement la préoccupation majeure des entreprises. »

virtually. However the *blur* (David and Meyer, 1998) remains in the fact that with a connection, the value of a product increases by means of its reduction  $ratio^{1}$ .

- In botanical and medical sciences, connectivity represents: (1) a longitudinal nerve cord uniting two ganglions; (2) an organ that brings together the two another-cells in some plants<sup>2</sup>. The detection of brain connectivity through imagery and signage is a challenge mentioned in the medical and telecommunications sciences (Poupon, 1999)<sup>3</sup>. Brain connectivity is associated with the activity of the white and grey substances of the brain. A correlation with graph theories has been done and algorithms are used to study the brain connectivity, in terms of speed and components.

The graphs are surrounding us everywhere. Subways maps, road maps, social and urban networks, games, charts, family trees, architecture maps etc. can be optimized and represented by connectivity graphs. In the following parts, we will focus on three approaches around the notion of connectivity: the connectivity in the urban network approach, the landscape-ecological connectivity, and the space syntax analysis developing the connectivity graph, for topologic "visual" analysis on outdoors.

#### **1.3.** Connectivity in the urban web theory

In the urban web theory, the connectivity is attached to the rules of hierarchical scaling and proportions, by using mathematical tools and binding the fields of mathematics, biology and physics with architecture and urban patterns. In reaction to the numerous scaling mistakes displayed by patterns from the modern urbanism, the architect Alexander (2001-2005) and the mathematician Salingaros (2006) developed the notion of a "structural order" associated to scales. Their researches explored the relationship between connectivity and the dimensions of readability in a space, as the relationships that link the human perception in an outdoor space to its built urban environment. Hence, this perception is instinctive and emotional and can be facilitated with the presence of essential mathematical harmonies. Their heuristic approaches tried to discover some rules (orders) in the space configurations that could benefit positively from the human connection to the environment, instead of generating anxiety as observed with post-war new urban and architectural features. Alexander stated fifteen architecture fundamental rules that Salingaros assembled in three main "laws of structural order": the small scale, the large scale and the natural scaling hierarchy. The order is a phenomenon that "connects the built structure with a visual structure", in the sense that "visible differentiation on the small scale is not necessary to define the physical structure, but necessary for structural order"

<sup>&</sup>lt;sup>1</sup> The communications system gains value proportionally whereas the intrinsic tool loses. It's the law of growing productivity with reductions. With speed, connectivity and immateriality, borders disappear at all levels, rules become obsolete and the speed of change abolishes the markers (in time and space).

<sup>&</sup>lt;sup>2</sup> Author translation from *Le nouveau petit Robert de la langue française 2007*, French dictionary, looking at the French word connectif (ive), a substantive and adjective.

<sup>&</sup>lt;sup>3</sup> Thesis on tele-communication

(Salingaros, 2006, p. 31). He introduced the scaling aspect of connectivity acting as the process of readability of a place.

(1) Order on the smallest scale is established by paired contrasting elements, existing in a balanced visual tension. (2) Large-scale order occurs when every element relates to every other element at a distance, in a way that reduces entropy. (3) The small scale is connected to the large scale through a linked hierarchy of intermediate scales with a scaling ration approximately equal to e=2.7... a basic scaling phenomenon seen in biological structures... growth is scaling, either via a Fibonacci sequence, or an exponential sequence (which is generated by e=2.7). (Salingaros, 2006, p. 30)

(1) Thus elements on a small scale have to use geometrical features through interlocking structures with opposite and contrasting characteristics. The author gives the example of Greek temples that offer a high level of organized multiplicity and richness from far away (larger scale) to a little detail on a small scale, using many contrasting details (shape, colour hue and value, directions...).<sup>1</sup> (2) What matters on a larger scale for a better connectivity is the reduction of entropy (or disorder), by pursuing geometrical arrangements that avoid disorders<sup>2</sup>. By consequence a "smaller scale order comes from coupling units that are touching each other, whereas large-scale order comes from reaching units that are not next to each other." (Salingaros, 2006, p. 33) Reducing entropy aims at facilitating the perception of objects as a whole by human senses against the frustration or anxiety generated by disconnected objects, which are difficult to grasp in the environment: the lower the entropy, the higher the structural order and vice versa. (3) Consequences:

"Every unit (subdivision) will be embedded into larger unit of next scale...the whole design is a hierarchy of wide boundaries within boundaries...each building requires an entrance gradient as well as other functional gradients... A building must be placed into the environment in a way that fits the existing scaling hierarchy or urban dimensions. The surroundings nature and other buildings will then define the largest scales of the hierarchy." (Salingaros, 2006, p. 38)

The *scaling rule* "explains our connection to natural materials", whereas the *scaling coherence* is achieved by "a discrete hierarchy of different scales from the scaling rule, derived from physics and biology.... All components in the natural scaling hierarchy are visually connected... and coherence is created by linking forms on the small scale to forms on the large scale." (Salingaros, 2006, p. 45) To illustrate his theory, Salingaros details mathematical and fractal structures from natural features, such as trees, leaves but also man-made architectures from different civilizations (temples, religious edifications etc...): Natural features<sup>3</sup> are declined at different hierarchical levels of scale from macro to microscopic dimensions as a result of internal and external forces. He compared the great

<sup>&</sup>lt;sup>1</sup> This consideration is similar to the electron-positron opposite charges, or the nuclei with its neutron-proton with opposite isospin, and electron-nuclei, with opposite charges to bind the atoms.

<sup>&</sup>lt;sup>2</sup> A parallel to this process can be made with the electric, magnetic or gravitational fields that seek larger-scale ordering characteristics.

<sup>&</sup>lt;sup>3</sup> such as the communities of organisms in an ecosystem, organisms, organs, cells, tissues, membranes, molecules, atoms and elementary particles, and also for the built forms

connective outdoor space of *Piazza San Marco* in Venice, and its opposed very weak connective structure with the *Grande Arche de la Défense* in Paris. He concludes that following a structural order does not require specific patterns. Any morphologies, designs, symmetrical or not, as long as they can follow those principles of hierarchy within substructures and resonate with a natural scaling, can benefit in connecting a human to his environment.

- Following the principles of scaling rules and coherence to apprehend objects in the environment, the "theory of urban web" enlightens the outdoor spaces' relationships, city structure roots and their interrelationship within the natural environment. More specifically, based on Alexander's work, Salingaros draws an analogy between neurological connectivity and the connections among urban elements that generate the urban web<sup>1</sup>. In that sense, the city mimics the human brain topology through similar connecting processes, built on sufficiently organized complexity. Thus, he detected patterns of connection that apply for urban arrangement as well (see appendix B). Connections link human activity nodes, natural and architectural elements. In the structural part of his theory of urban web, Salingaros redefines concept-words, as nodes, connections and the hierarchical order behind the arbitrary designs of the 20<sup>th</sup> century that have contributed to destroy by simplifying without respecting those mathematical principles (Salingaros 1998, Batty and Longley, 1994).

- Complexity of the urban network: Using thermodynamics theories, Salingaros (2006) tried to evaluate the architectural complexity orders and hierarchy that he compared to biological complexities. By finding correlations such as classical and neo-classical buildings with modern buildings through their schemas of complexity, he was able to define their mutual impact on human perception and information processing that also proceeded through similar complex structures. Moreover, when architectural elements can connect through symmetries, similarities and intermediate forms, highly complex functional connections do not specifically follow a symmetrical order. Thus the aspect of connectivity tends to be ignored when buildings or cities are planned in visual terms.

"It is the organized complexity of a functioning urban web that determines its overall form, and not the other way around. Organization combines multiple connectivities with a hierarchical ordering. A piece of the urban web may look organized but be disconnected. Conversely, another piece may look disorganized on plan, yet be highly connected and functional." (Salingaros, 1998)

The cathedrals built by masons perfectly reflect the human complexity, with hierarchical orders that are inherent to complex structures. In the same way, chaotic structures have much more to do with a complex organization than a disordered structure<sup>2</sup>.

<sup>&</sup>lt;sup>1</sup> He found correlations between biological systems, human emotional perception and visual patterns, neurophysiologic functions, physics, fractal rules and mathematics, previous outstanding architectures, vernacular constructions and settlement formations.

 $<sup>^2</sup>$  Salingaros explains the opposition between chaotic structures and complex ordered ones as follow: "The degree of pattern in a structure or design leads us to consider its information content... Blank walls convey no information other than their outlines. Ordered patterns on the one hand, and chaotic designs on the other, offer a large quantity of information; but it is organized very differently in these two cases. Complex, ordered patterns

- The main characteristics to form a connective urban web according to Salingaros (1998), can be resumed as follow (see details in the appendix B):

1- Regarding connective paths, the forms can induce a major misunderstanding. The geometrical regularity in a plan does not necessarily represent a sign of strong connectivity. Hence very irregular patterns, are often strongly connected (Gehl, 1987). Salingaros emphasized the potential for connectivity of curved lines, which mathematically have infinite possibilities of connecting two points, when the straight lines do it only in one way. Curved lines are distinctive of organic structures in medieval cities, which remain nowadays a source of great pleasure for the walker. Thus, the multiplicity of irregular and curved paths increases the level of connection and the density of connections is a condition for a successful functioning<sup>1</sup>. The brain, the architecture and urban design, as highly complex and irregular systems, aim to also be very coherently organized to avoid chaotic situations<sup>2</sup>.

2- The hierarchical ordering of different path types is crucial for the urban web to get connections. Different types of elements (residential, commercial, natural...) have to be intertwined to catalyze the connective process, as this process occurs only between complementary nodes, creating an attractive and coherent structure with linkage, a key element. Hence, connections between similar nodes are too weak to form a path and are "one of the reasons why suburbs are dead" (Alexander *et al.*, 1977 cited in Salingaros, 1998).

3- As underlined before, the scales also matter in the connecting process of urban web: on a small scale, a pedestrian can go toward the shortest straight path, but a larger scale of connections requires curved and irregular paths, not forgetting that a global curve is made of multiple straight segments. Small scale is a necessity, expressing the incremental changes that shaped the spatial structure of cities; whereas large scale connections facilitate movement on a higher level. Thus, for Salingaros, the global design emerges from a locally ordered system, and not the other way. Additionally, the more segmented a path is (i.e. with more intermediate nodes) the stronger and tighter the web structure is.

have a large information content, which is tightly organized and therefore coherent (i.e. it can be grasped and has meaning for a human being). Chaotic forms have too much internally uncoordinated information, so that they overload the mind's capacity to process information. Random information is incoherent: by failing to correlate, it cannot be encoded. Monotonous repetition provides little information, although if it does contain any, it is well organized. Repetition of an empty module does not necessarily create patterns with any content; one needs contrast as well (Alexander, 2003) Internal contrast, in turn can be used to generate symmetries on a larger scale, which is essential for organization. Complex patterns contain more information in their different scales, and also in the interconnections between those scales...For example, symmetric patterns on floor tilings were eliminated as not being closely related to the use of the architectural structure. Apparently the opponents of this type of ornament misunderstood the function of a patterned floor tiling. By connecting to the pedestrian through information, the entire space is made more immediate-hence more useful-and at the same time it supports ancillary functions of the whole building." (Salingaros, 2006, p 142)

<sup>&</sup>lt;sup>1</sup> A parallel for complex workable cities and their multiple paths can be made with the brain, where damaged connections do not globally impair the operations of the brain, and where the number of connections can be approximated to 10000 times the number of nodes.

<sup>&</sup>lt;sup>2</sup> The last century of architecture and urban planning, in the glory of the *ville radieuse* and its formal purification (fact that reduced the complexity of the urban web) ignored the complex process of organization. It has been a fundamental rule for many millennia.

4- Another major element to sustain connectivity relies on the combination of path and edge. Comforting Lynch, Gehl, path in a uniform area is ambiguous, as it divides similar material. However paths at the boundary of an area such as the edge support the boundary and vice versa, defining a division into a contrasting and complementary pair (see figure 8, in appendix B).<sup>1</sup>

5- Pedestrian paths should have priority over other transport modes, as the best way to establish web connections. "Optimal sequence to be followed: define the pedestrian and green spaces first, followed by pedestrian connections, buildings and roads, in that order" (Alexander *et al.*, 1987 cited in Salingaros 1998, p. 66). Thus nodes of a neighbourhood should be connected by footpaths. The connective web should never stop being connective, so that one path can replace another damaged one, and in all directions. In practice, pedestrian and bicycle traffic should make use of independent networks.

6- Necessary discontinuity and separation touch disparate urban functions, with an edge as a constructive boundary in order to provide healthier and long-term stability to some neighbourhoods.

The notion of connectivity is at the heart of the urban web theory, in terms of scaling hierarchy, organized complexity and the capacity of connections from the different elements engaged in shaping a place, which responds to human understanding. To some extent, this definition of connectivity in the urban web is not issued diretly from the *graph theory*'s calculations. Salingaros and Alexander based their demonstration on the observation of the urban conditions (components of the past and present cities and their urban networks), mathematics for scaling issues, and a correlation with other fields from geometry to biology. On a larger scale, the connectivity was used in ecological landscape, to explain and sustain biodiversity.

#### 1.4. The landscape ecological connectivity

The research on connectivity is recent and started in the 90's. At its most fundamental level, connectivity is inherently about the degree of movement of organisms or processes: the more movement, the more connectivity<sup>2</sup>. The definitions, metrics, functionality, conservation applications, and measures of success depend on the processes of interest and the spatial and temporal scales at which they occur. This fact is at the heart of differing perceptions and numerous academic debates regarding connectivity. Thus, just looking at the field of ecology, the concept of connectivity tackles a variety of perspectives, from metapopulations ecology, to landscape ecology, from the flow of energy

<sup>&</sup>lt;sup>1</sup> The parallel with the human' subconscious feeling of protection can be made while walking along a border or in the middle of a space.

<sup>&</sup>lt;sup>2</sup> « Movement in nature can take many forms: soil, fire, wind and water move; plants and animals move; ecological interactions, ecosystem processes, and natural disturbances move, or elements move through them. All require, to different degrees and at different scales, connectivity in nature. » (Crooks and Sanjaya, 2006, p2.)

and material, organisms, or information across dissimilar habitats to the flow of genetic material within and among populations. The clear, replicable, and pragmatic metrics of connectivity is a challenge for its wise application, and more significantly for conservationist purposes.

- The study of ecological networks has recently<sup>1</sup> proposed the theoretical notion of ecological landscape connectivity. The most frequently used definitions of connectivity in scientific literature are: "the degree to which the landscape facilitates or impedes movement among resource patches. The types, amounts and arrangement of habitat, and the land use on the landscape, influence the movement and ultimately, the population dynamics and the community structure." (Taylor *et al.*, 1993)

- In metapopulation<sup>2</sup> ecology, "connectivity is related to migration and colonization rates from local subpopulations or gene flow among discreet patches in a metapopulation" (Taylor *et al.*, 1993). Patch connectivity is distinct from landscape connectivity used in landscape ecology for the entire landscape. Metapopulation connectivity is often measured as the distance to the nearest patch (occupied or not).

- Both attempts (landscape and metapopulation connectivity) in ecology have been developed to understand more accurately the concept of connectivity, which is entirely dependent on the scale, species as the targets, or the process in question. Hence, it is by no means static, but highly dynamic and often unpredictable. In that regard, it is closed from the definition stated by economics, which assimilates connectivity and flow but describes it also as a blurred process.

 $\succ$  Let's focus on the landscape ecology. The definition of landscape connectivity encompasses two components (Brooks, 2003): (1) the structural (or physical) connectivity; (2) the functional (or behavioural) connectivity. The structural connectivity defines the spatial arrangement of different types of habitat or the structure of a landscape, whereas the functional connectivity represents the biological component or the response of individuals, understood as the behavioural processes to landscape features and physical structures.

'Connectivity' can be broken down into '**structural connectivity' and 'functional connectivity**.' Structural connectivity refers to the physical relationship between landscape elements whereas functional connectivity describes the degree to which landscapes actually facilitate or impede the movement of organisms and processes. Functional connectivity is a product of both landscape structure and the response of organisms and processes to this structure. Thus, functional connectivity is both species- and landscape-specific. Distinguishing between these two types of connectivity is important because structural connectivity does not imply functional connectivity. (Meiklejohn *et al.*, n.d.)

<sup>&</sup>lt;sup>1</sup> recently accepted by the academics, at the very end of 20<sup>th</sup> and beginning of 21<sup>st</sup> centuries

<sup>&</sup>lt;sup>2</sup> Definition from Encyclopaedia Britannica online: "metapopulation, in ecology, a regional group of connected populations of a species. For a given species, each metapopulation is continually being modified by the increases (births and immigrations) and decreases (deaths and emigrations) of individuals, as well as by the emergence and dissolution of local populations contained within it. As local populations of a given species fluctuate in size, they become vulnerable to extinction during periods when their numbers are low. Extinction of local populations is common in some species, and the regional persistence of such species is dependent on the existence of a metapopulation. Hence, elimination of much of the metapopulation structure of some species can increase the chance of regional extinction of species."

- Structural connectivity is often equated with the spatial contagion of habitat. It ignores the behavioural response of inhabiting organisms and can be measured with a variety of landscape metrics and spatial analytical approaches. It increases "when physical relationships between habitats and patches are tightened" (Taylor *et al.*, 2006, p.). Functional connectivity, on the other hand, requires not only spatial information about habitats or landscape elements, but also at least some insight on the movement of organisms or processes through landscape. It increases "when change in the landscape structure (not necessarily in the structural connectivity) increases the degree of movement or flow of the organisms through the landscape." (Taylor *et al.*, 2006, p.). Connectivity usually refers to functional connectivity. As highlighted by Taylor *et al.* (2006), although structural connectivity may be easier to measure than functional connectivity, this does not mean that connectivity is a generalized feature of a landscape<sup>1</sup>.

- There are three components for landscape connectivity: (1) species movement patterns and behaviours, (2) the size and arrangement of resource patches and (3) the matrix. Most of the researches focused on the lives and the environments of little animals and plants, such as specific cactus, damselflies, and butterflies<sup>2</sup>. The ecological connectivity encompasses other notions, such as corridors, linkage, matrices, scale, landscape permeability, and the ecological network (see Appendix A).

> Taylor *et al.* (2006) propose main points to assess the landscape connectivity for natural features, that I recorded. They present a great interest for this research<sup>3</sup>, while assessing the urban landscape and the human species' behavioural response to the landscape elements and structure.

1- Habitat does not necessarily need to be structurally connected to be functionally connected. Conversely, structural connectivity does not provide functional connectivity if corridors are not used by target species. Thus measures of structural connectivity ignore variability in the behaviour of the inhabited organisms in response to the landscape structure, and ignore broader-scale influences of landscape structure on finer-scale movement decisions. *Incidence function models* have been developed, attributing coefficients to represent functional connectivity instead of relying exclusively on Euclidian measures of distances<sup>4</sup>.

2- Landscape connectivity is species-specific: "Assessing landscape connectivity requires a speciescentred approach, with information on species' movement responses to landscape structure (movement rates through different landscape elements, dispersal ranges, mortality during dispersal, and boundary interactions) and how those responses (reflect) a function of broader-scale influences."

3- The connectivity proceeds through multiple heterogeneous elements of the landscape: "Landscape connectivity cannot be captured simply by an index of landscape patterns, but must be determined

<sup>&</sup>lt;sup>1</sup> In addition, "Structural connectivity does not imply that the same landscape would have the same connectivity for multiple species or processes. Instead, a structurally connected landscape may be functionally connected for some species and not for others." (Crooks and Sanjaya, 2006, p.)

<sup>&</sup>lt;sup>2</sup> Species, usually object of studies and mentioned in the academic research papers

<sup>&</sup>lt;sup>3</sup> The different properties can be used and equivalences can be found for the urban landscape.

<sup>&</sup>lt;sup>4</sup> Structural connectivity (GIS, maps etc...) usually relies on Euclidian measurements of distances. It also explains its prevalence in the literature

based on organisms' perception of, and interaction with, the structure and heterogeneity of the landscape."<sup>1</sup>

4- There is no direct relationhips between landscape connectivity and species' persistence or extinction: "There is no single critical threshold value at which a particular landscape becomes disconnected for all species simultaneously. Ecological thresholds, such as a dispersal success, population persistence, species interactions and community composition, or system resilience, may not and generally do not, coincide with thresholds in landscape connectivity. Different spatial and temporal scales that contribute for example to the species extension threshold might interfere on a different level than the critical level of habitat at which landscape connectivity becomes disrupted. A connected landscape does not guarantee species persistence, just as a disruption of landscape connectivity may not result in the immediate extinctions of a species."

5- In order to measure the connectivity, qualitative and quantitative approaches may be used. Quantitative analysis of ecological connectivity is a difficult task because it is based on various complex models and computer software, reading staining patterns of landscapes from satellites images, aerial photos and diverse maps. Required calculations refer to different theories, including landscape ecology, geometrical patterns of landscapes and percolation theory. After a first quantitative broad approach has been undertaken, qualitative checking on the field permits to testify from the real degree of connectivity. Numerous tools among which tele-detection, photography, capture, the marking and re-capture method, are used to propose a more refined mathematical SIG model. Models obtained through software are thus automatically checked, as channels or roads may be major obstacles for most animals for example. Measuring the degree of connectivity is an important issue in order to measure the impact on the ecosystem of big infrastructure projects and territory master plans for example. It is also useful for sustainable purposes and the biodiversity preservation, which aims at the conservation and rehabilitation of connective ecology within the landscapes. Measuring and managing structural and functional connectivities are necessary for a better assessment of landscape connectivity, although functional connectivity is more difficult to evaluate due to the complexity of the interweaving information from the physical field and their interpretations.

6- Put into practice, ecological connectivity decreases with the increase of fragmentation. In the ecological landscape discipline, **the concept of connectivity conservation** has been developed as a major strategic response to the climate threat change on plants and animals. However, landscape connectivity is a necessary but not sufficient condition for species conservation. Other elements such as the size and quality of the habitat are to be considered to guarantee species persistence in the

<sup>&</sup>lt;sup>1</sup> In those cases, direction of the wind for earth species, water currents in the case of marine systems, but also roads, waterways, land uses etc... can have a strong effect on the orientation of behaviour in specific species and may contribute to the distinct connectivity schemes of populations. The authors referred to the studies of bugs from the *Opuntia* cactus and the strong effect of the prevailing wind direction on their orientation behaviour, which located them toward cactus patches upwind. This study concerns directional connectivity, as those bugs use olfaction to locate the cactus. To reach a successful dispersal in their experiments, the size of the patches and the structure of the matrix were important but wind factor played a determinant role as well.

landscape, as a continuous habitat may not always be available. The appropriate management of landscape connectivity is a major component of biodiversity in planning strategies. Connectivity conservation integrates many features, such as the core protected areas, the landscape-wide matrix management area, the local wildlife corridors, native habitat as stepping stones, introduced vegetation with similar characteristics to the corridors of native vegetation. However, managing the matrix is meaningful to preserve or restore functional connectivity (see figure 2).



Figure 2: From top to bottom and left to right: Concept for landscape corridors/ Four types of measures to counter the effects of habitat fragmentation/ The hypothetical landscape from graph theory/ Conceptual model for the connectivity conservation.

Source: Bennett, 2004/ Crooks and Sanjaya, 2006, p. 87, 305, 80

In conservation and land management, the landscape connectivity shall be considered as a "component of the suite of interacting factors that influence the demography of a species" (Taylor *et al.*, 1998). It is a dynamic concept, intended to be used in the context of human land-use changes, on short and long

time scales and part of an adaptive land management. Hence, the connectivity might decline with some types of land-use and then progress as the matrix undergoes successive changes. The relationship between landscape connectivity and managing the matrix is often ignored, partly because it can require decisions with high political or economical costs. Additionally, for Taylor and Pither (1998), the landscape connectivity can also be affected by the behavioural context (or historical behaviour).

The humans' demography and the resulting fragmentation of natural landscapes are of major concern to conservation scientists. While the concern for connecting landscapes is increasingly becoming a part of land management worldwide, the practice of preventing fragmentation and conserving connectivity is not a simple matter<sup>1</sup>. Many questions remain unanswered, as how essential connectivity is for biodiversity conservation, what exactly connectivity is, how to define it, and how to measure the successes of conservation programs attempting to protect it. Despite its importance, there is a need to elucidate the concept of connectivity, which cumulates various interpretations and might gain to get summarised. The concept of the conservation of connectivity for natural landscape and its biodiversity can be borrowed for human corridors, their space appropriation patterns and behaviours, especially in the case of a threatened fragmented urban historic fabric and for the sustainability of a cultural landscape. The landscape connectivity and the *urban web* theories have both highlighted important principles to better comprehend the connectivity issues and have laid the foundation for the notion of the conservation of connectivity. Hence connectivity was apprehended through heuristic approach, considering various elements and their complex interactions. It is the case with the *urban web theroy* and the functional part of connectivity in ecological landscape (which also used calculations to apprehend the structural connectivity). This research aims to specify some characteristics of the connectivity, applied to the dense urban areas from the historical urban landscapes, to the general landscape of the city.

#### **1.5.** The connectivity graph in the space syntax analysis

#### 1.5.1. Space syntax approaches and critics

The space syntax analysis is a major attempt to quantify the interrelationship between the built environment and social life. It was developed by Hillier and Hanson (1984) during the 80's and was a relevant specific contribution of urban design on the study of city networks. The analysis developed an application for a network approach in cities, neighbourhoods, and even in single buildings, by establishing a significant correlation between the topological accessibility of streets and diverse

<sup>&</sup>lt;sup>1</sup> For Taylor *et al.* (2006): "Conservationists often fail to articulate clearly what they mean by connectivity and what will be gained through their efforts to protect it, and often are insensitive to the logistical and economic costs associated with conserving landscape connections."

phenomena, such as their popularity (pedestrian and vehicles flows and patterns of their movements), human way-findings, and the safety against micro-criminality, the micro-economic vitality and the social liveability. It developed various approaches and went through controversial critics from the academic community (Ratti, 2004). The major references were written by Hillier and Hanson (1984), Hillier (1996), Hanson (1998) and issued from the International Space Syntax Symposiums held in London (1997), Brasilia (1999) and Atlanta (2001).

 $\triangleright$  The space syntax analysis is based on computer techniques to analyse urban configuration<sup>1</sup>. using software linking "space syntax" analytic tools with graphical representation. It develops the axial map as a support, and "the analysis of it by translating the line matrix into a graph, and with the use of various versions of the topological measure of patterns of line connectivity called integration" (Hillier, 1999)<sup>2</sup>. Miscellaneous topological parameters are used such as depth<sup>3</sup>, status and integration measures. The axial map of a city pattern is a map where each straight space ("line of sight" or "line of unobstructed movement", i.e. the street network) is represented by one single straight line, "an axial line"; The axial line represents the fewest and longest lines of sight that pass through every space comprising any system. Such free space is perceived as vista by the walker, which can be represented as an axial line. It is a one-dimensional representation. Then in the derivate syntax "connectivity graph", each axial line is turned into a node, while each intersection between any pair of axial lines is turned into one edge. Each line can receive intersections from n lines (depth 1), crossed by m other lines (depth 2) and so on. The process calculates the accessibility (namely "integration") over the "connectivity graph" on the basis of a topological non-Euclidian concept of distance (the step distance); finally values of integration are represented back into qualified axial map layouts, which are the outcomes of the analysis process. The first space syntax representation is oriented toward environments which are relatively linear, concurring to an average dense built environment where free space is stretched in one orientation at most points (city, town, village, neighbourhood).

> The figure 3 briefly situates the axial lines in the visual field. The isovist spatial representation is two-dimensional and supposes a horizontal slice of the view field, taken at the eye's height and parallel to the ground plane. It is different from the axial line from space syntax analysis (one dimension) and the tri-dimensional view sheds predominantly used by geographers. The original definition of the axial map was stated as the fewest and longest lines of sight, such that they pass through every (convex) space in a system. They can be seen as a sub-set of the all line map, such as being pairs of mutually visible lines. Thus the resulting axial map (the least number of longest straight

<sup>&</sup>lt;sup>1</sup> Configuration is understood as "relations taking into account other relations"

 $<sup>^{2}</sup>$  The study of those graphs belongs to topology, a branch of mathematics which deals with connected pieces and their boundaries, independently from their shapes and sizes, as properties of given spaces.

<sup>&</sup>lt;sup>3</sup> "Depth is a kind of measure which represents the minimum number of changes of direction to go from the origin to any other segment in the network" (Ratti, 2004)

lines and its interconnections) already encompasses embedded visual characteristics of a spatial configuration<sup>1</sup>.



Figure 3: a-The Gibson's ambient optic array/b- The relationship between Isovists, Lines of sight and axial lines/ c- from axial line to the isovist as a set of radiating sightlines/Schema interpreting convex and concave shapes from Mireille Tchapi.

Source: Extracts from Conroy and Bafna (2003)

More precisely, to understand the distinction of axial lines: There are an infinite number of lines, which might possibly refer to Gibson's ambient optic array<sup>2</sup> (or view shed, 3D-isovist; see figure 3-a). The term *vista*, commonly used in architectural fields is meant to be three-dimensional, as a subset of the view shed (and not the isovist). Axial lines, as a small sub-set of all of the possible lines (see figure 3-b), proceeds through the process of clique concatenation<sup>3</sup>, where the clique (groups of lines) is replaced in a graph by a single line (or a single node). In VGA analysis<sup>4</sup> (or namely isovist integration), Turner *et al.* (2001) identified a relationship between isovists and convex shapes, where the relationship of isovist connectivity (or mutual visibility between points) can be established (see figure 3-right schemas of convex and concave shapes). In other words, a space inside of which any pair of points are mutually visible. Peponis, Wineman *et al.* (1997, 1998) used the single concept of the line of sight to create both a consistent convex partitioning and a definite axial line structure for any spatial

<sup>&</sup>lt;sup>1</sup> Conroy and Bafna (2003) stated that: "The difference between the axial line map and an isovist is more than the one between spatial and visual, but that one allows mapping of a local to global structure (but a serious attenuation of local characteristics), while the other (isovist) preserves much more of a local spatial information (but does not allow a natural global extension)."

 $<sup>^2</sup>$  In Gibson's ambient optic array, an observer in an environment will occupy a place at the convergence of a near infinite number of rays of scattered/reflected light (lines of sight). These angles of intercept' change as the observer moves, thus enabling us to perceive the environment around. It is equivalent to the view shed, which is a 3D-isovist space, and both represent the sub-sets of the universal set of all possible lines of sight present in an environment. However in our case, we refer to a 2D-isovist space. The isovist is a sub-group of the Gibson optic array (or the 3D-isovist, view sheds).

<sup>&</sup>lt;sup>3</sup> Clique concatenation: a group of lines, which are all connected to the same set of lines. The representative single line in the graph can be selected randomly from the clique or on the basis of its attributes (the longest line obviously), or even a geometric mean of the lines forming the clique. (Conroy and Bafna, 2003)

<sup>&</sup>lt;sup>4</sup>Visibility graph analysis (VGA) is a method for analyzing the inter-visibility connections within buildings or urban networks. It was developed from the architectural theory of space syntax by Turner *et al.* (2001), and is applied through the construction of a visibility graph within the open space of a plan. Such graph uses various measures from the theory of small-world networks and centrality in network theory, in order to assess perceptual qualities of space and the possible usage of it.

setting. They used the E-partitions<sup>1</sup> and S-partitions, both part of the *all lines axial map* (figure 3), and these in turn used to automatically generate axial lines.

> Hence, the main outcome of the axial map analysis is the integration or connectivity graph; a parameter whose value in line maps represents how well integrated in the global system, the initial segment could be. Such a value can permit one to understand and forecast vehicle and pedestrian movements.



are those from which all others are shallowest on average, and the most segregated are those from which they are the deepest." (Hillier et al., 1993)

Figure 4: Top, the greater London, global and local integration maps / Down, a part of the greater London, global and local integration maps and graph

Source: Extract from Hillier (1996)

Further approaches on space syntax

The formal space syntax has been criticized for its largely subjective construction process of axial mapping, its difficulties to explain some geometric configurations, its sensitivity to the edge-effect, and its distance to the real life experience due to the abandonment of any reference to geographic-

<sup>&</sup>lt;sup>1</sup> E-partition: using a more limited set of all line extensions, into S-spaces

Euclidian space. According to Ratti (1994), space syntax represents an extension of the network analysis concepts to architecture and urban planning but the predictions on movements in the street network are more controversial, rising up a few questions and criticism that Hillier and Hanson themselves acknowledged, especially the correlation between those topological measures and the social use of space. The critics on this primal approach can be resumed into the following points: The space syntax topological analysis, finds difficulties to consistently explain some geometric configurations, its distance to real life experience and the pedestrian decision-making, due to the abandonment of any reference to geographic-Euclidean space. Thus, it claimed the internalization of geometric properties within axial map, but this is questionable (see the dual approach). The arbitrary process on the choice of lines in the street network would change the results and produce a different topology of the axial map (Jiang and Claramunt, 2002). There is a discontinuous nature of axial map transformations: "If a certain city undergoes a progressive and continuous change of geometry, its topological representation varies in a discontinuous way...however can it be accepted that human behaviour as a function of urban configuration changes in quantum leaps or that pedestrians would respond in significantly different ways to virtually the same geometry?" (Ratti, 2004, p. 10). Do the (even subtle) changes of geometry suppose different human behaviours? Additionaly, the axial map edge effect and more specifically the "problem of sensitivity to boundary conditions" is weakly developed: "when a self-contained urban system is put into communication with the outside world, its central part, which was until then the most integrated one, becomes rather segregated." (Ratti, 2004, p. 11). Finally, the heights of the buildings were never taken into consideration in space syntax analysis, and the axial map does not consider the land use<sup>1</sup>, as the axial map does not take into consideration, any of the information attached to the land or the field's practice.

To answer those interrogations, some complementary approaches have been developed (Ratti, 2002), exploring the metrics (visibility, travelling time, accumulated distance, distance transformations...) and their related topological spatial properties in urban movement. As an example the dual approach (Porta *et al.*, 2006) integrates the Euclidian distance and patterns in their analysis (see appendix C). Their studies are particularly interesting since they introduced the small-world network by examining urban organic and densely built-up patterns in cities such as Venetia and Ahmedabad. The comparison between the primal graph and their dual graph representation<sup>2</sup>, permitted the implementation of a model, where the loss of any reference to geographic distance has been confirmed as a purely spatial phenomena. The dual graphs of connectivity looked at the spatial determinants, such as the scale, the density, the morphologies (organic and grid patterns). It also examines the perceived incremental order of emergence from the cities (out of control and large scale planning process). Therefore, the structural

<sup>&</sup>lt;sup>1</sup> "Unable to account for comprehensive movement patterns which link facilities at different locations to one another" (Ratti, 2004)

<sup>&</sup>lt;sup>2</sup> The primal graph corresponds to the basic space syntax approach with a primal connectivity graph; The dual graph leads to the "dual connectivity graph".

order<sup>1</sup>, with the occurrence of a number of edges and nodes (streets and intersections), is obvious in a fine-grained urban fragment. It seems that a less fine-grained city like Walnut Creek or San Francisco needs more city and space to reach a structural order, in comparison to Venetia or Ahmedabad. The dual approach, as a complex network approach to the urban street network could bring enlightenment to the debate between density, the emergence of a structural order and some advantages that the formal space syntax analysis could not bring.

> To conclude on the space syntax analysis and the dual approach: The primal and dual approaches focus on the specific open space of the street. All the other types of outdoor spaces are not targeted<sup>2</sup>, especially the space in between two constructions from private lands. Such spaces can be fundamental in some cities where the unclear status between private and public outdoors is an intrinsic determinant of the urban structure, especially in Tokyo or other relevant Asian urban fabrics. Neither do those approaches provide clues to put into evidence the richness or the poverty of such outdoors, for social liveliness but also in decision making behaviours. As the field's exploration is not considered, both analyses remain unclear in terms of viewpoints argumentation and the visual skins. Some elements of the outdoors (buildings and vegetation etc...), can have a strong impact on the feeling and the perception of the walkability capacity. The properties attached to a densely built-up frame and the numerous declinations of their street patterns and small outdoors are not emphasized enough and lack data in both methodologies; The dimension of historical layers, memory or morphological identity of the outdoors in general, is absent or not considered enough<sup>3</sup>. However it might be a strong incentive in the streets' behaviours. Moreover, the view is considered regarding the accessible walking paths; however non-reachable viewpoints can play an important role in decision making and human behaviour. Finally, the connectivity is regarded in its unique structural aspect<sup>4</sup>.

#### 1.5.2. The cognitive aspect of the connectivity graph

The space syntax research also tried to understand the contemporary critics on the failure of modern architecture and design in creating life, as well as their responsibility regarding social pathologies and the spatial wellbeing feeling (Hillier *et al.*, 1987). It interpreted the spatial properties of the studied

<sup>&</sup>lt;sup>1</sup> "Power law behaviors have been found especially evident in urban street networks of significant size... differentiates in this dual representation, from other non-geographic systems, and tells a lot about the hierarchical order that underpins the urban structure, where main (or highly connected) streets are more likely to connect with secondary (or low connected) streets than to the streets of the same hierarchical level. Small-world properties have been found emerging as a general rule throughout all the cases but necessitate further investigations of larger datasets." (Porta *et al.*, 2006)

<sup>&</sup>lt;sup>2</sup> Some outdoors (residual) can be part of the calculations, but won't be especially analysed.

<sup>&</sup>lt;sup>3</sup> An attempt has been done on thinking urban space as layers (Hillier, 1996) in space syntax and derivate complex network approaches.

<sup>&</sup>lt;sup>4</sup> different from ecological fields, which considers structural and functional dimensions of the connectivity.

urban system<sup>1</sup> in terms of potential for social relationships and behaviours. Accordingly, in space syntax, the cognitive aspect is deprived from the physical (and functional) experience of the real space and rather expressed through the evaluation of two measures leading to evaluate the intelligibility of the system: the connectivity and the integration.



Figure 216: I wo layout showing now sight sints in the positioning of blocks to allows the integration (the integration (the

#### Figure 5: Visual influence of configurations in network

Source: Extracts from Hillier (1996, p. 94-98) on the top 6 images, Hillier & Iida (2005) on the bottom-left image, and Hillier *et al.* (1987, p. 235) at the bottom-right ("Model of the fundamental measures of axial representation of urban form. An urban system has both static and dynamic properties. This is one dimension of the model. The other is the relation between local and global properties. A two model of measurement is suggested. First order measures are direct measures of the system of space, second order measures are relations among these measures.")

<sup>&</sup>lt;sup>1</sup> In terms of local and global dimensions, but also dynamic or static. "In the axial mapping, the movement can be predicted with a stripped down version of the axial analysis in which only the longest and fewest lines needed to cover the whole system from the line matrix... Static urban behaviours, especially the informal use of open spaces, exploit the two-dimensional visibility field properties of space, with the highest levels of use normally adjacent to the most strategic spaces." (Hillier, 1996, p. 98)

"Connectivity is a property that can be seen from each space, in that wherever one is in the space, one can see how many neighbouring spaces it connects to. Integration, on the other hand, cannot be seen from a space, since it sums up the depth of that space from all others, most of which cannot be seen from that space. The property of intelligibility...is the degree to which what we can see from the spaces that make up the system- that is how many other spaces are connected to- is a good guide to what we cannot see, that is the integration of each space into the system as a whole. An intelligible space is one in which connected spaces also tend to be well-integrated spaces. An unintelligible system is one where well-connected spaces are not well-integrated, so that what we can see of their connections misleads us about the status of that space in the system as a whole" (Hillier, 1996, p. 94).

In figure 5, the graphs e and f represent each configuration. The vertical axis shows the number of other convex spaces that spaces overlap with, ie the connectivity of the space with other spaces. The horizontal axis shows the integration value of the space, ie its depth from all others. g and j show the convex shapes in each spatial arrangement. The graph-e forms a tight scatter showing a strong level of correlation and thus intelligibility. In the graph-f, however, points become diffused and no longer a tight fit, meaning "that connectivity is no longer a good guide to integration". Hence, the stroller gets poor information about the layout as a whole, from what he sees locally. The intelligibility supposes a "perfect correlation between what you can see and what you can't see." (Hillier, 1996, p. 94). It concerns the relationship between local visual cues (connectivity of a space) and the global properties of a space within a system. Such a relationship assists subjects in efficient navigation (Conroy and Bafna, 2003) and agrees well with stroller intuition (Hillier, 1996). The pattern of pedestrian movement is determined by the pattern of integration. Additionaly, Hillier *et al.* (1987) put into graphs, the relationship between integration and encounter.

"Spatial layout does, in very precise senses, create-or eliminate- "life" in the sense that it determines a field of a potential encounter and co-presence which can be made sparse or dense, and predictable or unpredictable, depending on the patterns of integration and the degree of intelligibility of the layout. These relations are systematic, and they are the product of architectural design." (Hillier *et al.*, 1987, p. 235)

Consequently, for *space syntax*, the spatial layout and architectural design produce social relationships (potential for field of encounters), albeit arguable<sup>1</sup>. The work on the integration of housing estates in urban fabric by Hillier *et al.* (1987), is an example of the negative impact on social relations, brought on by such a design and spatial configuration. They assumed a radical decline in both densities of movement and in the predictability of the pattern of movement from the spatial layout in many housing estates. The reduction in overall densities is strongly associated with the loss of integration, and the reduction in the predictability of the pattern of movements from the layout is strongly associated with the loss of "intelligibility"<sup>2</sup>. In the system, the housing estate acts like a whole; Despite

<sup>&</sup>lt;sup>1</sup> In ecological landscape field, the structural connectivity does not imply functional connectivity or the species conservation, but the contrary. With functional connectivity, there is a structural order of connectivity.

<sup>&</sup>lt;sup>2</sup> Integration (first order measure of the global state) leads to intelligibility (seconf order measure of the degree to which global properties can be inferred from local properties); and intelligibility leads to a stronger "movement interface" between inhabitants and strangers. (Hillier *et al.*, 1987, p. 238)

it was paradoxically designed as an identifiable spatial entity, in fact it is subordinated to its surroundings. The housing estates have no internal structure of their own. In contrast, the urban areas have an internal identity, while being designed to be part of a continuous fabric. This last aspect creates the relation between the spatial pattern and the movement pattern, which seems so fundamental to well-ordered urban space. Housing estates become interesting only when they are juxtaposed to other urban fabric, which are rich enough to overcome the lack of encounters induced by the spatial configuration. "From the encounter point of view, one might say that the inhabitants of these estates live in perpetual night." (Hillier *et al.*, 1987, p. 247).

About the cognitive mapping

The research on mental (cognitive) mapping<sup>1</sup> suggests that places emerge along paths (linear streets) or nodes (transportation transfer points), and they are bound by imposing physical edges (waterfront, building facades, topographical wall...) (Down and Stea 1973, Peponis *et al.* 1990) (see section 2.3). Regarding the cognitive mapping, navigation and way finding, *space syntax* (Hillier and Iida, 2005) tried to extract cognitive information from the aggregate flows in street networks, and distinguish this from emergent statistical effects of the network itself<sup>2</sup>. It revealed an interesting outcome:

"More accessible locations will be theoretically more attractive as destinations than less accessible ones simply as a result of their configurational position in the complex as a whole... movement in cities reflects the geometrical and topological structure of the network configuration far more than the metric distance"... "The architecture of the street network, in both topological and geometrical sense, can be expected, through its effect on movement flows, to influence the evolution of land use patterns and consequently the whole pattern of life in the city." (Hillier and Iida, 2005, p. 480)

Although it can be admitted that people try to minimize distance, their concept of distance seems more shaped by geometrical and topological properties, with the measures of "closeness and betweenness" (Hillier and Iida, 2005, p. 477), rather than by the measurements of distance.

> The city generating potential field of encounter

Hillier *et al.* (1987) introduced the notion of *virtual community*<sup>3</sup> as a "product of spatial design." In sociological terms, the form prescribed by the spatial arrangement, can be regarded as an important product or not for its social aspect:

"Cities are not so much mechanisms for generating contact as mechanisms for generating potential field of probabilistic co-presence and encounter. The prevailing culture may however be an indirect, evolutionary product of the city. But without this cultural dimension, it would not be possible to use spatial design to achieve a sociological or cultural result." (Hillier *et al.*, 1987, p. 248)

<sup>&</sup>lt;sup>1</sup> How individuals identify and locate a place when asked to map it.

 $<sup>^{2}</sup>$  No method exists and it is an ongoing research. The research object went to the ability to distinguish network effects in aggregated movement data from cognitive inferences, through the study of movement in four areas of London. (Hillier and Iida, 2005, p. 476)

<sup>&</sup>lt;sup>3</sup>" *virtual community*: community, because it is a form of group awareness in a collectivity; virtual, because it has not yet been realized through interaction among its members." (Hillier *et al.*, 1987, p. 248)

The *virtual community* is a sort of universal matrix with global invariants. It is the most rudimentary of all forms of common awareness (because it is produced only by spatial arrangement) and also the most fundamental undifferentiated and profane forms that one can encounter in different types of communities all over the world, with key topological settlement-like properties<sup>1</sup>. However "the form of space relates directly to the transformation of community and its characteristic rules" (Hillier *et al.*, 1987, p. 249). Additionally it is appropriated by each different local culture. Thus, the neighbourhood interactivity and connectivity is a reflect and a consequence from its capacity as a *virtual community*. It would be related to the cultural embedded habits intertwined on the spatial configuration. Accordinly, *virtual community* represents an important social and psychological resource, but changed in form, density and structure through urban interventions on the spatial features of this last century, generating the possible loss of a key social resource (Hillier *et al.*, 1987, p. 249).

The *space syntax* introduced the connectivity graph, issued from the analysis/calculations of the axial maps and their related graphs. The axial map is a structural mapping of the possible human behaviour in the public space, by using viewpoints lines. The approach experiments the spatial configuration and its social aspects, developing the notions of integration, connectivity and intelligibility. However, contrary to other interpretations, the analysis is completely detached from the field, in terms of experiencing the real visual skins, the complexity from natural features and the social dispositions. Not all the different types of outdoors, but the exclusive streets and roads are taken into considerations; however in other context of the urban fabric (Europe or USA versus some Asian urban fabric), where the boundaries between private or public are not so clear, private outdoors can be accessible to the walker. All this range of outdoors, not mentionning he small-grained densely features, are excluded from the analysis, although important. Moreover, *space syntax* suppose that structural order implies

<sup>&</sup>lt;sup>1</sup> Hillier defined the basic generative process, by noticing low level invariants in urban space, which are the foundation of the settlement. The simplest process for generating spatial configurations follow the "restricted random beady ring process, that generates small ring street settlements of a kind found in many parts of the world (Hillier and Hanson, 1984)." He found that "most spaces are linear defined by the entrances of buildings or groups of buildings on both sides; that buildings are crumped together to form discrete islands; so that the linear spaces surroundings the islands form intersecting rings and create an overall system of continuous space (a street pattern of some kind); and that this is a highly non-dendritic configuration, that is a pattern that is everywhere ring-like rather than tree-like...The process starts with a dyad (a reunion of opposed or complementary entities or principles) composed of a cell (representing a notional building) and a piece of open space linked by an entrance so that those inside can come and go into the outside world. These dyads aggregate randomly apart from two restrictions: that each open cell must join full-face wise onto one already in the system (groups of closed cells arise only randomly; and no vertex joins for closed cells are allowed (people do not build corner to corner)... The overall pattern is that a system of outward facing islands of built forms of varying size and creating more or less linear spaces forming intersecting rings has emerged from the process. No one designed this. It has emerged by a process which finds a pathway of emergence by which a global pattern appears from the actions of local agents. A key element of the urban system has thus emerged in the form of a continuous system of open space, permitting inter-accessibility from each part of the settlement to all others." (Hillier, 2001, p. 27-28).

social relationships, eg. funtional order, if we borrow the ecological landscape field's vocabulary, which assumes the contrary.

#### **1.6.** Conclusion

> The definition of connectivity was attributed to the mathematical graph theory, and used in various fields, from economics, to computer and medical sciences, etc. Originally, "it corresponds to the minimum number of elements (nodes or edges) to be removed in order to disconnect the remaining nodes from each other" (Diestel, 2005, p.12). It is closely related to the theory of network flow problems. The connectivity of a graph is an important measure of its robustness as a network. In economics, the *blur* movement is a fundament of connectivity. Hence, the dimensions of speed and the immaterial, assimilated as connectivity, shape an economic system in fast mutations, where the speed and the rules of the internet, are at the heart of managing complexity, accessing information and rallying collective intelligence.

 $\succ$  Connectivity is also part of the urban web theory, linking the biological natural functioning and its features, the geometry and the urban network organisation. It assesses the notions of complexity, hierarchical order, scaling factors and organicity around paths and nodes that allow more appropriation and interactions between the spatial arrangements and the human natural behaviour. Thus, it underlined the elements that shape the connectivity in functional terms, by analysing spatial configurations of the urban landscape and by showing analogies with other natural functionning.

➤ Connectivity is a fundamental element for the landscape's ecological biodiversity. It is composed of a functional connectivity, observing the physical movement of the species and the physical field's conditions; and structural connectivity, defining a spatial matrix through computational models, as the fundamental space of interaction. The notion of conservation of the connectivity was firstly introduced in the 2000's as a high value to address the sustainability of landscape ecosystems.

The space syntax analytical method initiated by Hillier and Hanson establishes a correlation between the topological access of streets and their influences on pedestrian movements. It is founded on the construction of the axial map and the evaluation of its resulting connectivity graph, through integration values. The map represents axial lines from selected viewpoints from the viewshed of the walker on a street. Hence, the functional dimension of connectivity, by analysing fields' data from the physical and social realities, is not explored. Instead, a spatial layout has a potential for encounters, depending on the patterns of integration and the degree of intelligibility<sup>1</sup> of the given space. The intelligibility supposes a "perfect correlation between what you can see and what you can't see." (Hillier, 1996, p. 94). It concerns the relationship between local visual cues (connectivity of a space)

<sup>&</sup>lt;sup>1</sup> Intelligibility is related to "movement interface" and the degree of readability of the space by the walker. (Hillier, 1996, p. 94)

and the global properties of a space within a system. Such a relationship assists subjects in efficient navigation (Conroy and Bafna, 2003) and agrees well with stroller intuition (Hillier, 1996). The pattern of pedestrian movement is determined by the pattern of integration. Moreover, such a topological structure influence the network configuration, the movements' flows and the land use patterns, unlike the metric distance. Accordingly, the notion of "virtual community" defined the undifferentiated primal form for any urban settlement in the world, for generating potential field of co-presence and the space of possible encounters. Furthermore, it supposes that there is an intelligible (high integration and connectivity) due to primary spatial arrangement in each culture, that leads to developing social encounters.

> The three approaches of landscape ecology, urban web theory and space syntax analysis, studied the importance of a fundamental structural matrix, either through biodiversity corridors, or through the axial map, and the organic nature of urban the network. All of them explored the movement. However there are major differences in their methods and interpretations of connectivity. In evaluating human decision-making behaviours, Space syntax excludes other types of outdoors (e.g. outdoors in between buildings, private plot gardens...) and the visual skins within the outdoors, such as vegetation, colours etc, which are also part of the visual field of the stroller and can play a great role in the perception of walkability. In this regard, the single notion of visual connectivity (never mentioned in any studies) needs further implementation. Conversely, the urban web theory did not pledge for a spatial matrix but for incremental conditions of the connectivity, which shape the network. Such functional conditions suppose a scaling hierarchy and the exploration of the codes behind the complexity, which are relevant and singular at a dense scale. Moreover the role of historical layers of practice within outdoor spaces is an important aspect that strongly shape the atmosphere experienced by the walker. The landscape ecological connectivity associates both functional and structural connectivity and introduced the notion of connectivity conservation, which is inspiring for this research. Accordingly, the notion of connectivity would gain to be experimented at the scale of dense settlements in the urban landscape.



### 2. MORPHOLOGICAL APPROACHES AND VISUAL CRITERIA FOR THE PERCEPTION OF URBAN OUTDOORS

### **INTRODUCTION**





CONCLUSION

## Morphological approaches and visual criteria for the perception of urban outdoors Introduction

Different approaches explain the relationships between human practices and the configurations of the urban space. The majority of them were normative. It led to some innovative perspectives in both architecture and urban disciplines. I will refer to different approaches to characterize the outdoor spaces in order to situate my own contribution. With Conzen, Camillo Sitte (1889) was among the first to analyze public spaces with his remarkable definition of the morphological fundaments for the open spaces of piazzas, confronted to transformations generated by modernism. He detailed the organic way cities were erected during the medieval and renaissance eras of Europe, especially for the old Italian centres, and the necessity of a high artistic dimension in cities. The understanding of the relationships in outdoor places encompassed socio-spatial aspects and a cognitive angle, by searching for the readability, the perception and the imageability of the space with Kevin Lynch (1960) and Jan Gehl (1987). Such approaches are rather functional in comparison to the structural result reached through the axial maps aiming at the intelligibility of the space, developed by the space syntax analysis, as explained in the first chapter. Finally, scholars like Christopher Alexander (2001-2005) found correlations between the very fundamental geometrical expressions of natural shapes and the urban patterns: Batty and Longley (1994) researched the fractal relationship; Salingaros (2006) emphasized the analogy between urban web connectedness quality with human and natural biological systems to generate wellbeing; the biophilic design aims at reconnecting with the urban and natural environment. Such a point of view recalls the fundamental role played by the organic order process to produce old cities, such as self-regenerating systems operating at the architectural, urban and social scales, contrary to the modern mechanisms. It also pledges for incremental morphologies and forms reflecting the complexity of actors and elements shaping a place. Finally, the historical urban landscapes (HUL) addresses the spatial patterns and the visual relationships, as being part of local criteria, but visual methods and interest to grasp other visual determinants, part of the geni locci from densely built-up neighborhoods of the HUL still need to be implemented.

# 2.2. First morphological characterizations of outdoors spaces in old cities2.2.1. Brief review on the roots of morphological studies of historical urban complexes

This research aims at apprehending the urban outdoors through a morphological approach. Hence, it is important, before focusing on the studies of an urban open space's qualities, to briefly introduce the source and contribution of urban morphology in understanding the historical urban landscape. The roots from the morphology of the cultural landscape, named geomorphology can be estimated at the end of the 19<sup>th</sup> and the early 20<sup>th</sup> centuries, through the investigations from Von Richthofen (1883) and

Otto Schüler (1906). They described the "visible and tangible man-made forms on the ground and their genetic and functional explanations in terms of human actions in the course of the history and in the contact of nature", as specified by Whitehand (2010). Further ahead Schüler drew diagrams of street patterns and the delimitated historical cores in his work on ground plan. Such a path emphasized what will later be the core of urban morphology studies, as a morphogenetic approach, by mapping various physical forms within urban areas.

The contribution of Conzen in the mid-20<sup>th</sup> century was to "show how the layout of the town had to come into existence and changed over time, and how the various components of that layout fitted together" (Whitehand, 2007). He has drawn maps with the types of buildings and their storeys, giving priority to the historical periods, sometimes representing the morphological periods as well<sup>1</sup>. He is the first to use the concept of "process of urban development". He also focused on the dimension of plots and their evolution, by reconstructing the histories of the boundaries of the plots, with what he called 'form complexes'<sup>2</sup>, especially in his study of the city of Ludlow in the United Kingdom. Along with those considerations, another major outcome from Conzen was to implement his research on urban complexes with an importance for the historicity of the urban landscape, as a visual and practical omnipresent experience for many people. Such a fact is an advantage over many other sources of knowledge; however it requires appreciating the societal activities and the processes of what can be observed in the field<sup>3</sup>.

Later with the geographer Herbert Louis, the considerations of the fringe belt brought to debate the historical grain of the cities. It emphasized the relevance of characteristics such as "density and patterns of roads, the amount of vegetated land, building coverage and the sizes and shapes of plots" (Whitehand, 2010).<sup>4</sup>

The method developed by Conzen with the city of Ludlow (Conzen, 1988) around a cartographic representation and terminological precisions in mapping the different physical forms within urban areas through morphological periods<sup>5</sup>, is time-consuming but helpful in the way new forms can be

<sup>&</sup>lt;sup>1</sup>In his works on Berlin and Whitby, an English port city, he "put forward a tripartite division of urban form into the town plan, or ground plan (comprising the site, streets, plots and block plans of the buildings), second, building fabric and third, land and the building utilization". (Whitehand , 2010 and Conzen, 1960)

 $<sup>^{2}</sup>$  The maps shows plan type areas according to the ground plan, building type areas (physical forms of the building in three dimensions, land and building utilizations).

<sup>&</sup>lt;sup>3</sup> "Fundamental to this is the intellectual activity of regionalization...and the 'morphogenetic priority' of the different form complexes as contributors to the landscape. This priority reflects the persistence of lifespan of the elements that comprise each form complex. In the case of the ground plan, these elements tend to have high resistance to change: many very old streets systems, for example, are still recognizable in the landscape today. Land and building utilization, in contrast, tends to be much more ephemeral...Like the delineation of the individual form complexes, the resulting map depicts a hierarchy of units. Greatest importance is attached to the ground plan...representing in a traditional city the contribution of the distant past to the urban landscape and providing long-term framework for other less enduring, components of urban form." (Conzen, 1960 cited in Whitehand, 2010, p39)

<sup>&</sup>lt;sup>4</sup> On a wider scale, and facing the growing importance of science and technology in shaping our environment, the geographer Torsten Hägerstrand underlined in his view of the landscape, the phenomena of specialization rather than integration, although both are needed to understand and manage the historic landscape.

<sup>&</sup>lt;sup>5</sup> Periods having unity in terms of the physical forms that were created
integrated in old landscapes. Whitehand (2007), in his description of Conzen's contribution underlined very important aspects of the morphological conservation for the urban cores:

"Emphasis should be put on the identities of the physical forms whose conservation is being considered and how these identities are products not only of history but also of how individual forms relate to their surroundings. The boundaries of the units differ considerably from those in the city's conservation and redevelopment plan, which is not based on systematic analysis of the physiognomy of the area and treats individual sites largely in isolation, divorced from the historical processes of which they are a product...one of the aims is to manage change or conserve, then being able to capture cartographically the historical geography of what it is that is being managed or conserved is fundamental...the basis of boundaries (underlined by authorities) has been inadequately researched. The method described (by Conzen) provides a more rigorous basis."(Whitehand, 2010, p42.)

Such reviews are interesting for our research, as current methodologies for the analysis of physical forms from the urban core units, still need to get implemented by planning authorities. The cartographic capture of the physical complexes remains a greater issue to be managed. Especially the morpho-historical complexes of the open spaces, their boundaries and status over time need to be considered, by layers of evolution as proposed by Conzen.

#### 2.2.2. Sitte: the art of composing outdoors spaces in old cities

Sitte (1889) proposed a very relevant approach for the analysis of outdoor spaces through a heuristic morphological methodology, in order to evaluate the artistic dimension of such places. As a witness of the acceleration of modern urbanism and the drastic present and future consequences on the human behaviour, feeling and appropriation of space, his work proposed a theory on the historical outdoor space compositions and the relationship between the built-open entities. Their qualities lie on the cumulated knowledge of the edifications and practices of the city for millennia, which can be adapted to the new needs, forecast by the industrial societies and the rapid urbanization. His approach started with a very detailed analysis of outdoor spaces of the traditional European cities, such as the Italian piazzas and the market places<sup>1</sup>, toward other European squares. He compared them with the new kinds of outdoor spaces proposed by modern urban design. Already at that time, Sitte deplored the exclusive technical aspects that urban design and architecture are emphasizing, leading to monotonous and inconsistent patterns of construction, with the risk of removing from the city the artistic sides of the space's arrangements that the previous masters respected. His attempt tries to question the fundamental rules of outdoor spaces and to give exploitable bases for modern urban planners and

<sup>&</sup>lt;sup>1</sup> Forum, agora, market places used to be the lung of the antique, medieval and Renaissance cities and the places for people to express themselves, through theatre plays, popular festivals, circulation nodes... as well as a place to gather the richest architectural features and monuments in memory of the past.

architects, in order for them to propose other alternatives than the system of boxes' alignment. Further ahead, he underlined the necessity of the vernacular scale (human and man-made scale), visible within traditional urban dense frames, and opposed to a modern urbanism that destroys the fundaments of any kind of relationship and articulation with expanded scales. The risk is to see those fragile small scale patterns disappear in an ocean of huge scale radicalization. Let's round up the five main characteristics of his discourse, for his outdoors analysis (figure 6):



**Figure 6: 5 morphological principles for piazzas of a traditional town by Sitte** Source: Extracts from Sitte (1889)

1- The release from the central position within a piazza: The ancients used to commemorate the past events and the important personalities through a disposal of numerous monuments on the periphery of piazzas, which were in most of the cases irregular. The basic rule for any new entities (piazzas, monuments, churches and important edifications) was to be placed out of the centre and connected to the existing constructions and entities. This connecting attribute was the first one to be considered because it also always offered various shapes of outdoor spaces, resulting from the building disposal. On the contrary, modern use affects only one monument in the centre of the place, mostly in the perspective of principal doors or entrances, in the middle of axes. This attitude of releasing and "clearing" the outdoor space can be very prejudicial, as it shears off the substances from the embedded patterns thus deteriorating them by draining them of their fundamental meanings. Step by step, it leads to the demolition of old features.

**2- Closing piazzas**: to close an outdoor space was the major condition to become a piazza, unlike many residual outdoor spaces that received denomination of piazzas without fulfilling this specificity. It is also the most important condition to get an artistic effect on the walker, as the eyes cannot escape the space and automatically shape a consistent image of the outdoors. Consciously or not, most of angles in piazzas are not the product of two right angles<sup>1</sup>. Angles were the consequences of the vernacular path to reach the piazzas. Many secondary streets arrived to the piazzas with multiple acute or obtuse angles. Those configurations emphasized the effect of enclosure in a piazza, despite its numerous entry breakthroughs. The diverse angles also offered multiple perspectives for the space to be enjoyed by the observer, wherever he stands in the outdoor. Furthermore, many architectural patterns permitted to follow the circulation needs while keeping a closed spatial dimension (gantries and colonnades, etc). The modern urban system did not only destroy many balanced old outdoors

<sup>&</sup>lt;sup>1</sup> However it became a rule later, facilitated by computer drawing

configurations but lost this important dimension. The outdoor space should also be an object of spectacle for the walker, with various possibilities and different angles, for him to enjoy the simple show that built and outdoors weave together.

**3- Shapes and dimensions of the piazzas:** Proportion and depth are more important than measurements. Sitte observed that in most cases, piazzas along churches looked for an effect of depth (length) and piazzas in front of city halls were disposed in width. It supposes that public functions require singular perspectives and artistic effects. It coupled a function with a specific perception in the space, which instinctively permitted to understand the meaning of the place. Moreover, real dimensions of a piazza do not matter to create an impression of greatness or smallness to the observer. It would be a great mistake to assimilate the sense of grandeur from a piazza proportionally to its width. Proportions are the key rules, for human eyes, which have a limited sense in evaluating distances. The sizes of streets in traditional dense patterns permitted with small dimensions of today's streets and roads, without proportionally increasing their dimensions<sup>1</sup>.

**4-** The irregularity from old piazzas: It lies in their progressive development over the centuries. The irregularity improves the natural effect, stimulates the interest and accentuates the picturesque effect of the whole painting for the observer. Instead of the strict regularities, the old outdoors accumulated irregularities and various setbacks, as many possibilities, for being apart from main circulation streams, a possible place for monuments, fountains, benches, an encounter places to chat or rest etc...

**5- Groups of piazzas**: In old dense frames, closing piazzas and embedding in their periphery edifications was a very refined and ingenious urban system to produce groups of piazzas always different from each other. It increased the richness and singularity of each place. This quality is even magnified by the different angles for contemplating the different piazzas. The beauty of the buildings is coupled with the hazardous effect of the harmonious ordering of piazzas.

Sitte made the study of mostly traditional piazzas in Italy. However the five fundamental rules he defined, are rather valuable for other types of spaces, whether they appear more vernacular, less defined (in terms of their public-private status), or planned with consideration for past morphologies. Moreover, he underlined the importance of the observer, whose perception was at the heart of the place-making process in the resulting morphologies of the outdoors. It will be an object for further discussion.

<sup>&</sup>lt;sup>1</sup> A good example is that one requires a width of 58m to 142m (avenue des Champs Elysées) for a road to obtain the effect of greatness in the modern configurations, unlike in the traditional city where 2-8m for streets and up to 50m for a very wide piazza (Piazza of Venice) were enough.

#### 2.2.3. The Beauty through the picturesque effect

As Sitte (1889) underlined, modern urban planning systems forgot in their composition of public outdoor spaces, the fair and balanced picturesque and architectonical<sup>1</sup> effects that each interaction with an urban and architectural frame should produce for the human perception.

"Strict symmetry and perfect geometrical regularity are not necessary to produce picturesque and architectonical effects. Despite their irregularities, those edifications produced an impression of great harmony, because each pattern is very clearly expressed and each element of the composition finds its counterweight and its balance, despite a large degree of freedom in the conception and a complex interaction of its patterns. Those remarks are more relevant toward urbanism, because it encompasses wider and more diverse sphere than fortress construction, which could and should be treated with a wider freedom, because associative patterns, without them being harmful, are countless. "<sup>2</sup> (Sitte, 1889, p. 58-59)

Sitte refers to the original greek term *symmetria*<sup>3</sup>, whose definition takes it source from Vitruve<sup>4</sup>, as the proportion. From the Antiquity to the Middle Age periods, *symmetria* and *proportio* were more or less identical notions. His return to the notion of proportion (*divine proportion*) is closed to the quest of *symmetria* evoked by Salingaros and Alexander, for whom urban and architectural patterns should seek resonance with biological and geometrical essences of human beings in a natural environment (see chapter 1.2.3 and part 2.4).

> The notion of picturesque (from Italian *pittoresco<sup>5</sup>*) refers to an object, whose "disposition is suitable to become the subject of a painting", or which "has character"<sup>6</sup>. Just like beauty, the tragically subliminal, it belongs to an esthetical category, which played a major role in the new definition of

<sup>&</sup>lt;sup>1</sup> Architectonic refers to the art for science of construction

<sup>&</sup>lt;sup>2</sup> Translated from French edition: «...la stricte symétrie et l'impeccable régularité géométrique ne sont nullement indispensables pour produire des effets pittoresques ou architectoniques. On a signalé qu'en dépit de leurs irrégularités ces édifices produisaient une impression d'harmonie, parce que chaque motif est exprimé dans toute sa clarté et que chaque élément de la composition trouve son contrepoids et son équilibre malgré une grande liberté de conception et une interaction complexe des motifs. Ces remarques valent encore davantage pour l'urbanisme, car celui-ci englobe un domaine encore bien plus vaste et plus divers que la construction de forteresse, qui peut et doit être traité avec une liberté encore plus grande, car les motifs qu'on peut associer sans qu'ils se fassent tort y sont innombrables. Or, plus augmente la richesse réelle ou souhaitable des motifs dont on dispose, plus il faut condamner la régularité guindée, la vaine symétrie et l'uniformité des aménagements modernes."

<sup>&</sup>lt;sup>3</sup> In reaction to the latest theoretical conception from the Renaissance, which understood symmetry as an entity either side of a line, an axe of symmetry (generalized from the moment where hand drawings could be produced on the building sites of gothic cathedrals).

<sup>&</sup>lt;sup>4</sup> "Symmetry is also the relation that a whole work has with its parts and the relation that each part has separately to the idea of the whole, following the *measure* of a certain part" (Sitte, 1889, p59), in French: "La symétrie aussi est le rapport que toute l'oeuvre a avec ses parties, et celui qu'elles ont séparément à l'idée du tout, suivant la mesure d'une certaine partie."(I, 2, 4))

<sup>&</sup>lt;sup>5</sup> The word appeared during the 17th century in Italia, where the expression *lavorare alla pittoresca* meant "to frantically paint under the fire of inspiration". The French term "pittoresque" appeared in France in 1708, qualifying a "composition whose glance generates great effect" (abbé Du Bos, Réflexions critiques sur la poésie et la culture, 1719). However picturesque corresponds to the landscape art from Great Britain from 1730 to 1790, from which the definition could also be originated. The picturesque influenced mainly gardening arts and literature, leading to French impressionism afterwards.

<sup>&</sup>lt;sup>6</sup> Source : encyclopedia universalis, thesaurus p 2863

human behaviour toward natural elements of his environment, especially expressed through the arts of the 18<sup>th</sup> century in France and elsewhere, and the romantic sensitiveness later. This relationship is full of freedom and presents non-formal nature and gardens, which reveal its diversity through the accumulation and representation of wild rocks, the movement of vivid water and the fluctuations of light and shades, inspiring the rationalist philosophers later. Nature not only became the subject of a new aesthetic<sup>1</sup> but also the object of transformations and imagination, and a kind of microcosms of human practices.

> This process of landscape transformation went from theorizing to a real life philosophy around beauty, through travels and the emotional capacity they create. The philosopher Edmund Burke (1757) defined, in A philosophical inquiry into the origin of our ideas of the sublime and beautiful, the theoretical fundaments of the relationship between the visual quality of objects and the physiological (psychological) reactions on human beings. Willian Gilpin (1782-1809) in his Observations relative chiefly to picturesque beauty in several parts of Great Britain, made in the summer of the year 1770, explored aesthetic rules of a new kind. With the painter Louis Moreau, the picturesque character was reflected in his representations of Paris' environs, and the poetic aspect of ruins. Picturesque was also associated to a popular type of representation for pictures in books from the 18<sup>th</sup> century, relating romantic and picturesque travels and the descriptions of common places. Picturesque, exotic and folkloric atmospheres were assimilated with pictures from little alleys and streets from the terraced houses of Bretagne, or town shops on the banks of the Rhine river etc... As of the beginning of the 19<sup>th</sup> century, the picturesque notion was transferred to architecture itself, as an alternative to the monumental architecture from neo-classicism. Hence, with the birth of the worker class housing in England, it opened a way to the consideration of vernacular architecture, "Gothic revival" and other rehabilitations from old castles and cathedrals. "The expression of art can appear in the villager's cottage, the hut of the savage, the cave of the anchorite, it may absolutely lack in the richest palace or in the confusion of buildings in a huge city"<sup>2</sup>.

 $\succ$  Sitte emphasized the fundamental artistic and picturesque values of the traditional city. Without denying the need of the modern society at that time to fulfil hygienic requirements, he also expressed his concern on the extinction of art alongside the urban traditional frames<sup>3</sup>. It was a great loss not to use and confront them with the new urban shapes. Most of all artistic features in terms of the configurations of the spaces and elements from old plazas disappeared into modern plazas, as did the strong linkage between buildings and piazzas.

In the next part, another method to approach the configurational aspect of the outdoors will be exposed.

<sup>&</sup>lt;sup>1</sup> Paintings from Poussin, Lorrain, Salvator Rosa

<sup>&</sup>lt;sup>2</sup> French text : « l'expression de l'art peut se manifester dans la chaumière du villageois, dans la cabane du sauvage, dans la grotte de l'anachorète, elle peut manquer absolument dans le palais le plus riche, ou dans la confusion des bâtiments d'une ville immense », Legrand (1809) (Encyclopoedia Universalis, thesaurus, p. 2864).
<sup>3</sup> Such a view was also shared by Giovannoni (see chapter 1.3.1)

# **2.3. Review on the visual field research: the spatial readability and some visual methods** 2.3.1 Notions around the perception of a place

Our perception works in a holistic manner with "*Gestalt-principles*"<sup>1</sup>. Human perception is extremely powerful in analyzing and recognizing complex patterns, spatial structures and images, and is best at pattern recognition. Thus landscape observation is primarily subjective and can be understood only in relation to the characteristics of the observer (Antrop, 2000). Something in the built-form of a place encourages people to distinguish this building or that patch of ground from its overlookable backdrop. Urban environments are designed and built in ways that either enhance or prevent their "imageability" (Lynch, 1960). The perceived contrast between a place and its surrounding unidentified spaces may be achieved through continuity or through uniqueness<sup>2</sup>.

Thus, the perception of the urban environment proceeds by fragments and belongs to the interpretation of the viewer. Although finding universal urban morphologies rules in the shapes arrangement is the workhorse of some architecture theoretician, it is nevertheless true that cultural and individual specificities can determine the interpretation of the space and its readability, as illustrated by the numerous works of linguists and anthropologists<sup>3</sup>. This readability contains different levels, regarding the orientation in the city, the urban space appropriation and its conceptual knowledge. If those three levels are intertwined within the practice and knowledge of social codes from traditional societies with their associated urban features, they tend to be dissociated in industrialized societies, where the orientation and the space appropriation are treated by urban designers and practiced by citizens with urban signage. The pioneer work of Lynch K. (1960) draws a portrait of this process of orientation linked to the space appropriation and substitute to the readability, the imageability of space, by looking at the present conditions of urban landmarks and their role in structuring an image of a place, through the analysis of the inhabitants "mental maps of their city", with their schema, visual signals and the words they use to describe their place. He defined the city through five elements: the node, path, district, edge and landmark. For him, legibility (or imageability) is "the ease with which (a city) parts can be recognized and can be organized into a coherent pattern" (Lynch, 1960). It is a significant quality of the city, as it is useful for way-findings but also vital for the emotional and physical wellbeing of the inhabitants, individually and socially. Hence he acknowledged that the cognitive maps of the city, drawn by inhabitants, are made of features described in the terms of those five elements. Works in that field, also attached to other disciplines such as psychology, cultural

<sup>&</sup>lt;sup>1</sup> A whole that is more than the sum of its composing parts (Antrop, 2000).

<sup>&</sup>lt;sup>2</sup> "When a landmark stands out as utterly unlike any other thing in town". (Milgram *et al.*, 1972 cited in Gieryn, 2000)

<sup>&</sup>lt;sup>3</sup> The anthropologist and linguist B. Whorf was the first to demonstrate the role of language patterns in the perception of space and cultural specificities. Bourdieu P. and Sayad A. also put into evidence that a non-western social group can't easily read and appropriate simple geometrical shapes, once put into such an environment. Other examples are the descriptions of Islam's cities to the eyes of first time travellers, described as labyrinths. They couldn't understand the spaces codes that any local inhabitant used to integrate through their practice. (Merlin and Choay, 1988, « lisibilité », p432-433. )

anthropology and art history, are not abundant. However, Sitte (1889) gave an interesting analysis in the fact that:

"...beyond the fundamental laws of form's psychology, spatial articulation from social and anthropologic differences, is an important factor for a built environment to become readable, as observed by Sitte... Given the fact that the semantic load of a space is established according to its social codes references ... in the given context of social change and generalized acculturation, urban planners appear helpless: either because of the absence of a reference for spatial tradition, or by ignorance of specific references to a given culture in minority"<sup>1</sup>(Sitte, 1889, p 93.)

Small and large scales involved in perception: From the point of view of the cognitive perception, two scales, large and small have been recognized (Montello, 1993, Egenhofer and Mark, 1995). When large scale cannot be perceived from a single vantage point, small scale spaces (larger than human size) have this possibility and this perception from small-scale spaces is a prerequisite to perception and understanding of large-scale environments. Furthermore small-scale spaces are recognized to be continuous and interconnected (Jiang *et al.*, 2000). While walking in a street we can perceive our surrounding environment as a small scale space. Thus small-scale spaces are fundamentally important in reasoning in larger ones and the cognition of small-scale spaces must inevitably precede the cognition of large-scale spaces (Down and Stea, 1977 cited in Jiang *et al.*, 2000).

> Cultural representations of perception: Mental maps drawn by some geographers also measure what people bring to the material forms they inhabit (Tuan, 1974). People identify as places the spots that they go to for some particular purpose and function. The sequence of places along one's daily rounds (home, shopping, employment, entertainment) is often the core cartographic feature of subjective cityscapes-with identified districts and landmarks then grafted on as a means of orientation (Pred, 1990). Representations will vary among individuals in terms of their biographical characteristics and experiences (Lewis, 1996). A sense of place is not only the ability to locate things on a cognitive map, but also the attribution of a meaning to a built-form or a natural spot (Rotenberg and McDonogh, 1993). Places are made as people ascribe qualities to the material and social objects gathered there: ours or theirs/ safe or dangerous/ public or private/ new or old/ accessible or not. Let's record some definitions of place<sup>2</sup>:

- "Place is, at once, the buildings, streets, monuments, and open spaces assembled at a certain geographic spot and actors' interpretations, representations, and identifications. Both domains (the material and the interpretative, the physical and the semiotic) work autonomously and in a mutually dependent way" (Bourdieu, 1990, cited in Gieryn, 2000, p467).

<sup>&</sup>lt;sup>1</sup> Translated from French text: «... au-delà des lois fondamentales de la psychologie de la forme, l'articulation spatiale des différences anthropologiques et sociales est, comme Sitte l'observait déjà, un facteur important de lisibilité de l'environnement bâti... dans la mesure où la charge sémantique d'un espace est fonction de ses références à des codes sociaux..., dans le contexte actuel de changement social et d'acculturation généralisée, l'urbaniste soit démuni : soit du fait de l'absence d'une tradition spatiale de référence, soit par ignorance des références propres à une culture minoritaire donnée. »

<sup>&</sup>lt;sup>2</sup> Definitions of places, cited in Gieryn, 2000, p463-495.

- Place mediates social life; it is something more than just another independent variable (Abu-Lughod, 1968).

- Places are endlessly made, also when ordinary people extract from continuous and abstract space a bounded, identified, meaningful, named, and significant place (de Certeau, 1984, Etlin 1997, , cited in Gieryn, 2000, p471).

- Place isn't space-which is more properly conceived as abstract geometries (distance, direction, size, volume) detached from material form and cultural interpretation (Hillier and Hanson, 1996). Space is what becomes when the unique gathering of things, meanings, and values are sucked out (de Certeau 1984, Harvey 1996). Put positively, place is space filled up by people, practices, objects and representations.

- A place is remarkable, and what makes it so, are an unwindable spiral of material form and interpretative understandings or experiences (Gieryn, 2000).

The very idea of neighborhood is not inherent in any arrangement of streets and houses, but is rather an ongoing practical and discursive production/imagining of a people. "Locality" is as much phenomenological as spatial, achieved against the ground of globalization or nationalization (Appadurai, 1996). Meanings that individuals and groups assign to places are more or less embedded in historically contingent and shared cultural understandings of the terrain, sustained by diverse imageries through which we see and remember cities (Boyer, 1994). These culturally reproduced images of places are thus arbitrary but real in their consequences, as people make (or destroy) places. These diverse images and experiences of a place are symbolic constructions and will be forever precarious and contested (Laclau 1990), such as the example of the Bastille which started as a profane place and became a sacred, a luminal and finally a mundane place (Smith, 1999).

It is important to mention these ideas, as they are the cement, which permitted me to find the study site, its relevance and to situate the viewpoint methodology I introduced, allowing me to bind the subjectivity with objective criteria of the perception and the cultural imageability of a place.

#### > Around the perception and the readability in open spaces:

Imageability: According to Lynch (1960), the imageability is a quality of the physical environment that offers a strong image to an observer, and which makes a place distinct, recognizable and memorable<sup>1</sup>. A place has a high imageability when specific physical elements and their arrangement capture attention, evoke feelings and create a lasting impression. In that sense, the landmarks play a great role, with their singularity, location or relationship to their context and background. Distinctive buildings or their arrangement are the most common landmarks but not the exclusive ones (Evans *et al.*, 1982). Gehl (1987) and before him Sitte (1889) recall the *sense of space* when evoking the Italian city square. Such a quality brings a sense of well-being but also creates an unforgettable and total impression that Sitte described as the artistic scenic effect on the observer. The imagebailility (legibility) encompasses many other urban design qualities as enclosure, human scale, transparency, linkage, complexity and coherence (see table 1).

<sup>&</sup>lt;sup>1</sup> "It is that shape, colour, or arrangement which facilitates the making of vividly identified, powerfully structured, highly useful mental images of the environment". (Lynch, 1960)

Enclosure: A sense of enclosure occurs when the lines of sight are so decisively blocked as to make outdoor spaces seem room-like. Moreover, enclosure is about edge and boundaries. In urban settings, it can be formed by lining the street or plaza where buildings become the walls of the outdoor space, the street and sidewalk become the floor and the sky, the invisible ceiling. However the enclosure induces feelings in the space. For Alexander *et al.* (1977): "An outdoor space is positive when it has a distinct and definite shape and when its shape is as important as the shapes of the buildings which surround it". The feeling of enclosure supposes the respect of some proportions<sup>1</sup> to get a positive qualitative feeling. Tree lines or vegetal arrangement can also play the role of visual suggestion or produce an illusion of enclosure. Visual termination points and other vertical elements may also contribute to the sense of enclosure. Moreover the layout of the street network and the visual linearity of arrangements can have an influence as irregular grids, by creating easily terminating points and helping to enclose a space. Enclosure was defined qualitatively and quantitatively in many urban guidelines.

<u>Human scales:</u> Many scholars attempted to define qualitatively and quantitatively the dimension of human scale. It refers to the size, texture and articulation of physical elements (building details, pavement texture, street trees and furniture...) that match the size and proportions of humans and, equally important, correspond to the speed at which humans walk (Ewing and Handy, 2009). Some scholars mentioned the height of buildings<sup>2</sup>, articulated the architecture for tall building to moderate scale with belt, cornice and urban elements such as trees or small-scale elements for Hedman (1984). The proportion between the height and the width are also important to take into account the pedestrian speed unlike the motorist's speed; in order to avoid dispersion and disorientation. The pedestrian's distance of interaction also plays a role in designing for the human scale as underlined by Gehl (1987). He distinguishes the intimate distance 0-1.5 feet (0-0.45m)/ personal distance 1.5-4.5 feet (0.45 - 1.4m)/ social distance 4.5-12 feet (1.4-3.65m)/ public distance >12 feet (> 3.65m).

<u>Transparency:</u> It refers to the degree to which people can see or perceive what lies beyond the edge of the street. It is influenced by walls, windows, doors, fences, landscaping and openings into mid-block spaces. Other subtle elements contribute to transparency: Jacobs (1993) précised that "streets with many entryways contribute to the perception of human activity beyond the street, while those with blank walls may exhibit some transparency if overhung by trees of bushes, provide signs of habitation." Other scholars underlined that higher trees participated in enclosure and also transparency of the public realm, while smaller bushes and trees work against transparency (Arnold, 1993). In that sense, the urban pattern supports this definition. Courtyards, signs and buildings that convey a specific use, add to the transparency, as well as interior lighting, shadows and reflections.

<sup>&</sup>lt;sup>1</sup> For Alexander *et al.* (1977), the total width of the street (building to building) should not exceed the building height. For Jacobs (1993), a ration of at least 1:2 is acceptable for the proportion of building height to street width. Some other mentioned proportions as high as 3:2 and as low as 1:6 (Ewing and Handy, 2009) etc...

<sup>&</sup>lt;sup>2</sup> not more that 4 according to Alexander *et al.* (1977), 6 storey for Lennard (1987)

<u>Complexity:</u> It refers to the visual richness of a place, according to the variety of the physical environment (numbers and types of buildings, architectural diversity and ornamentation, landscape elements, street furniture, signage and human activity). Following Gehl (1987), when "an interesting walking network will have "the psychological effect of making the distance seem shorter", "narrow buildings in varying arrangements add to the complexity, while wide buildings subtract" (Jacobs and Appleyard, 1987). Along with the walking environment, complexity is also differently perceived with speed. The pedestrian need a higher level of complexity, when the motorist at driving speed would find the same environment chaotic, due to the scaling factor (Rapoport and Hawkes, 1970). In the public space, the manipulation of the light and shade, transforms stone, asphalt and concrete into more interesting patterns of sunlight and shadow. This richness is increased while filtered through the leaves of plants and trees, as trees have the strong property to enrich textural details missing from the modern architecture (Arnold, 1993). Similarly, street furniture also offers complexity to the sight. The signage is a major source of complexity in urban places and can add a visual interest, helping to create a sense of place. People and their activity add to the complexity of a scene. On a wider scale, the pattern of development can contain a high level of complexity<sup>1</sup>.

#### 2.3.2. Discussion on visual approaches for the outdoors

Let's briefly enumerate some of the main issues that are encompassed by academic research on the visual field:

#### > The social construction of visual values:

- Gombrich (1980) defined the elementary process of visual perception: "It is not such a static image which gives the pilot the required estimate of the distance and position of the runway but the flow of information he receives, the sequence of transformations all around which show him across these rapid changes the invariants of the lay of the land". He emphasized another major point that correlates socio-cultural visual specificity denied by major trends: "When this degree of ethnocentricity began to worry historians, they escaped into a facile relativism, declaring that all standards are equally conventional and that the Western method-that of the camera<sup>2</sup>-is no less arbitrary than any other" (Gombrich, 1980, p 246).

<sup>&</sup>lt;sup>1</sup> It is the case with the organic order of development visible in old centralities (see 2.4.2), benefiting from complex semi-lattice structures, in comparison to new planned developments following tree-like structures (Alexander, 1965)

<sup>&</sup>lt;sup>2</sup> Snapshot vision as the Western norm, « however images of great civilizations such as China and Egypt were never constructed on these principles... » (Gombrich, 1980, p 246)

- Another important fact is the complexity brought on by the colour and the form, and the resulting feeling<sup>1</sup>. It is assumed that some aspects of visual stimulus have an immediate effect on the senses of the viewer, creating psychic harmony by certain combinations of colours and shapes. Psychological investigations, natural sciences and mathematics findings on the visual perception were experimented in laboratory. Analytical rules of the perception of colours and forms (categorizing complementary or clashing colours for example) confronted in real-life contexts encompass supplementary dimensions, attached to socio-cultural issues. The same occurs for the perception of spatial relationships, not only preconditioned by geometric patterns<sup>2</sup>. "People do not necessarily perceive the visual configurations that Euclidian geometry made so popular" (Csikszent, 1991). Based on the Luria research<sup>3</sup>, Csikszent strongly argues that the laws of perception based on the properties of light and axioms of geometry have less to do with organization of the nervous system or phenomenology of perception, or any objective characteristics of visual stimuli. Instead he emphasizes the social construction of visual values, since our responses to a visual field seem related to the meaning attached to the configurations of colour and form<sup>4</sup>.

Those considerations are very much relevant when defining what make sense in the open space of a neighbourhood, for their residents and for what they judge (conscientiously or not) part of the visual identity of their place. It also shows the mitigated confrontation/assimilation between public taste and each individual private experience of the space and the objects. If finding a geometrical or organic order in visual patterns and spatial arrangements can enlighten the value of a morphological feature, such a study should not avoid local cultural and social criteria, as underlined by Gombrich. The resulting feature can carry a possible conflict opposing pre and post-industrial tastes and representations of the urban design. Hence this research should not aim at any universal target, but rather be placed in the local context. As a further work, the results of the morphological analysis could be confronted with a local survey on important visual elements for the residents, and thus gain a nuanced interpretation.

<sup>&</sup>lt;sup>1</sup> It could encompass the quest of art and universality

<sup>&</sup>lt;sup>2</sup>"The notion of a universal propensity for certain harmonious colour combinations based on natural categories or on underlying neurological preferences does not seem tenable. The clash is not due to physiological or perceptual incompatibility...and must be sought in the habits of symbolization that people in a given culture have acquired. The same argument holds true for perception of spatial relationships...Aesthetic preference was supposed to be based on the underlying stimulus qualities of a picture which could be reduced to simple geometric patterns...this approach assumed simple one-to-one relationships between abstract characteristics of the visual field and the way people perceive and interpret stimuli" (Csikszentmihalyi,1991). Such arguments are in opposition to biophilic fundamentals, which underlined the neurological primacy (see section 2.5.)

 $<sup>^{3}</sup>$  A circle in the Western world is a ring for Uzbeck and an incomplete circle is a moon.

<sup>&</sup>lt;sup>4</sup> "Visual values are created by social consensus, not by perceptual stimulation... without the consensus-building efforts of the art theorist or critic, each person would evaluate objects in terms of his or her private experiences. In each culture, however, public taste develops as visual qualities are eventually linked with values... The varying styles of visual expression, which artists or critics debate endlessly, is part of the public image each culture fashions itself. It provides abstract, general statements about the problems of a particular historical period... Most people create their own private set of references, singling out objects that will give order to what they have experienced." (Csikszentmihalyi,1991)

#### > The structural angle of spatial visual values: Lynch, Space syntax, Kuipers et al., etc...

- In chapter 1.5.2, I presented the definitions encompassed by the intelligibility<sup>1</sup> in space syntax approach. Both approaches on the notions of intelligibility (space syntax) and legibility (or imageability in Lynchian terms) could be reconciled according to Conroy&Bafna (2003), who reinterpreted the five Lynchian elements in space syntax terms. To resume their hypothesis, if the Lynch approach focused on visual qualities and residents' cognitive maps of the city, space syntax proposes rather abstract spatial descriptions as an underlying structure (or structures in relation to observable behaviour).

- The Lynchian elements can be distinguished in two groups: a first order of *spatial* descriptors (nodes, paths, districts) as topological elements for the observer (structurally distinctive), and a second order of *visual* descriptors (edges and landmarks) as geometrical order relationship for the observer (visually distinctive). According to Kuipers et al. (2003), individuals find their ways by using a mental map constructed in terms of a skeleton of paths<sup>2</sup>. Hence the cognitive memory of a city cannot be only a collection of features or the visual qualities of elements in Lynchian terms but necessitates a systematic structure with structural qualities to bind them. An axial map developed urban configurations in their totality whereas the Lynch cognitive maps of the inhabitants are selective regarding their visual characteristics<sup>3</sup>. The intervention of an overall way of finding structure is needed, with the possibility of axial analysis for Conroy and Bafna (2003), who assumed the dependencies of Lynchian elements upon the basic space syntax descriptors, but not reversely<sup>4</sup> (details in appendix D).

- The selectivity is the key feature for Lynch analysis, when space syntax characteristically sorts elements (axial maps, convex shapes etc...) with different values and can only answer the question why non-visually distinctive elements acquire importance for building the image of the city for their inhabitants. The Lynch cognitive map could be roughly identified by a 10% integration core in space syntax, analogous to the "skeleton map" from Kuipers *et al.* (2003)<sup>5</sup>. The divergences are that space syntax views the skeleton as being intrinsic to the spatial configuration of the system (a given state), that Kuipers et al. consider the skeleton which emerges over time from the cumulative experience of navigating an environment, and that Lynch sees such skeletons with structural features of their own

<sup>&</sup>lt;sup>1</sup> The definition of intelligibility concerns the relationship between local visual cues (the connectivity of a space) and the global properties of a space within a system. Such a relationship assists subjects in efficient navigation (Conroy and Bafna, 2003).

<sup>&</sup>lt;sup>2</sup> "Paths within a complex environment that is used with greater frequency than the rest of the paths and therefore serve as a mental frame of reference in environment cognition"

<sup>&</sup>lt;sup>3</sup> In that sense, verbal maps hold more information than the sketch maps but some elements (visually distinctive) from the sketch maps are not in the verbal maps. Lynch (1960) recognized that his method was very good for accounting the different elements describing the visual image of the city, however it underemphasized the relationship between them.

<sup>&</sup>lt;sup>4</sup> "All imageable cities must be intelligible, but all intelligible cities need not to be imageable"; Lynch claimed that a visually differentiated and ordered landscape (imageable landscape) is characteristic of a functional city, but the visual differentiation can only arise from a well-developed structural hierarchy.

<sup>&</sup>lt;sup>5</sup> They raised a pertinent question: "Is there a qualitative difference between the skeleton and the rest of the map, or is the role of the skeleton an emergent behaviour of some uniform mechanism applied to the entire cognitive map?"

(not simply with the identification of elements with greatest syntactical values). There is an interdependency of both visually distinctive elements and spatial structures. The structure permits the recognition of elements and any set of elements are by necessity structured. If Lynch analysis strongly proposed a visual nature of his elements, *space syntax* has inherently a cognitive basis (appendix C, D).

Such global approaches raised the question of the possible contributions of a more focused and locally selected visual frame with their distinct elements and view lines characteristics, toward the definition of a structural spatial (visual) configuration over time (most of the time excluded from such visual morphological consideration). This issue will be discussed in my methodology.

Moreover, there is a fundamental distinction between the visual connections and the paths that connect the physical movement of persons. Visual connections are necessary to create a picture of the whole environment and also for the orientation (Lynch, 1960, Hillier and Hanson, 1984), however interdependence between the visual and the physical path connections are a highly complex phenomenon, less investigated by researchers. The notion of view for strolling, orientation, and the feeling of well-being proposes more parameters, which are difficult to explore and still being tested. This study will also explore this in-between dimension, in order to establish if the readability of a path can be restrained to the fact of linking visual and walking paths, or if the visual paths alone (especially in a non-accessible place) can produce readability for the walker<sup>1</sup>. It is a different approach.

- Somehow, an isovist field connects Lynch elements to space syntax definitions<sup>2</sup>: an axial line will feature more importantly the structural elements of the city image, missed by Lynch, but isovist would be stronger for some specific categories such as the node and the landmarks<sup>3</sup>. According to Conroy and Bafna (2003), the three different visual methodologies (Lynch cognitive maps, the space syntax axial map, isovist mappings) present strengths but also weaknesses in characterizing the key-elements, whether for navigation purposes or regarding their imageability/intelligibility. For example the Lynch sketch map can be useful for nodes but not sensitive enough to distinguish normal crossings from key ones, however the axial map highlights such nodes very efficiently; and the isovist mappings might help better characterise the significant nodes<sup>4</sup>, with strong visual character, but not contribute especially to the sense of orientation. Districts, like nodes, lack identification in an axial map<sup>5</sup>. Despite its relevance for the image of the city, no techniques exist at the moment, for capturing the natural

<sup>&</sup>lt;sup>1</sup> The path in Lynchian terms and for axial lines is similar and "combines the dual notion of movement and vision, representing both a strategic line of sight and often a potential for movement".(Conroy and Bafna, 2003) <sup>2</sup> See definitions of different visual fields in part 1.5.1

<sup>&</sup>lt;sup>3</sup> Referring to the chapter 1.5.1, "the difference between the axial line map and an isovist is more than the one between spatial and visual, but that one allows mapping of a local to global structure (but a serious attenuation of local characteristics), while the other (isovist) preserves much more of a local spatial information (but does not allow a natural global extension)" (Conroy and Bafna, 2003)

<sup>&</sup>lt;sup>4</sup>"Such nodes would need to have highly concave shapes (visually penetrating star-shapes), strong visual asymmetry, and proximity to highly integrated axial lines." (Conroy and Bafna, 2003)

<sup>&</sup>lt;sup>5</sup> "They do not provide any sense of hierarchical structures in their mapping of the cities."

emergence of distinct districts within a city. However, once districts are known, the axial map becomes interesting in understanding their characteristics, as all districts are marked with local intelligibility (significant predictability). Few edges<sup>1</sup> are identified in Lynchian cognitive maps. The edge in an urban environment seems to depend, not only on its own visual (isovist) properties, but with respect to the main paths of movement (the structure of the axial map). Landmarks are visible in the most significant streets from Lynch's map, however they do not have any relationship at all with the axial map. A global landmark has the ability to be visible over a long vista. Local landmarks are much better grounded and used in planning routes, but tend to be very personal. "An axial analysis or even a visual field may contribute little to the identification of a typical landmark", although they can also be described in syntax and visual terms (resume from Conroy and Bafna, 2003, see details in appendix C). Hence, research on visual fields necessitates developing crossing arguments in order to better apprehend the imageability of a city for the walker.

#### > The value of visual experience and the qualities/criteria of the perceived visual field:

1- Searching for criteria defined by individual *close encounters with buildings* in the public space, Gehl et al. (2006) explored the dimension of the individual visual encounter, in order to orientate the planning processes into the creation of living city streets (figure 6 and appendix F). He defined factors that play or not in favour of visual and emotional encounters for the individual walking in the public spaces. His study aimed for a walker to experience buildings, people, and streets at ground floor level, then to describe the criteria of urban scenes at eye level, the impact of ground floors on the city life, and to propose key issues to manage lively streets for the planning authorities.

- To resume his experience, contrasting pair adjectives are used to describe urban scenes at eye level, describing the visual environment in terms of scale and rhythm (5km/h or 60 km/h), transparency (open or closed), appeal to many senses (interactive or passive), texture (rich in sensory experience or boring), diversity of functions (varied or uniform), vertical façade rhythms (vertical or horizontal). It is a sorrowful fact that the "development of society and the attendant architectural ideals have created an urban architecture where meaningful close encounters between city and buildings and between people inside and out have disappeared almost automatically. Cities no longer hold appeal for pedestrians".

- He emphasized the necessity for buildings and cities to re-evaluate the close-encounters with people, to encourage lively cities but also for intrinsic better appropriation of the public space and realm. The different case studies (see appendix F) led him to focus on the ground level as the 1<sup>st</sup> interaction place for any walker (see figure 7-middle illustration where the visual focus is represented according to the height of the building and the position on the public space). **Integration (physical permeability) and transparency (visual permeability)** (see figure 7- upper illustration) are encouraged.

<sup>&</sup>lt;sup>1</sup> Edges for Lynch (1960): "Linear elements not considered as paths", but "edge are often paths as well", "boundaries between two kinds of areas", edges are visually prominent, continuous in form and impenetrable to cross movement" (definition closed to isovist considerations), "edges, whether of railroads, topography, throughways, or district boundaries, are a very typical feature..and tend to fragment (the environment)".



Figure 14. From physical interaction between inside and outside (section a and b) to a more or less visual permeability (section c to f). Studies by Tomás Gil López.



**Figure 7: Characteristics of visual encounter within urban environment** Source: extracts from Gehl (1987) and from Gehl *et al.* (2006)

Further ahead various criteria were defined. They contribute to enhance the relationship between a walker and the city interface at street level, by proposing visual guidelines to be applied to buildings and cities, by emphasizing the scale (many units, vertical divisions, rhythm and space scale), design transparency (with unbroken façades, façade relief with edges, doorsteps etc...; material and details, active façades with many openings...), function (exchange and edge zones), exterior conditions (climate, lightings, traffic) (see appendix F).

- Such research emphasized that perception at ground level, which functions at various positions of sight, is primordial for the walker and determines his readability and appropriation of the space, through the values of integration and transparency.

2- As another attempts to qualify spatial perception, the role of urban design qualities in walking behaviour and to "measure the immeasurable", table 1, expressed the different criteria in the context of commercial streets and their level of objectivity for the walker. In their research, Ewing and Handy (2009) used the video as media to observe behaviours in a given urban space. The range of perceptual qualities (mostly through sight) is 51 and seven important urban design qualities are observed: Imageability legibility, enclosure, human scale, transparency, linkage, complexity and coherence.

Table 1. Perceptual qualities					-			
adaptability ambiguity centrality Clarity coherence compatibility comfort complementarity complementarity continuity contrast deflection Depth	distinctiveness diversity dominance enclosure expectancy focality, formality human scale identifiability imageability intelligibility interest intimacy	intricacy legibility linkage meaning mystery naturalness novelty operiness ornateness prospect refuge regularity rhythm	richness sensuousness singularity spaciousness territoriality texture transparency unity upkeep variety visibility vividness	features -Sidewalk with -Snee width -Traffic volumes -Traffic	Urban design qualine - Imageability - Legibility - Enclowne Human sacle - Transparency - Linkage Complexity - Coherence	Individual reactions Sense of Safety Sense of Comfan Level of Interest	Overall walkability More Subjective	Waling behaviou

#### Table 1 : On perceptual qualities and their objectivity

Source: Ewing and Handy (2009)

3- Positive and negative landscape assessment accepted by people

Different methods to assess livability of outdoors (see appendix E). The table 2 describes the positive and negative elements that play a role in the feeling and perception of the atmosphere in a given urban landscape. The general characteristics of a positive landscape assessment accepted by people are:

- The human scale of masses and spaces, in particular when they are man-made.

- The order, which can be recognized, must not be too rigid. Some spatial order is needed to help orientation; it expresses coherence, relationship and allows understanding. Disorder on the contrary expresses freedom and too much disorder may give an unsafe feeling. Order with a little exciting disorder makes the landscape vivid.

- Diversity and variation are appreciated as is the identity and typical (unique) character of a landscape.

- Cleanliness and a well-maintained appearance of the landscape are generally appreciated.

- Tranquillity and quietness are environmental characteristics of the landscape that are appreciated.

- The movement of elements in the landscape is appreciated as it expresses life. Movement should be considered in its broadest symbolic sense: running or falling water, ships, cars and trains, clouds in the sky.

- A landscape is appreciated more when its potential uses are clear, when it is accessible and freedom of movement is allowed.

- The durability of a landscape is expressed in its old age (represented by monuments) and its naturalness (as a symbol for the slow evolution and growth).

The following aspects are considered as negative, disturbing, ugly, and so on:

- Everything which is too much, too few, too tall, too small, too large...; the lack of human scale in fact.
- The occurrence of waste dumps and litter, lack of cleanliness and maintenance, extreme disorder.
- The lack of coherence, the inability to recognize relationships and meaningful patterns.
- The experience of noise and bad smell.

- The feeling of uselessness of the land, for example caused by inaccessibility (fencing).

 Table 2 : Positive and negative landscape assessment accepted by people
 Source: Antrop (2000)

The spatial perception and its fields of studies encompasses structural, socio-cultural and physical field's observations and criteria, for a given landscape. Some researches focused in each of the three aspects, when other tried to bind them.

#### 2.3.3. The visual relationships through methods used for the HUL

- At the Vienna Memorandum on world heritage and contemporary architecture in 2005, the historic urban landscape (HUL) was precised with its characteristics, such as land-use and patterns, spatial organization, visual relationships, topography and soils, vegetation and all elements of the technical infrastructures (see appendix I). Three main aspects can be underlined: 1- the degradation and transformation of the HUL; 2- The value of *geni loci* and the necessity of developing local specific approaches; 3- The value of visual relationships and their capacity for scenic beauty within the specific dense patterns, at the scale of an urban neighbourhood. The singularities of the local vista emanating from the urban landscape need further analysis, as being part of the local visual identity.

- The originality and scenic quality are considered as important characteristics. However, in the international community, the accent has been put so far on dealing with the large landscape scenic views, such as the example of the historical and cultural value of the view toward the mountain Fuji.

The scenic views in the cities mainly concern the enhancement for specific monuments (Champs Elysees Avenue and a view toward the Eiffel tower, London skylines disturbed by new constructions of towers, etc...). On the scale of a historical urban area (protected or not) separated from old towns, the emphasis is put on environment signals (landmark, broad landscape<sup>1</sup>) that shape the visual relationships as a consequence of geographical, spatial arrangements and notable architectural elements. Some *view protection guidelines* has been established in notable cities, in order to protect the view of a mountains in Vancouver as an example detailed by Moggridge (2007) (figure 8), in Paris to avoid tower constructions after the disaster of the Montparnasse tower in the historical part etc.

<sup>&</sup>lt;sup>1</sup> For example, the Fuji san views from elevated points of specific urban neighborhoods of Tokyo, the perspective from the castle of Saint Germain-en- Laye toward the Champs Elysées avenue and the Louvre palace.

Mountain skyline above tall buildings



Figure 1 View along Copacabana beach from Leme.

Perception of skylines



Figure 12 Siena (Italy), 1983. Photo Christopher Whinney (ATG Oxford).



Figure 13 Siena skyline as photographed in Figure 12.

Avoidance of falsification with images



Figure 15 View towards Horse Guards from St James's Park bridge as perceived by visitors. This assessment is confirmed by numerous images posted on the internet (FLICKR).



Figure 16 Tracing of one of the images of the proposed Doon Street Tower, tabled by the developer's team of 'professional experts', described as 'verified images'.

City skylines from significant viewpoints



Viewpoint from the bridge over St James's Park lake, London.

-	F TO FEELO		111 7
A00	Name of Ages o	÷	formation from the formation of the state of

Figure 10 Section through the rising sight line from St James's Park bridge over Duck Island, with Downing Street beyond.

Contours showing bottom of open sky



Figure 11 Draft contour plan, Inner London Royal Parks, 2001.

Cones of view:



Figure 5 View cones overlaid on city map.



Downward views to the sea from the centre of Edinburgh. Figure 6

Figure 8 : Different visual methods for the scenic viewpoint of the HUL Source: extracts from (Moggridge, 2007)

- Urban or natural skylines were recognized as vital elements of appreciation and appropriation of a place. They face the threats and major visual impacts from urban redevelopments upon HUL<sup>1</sup>.

To maintain skylines, weight has been put on limiting the height of buildings and various techniques were implemented (see figure 8): drawing a line for height limits in some areas directly impacting the view in cultural or natural elements, guidelines for view cones on the scale of the whole city and its surroundings, selecting city skylines from significant viewpoints, delimitating contours showing bottom of open sky (the contours show heights above the sea level, above which structures would be obvious), the perception of skylines from a selected part of the territory, techniques for avoiding the falsification of images with "recommendations of standard practice for all photographic imagery of proposals that affect the HUL" (Moggridge, 2007).

- This research establishes the pertinence of local viewpoints within a given urban neighborhood from the HUL and the fact that they can draw visual patterns, part of the local identity. It has not been the object of deep considerations for the management of the HUL in terms of visual relationships or for the planning authorities. Such viewlines drawn on the open spaces, are short distanced, comparatively to the cones of view in the large landscapes or the skylines, but they might, in some cases highlight fundamental determinants of the place. The visual criteria is included in large scale considerations of the historical environments or referring to illustrations, however they rarelly represent an object of study in itself in densely built-up neighborhoods. Hence this research proposes a morphological visual method for such neighbourhood and to highlight local viewpoints, as an urban landmark of the place.

#### 2.4. Other approaches on the urban environment: Biophilia and the organic order 2.4.1. Biophilic design approach on the outdoors

The biophilic arguments establish how humans connect in an essential manner to living organisms but also that some specific patterns<sup>2</sup> objectively contribute to or detract the psychological and spiritual wellbeing. The term "biophilia" literally means "love of life or living systems "and was first used by Erich Fromm to describe a psychological orientation of being attracted to all that is alive and vital. The discipline biophily was introduced by the American biologist Edward O. Wilson (1984), who started his approach by studying the therapeutic effect of a natural environment and domestic animals on sick patients. His hypothesis "suggests that there is an instinctive bond between human beings and other living systems". These deep affiliations that humans have with nature are rooted in our biological nature<sup>1</sup>. To Wilson, biophilia is a "complex of learning rules" developed over thousands of years of

<sup>&</sup>lt;sup>1</sup> For example, the importance of the landscape's skyline was used to errect Chinese medieval cities (with Fengshuy rules and the election of elements representative of the local cosmology, as lake, mountain etc...). <sup>2</sup> Among them, patterns of buildings and urban arrangements.

<sup>&</sup>lt;sup>1</sup>Unlike phobias (aversion and fear) philias are the attractions and positive feelings that people have toward certain habitats, activities, and objects in their natural surroundings.

evolution and human interaction with the environment. The hypothesis has since been developed as part of theories of evolutionary psychology, but also recently toward different paths in architecture and urban design theories. Since humans have become disconnected from nature due to dense, compact urban design, some studies found significant reductions of depression, anger, tension and fatigue<sup>1</sup> when people spent more time walking in nature unlike walking in shopping malls for example. They underline the real interest in re-discovering and developing ecological services, provided by natural systems.

Alexander (2001-2005) tried to measure the quality of life, by rediscovering the biological connection between humans and their sensory space. He established that some "very specific geometrical properties or natural living entities and built environments exert a positive, wellbeing effect upon our organism". The linkage between mathematical inherent structures in the biological systems and the urban- architectural entities (geometrical approach) recalls the essence of the connectivity process (see chapter 1). According to the biophilia arguments, mathematical effects are perceived and processed by a human's internal equilibrium systems. Some geometrical elements generate anxiety, can alarm internal systems and degrade psychological and physiological comfort when exposed for a long period while others enhance them<sup>2</sup>. Biophilia is also related to the fractal notion, especially regarding natural structures, that determine our spatial experiences in order to guarantee survival within an environment. In return, the human brain interprets this information to adapt with appropriate living structures (spatial arrangements in the built environment) that follow evolutionary developments, upon previous elements already in place.

#### > The biophilic urban design into question

At the 2009 ELPR Symposium, Timothy Beatley from the University Of Virginia School Of Architecture introduced biophilic urban design. His primary focus was on encouraging city planners to look at every space as an opportunity to green (see Appendix G). His book *Biophilic Design* attempts to rethink urban infrastructure in an effort to eventually develop a multi-level design that connect humans with nature, incorporating nature into city planning and architecture. Many cities and neighbourhoods have already undertaken to reach out to nature, in a planned or vernacular way<sup>3</sup>. Furthermore this reconnection takes into consideration the social benefit of re-discovering interaction with natural features, not only through outdoor activities in remote forests and countrysides but also within the city. However those thoughts are more incorporated into architectural apparatus than at the urban scale. Hence for Beatley, urbanists and city planners have special opportunities and unique

<sup>&</sup>lt;sup>1</sup> Or to enhance cognitive skills and academic performance, to aid in moderating the effects of ADHD, autism and other child illnesses etc...

 $<sup>^{2}</sup>$  In that direction, the biophilic dimension and the health impact of global shape buildings and outdoor spaces are often underestimated (Salingaros, 2010). Hence, it is essential to re-discover archetypal qualities that generate human wellbeing directly from the built environment.

<sup>&</sup>lt;sup>3</sup> From incorporating natural light in the workplace to raise moral and productivity, to efforts such as growing green rooftops, walls and bridges or gardens in sewer runoff systems etc...

obligations to advance biophilic city design<sup>1</sup>, toward a city, even greener and richer in the nature they contain. The biophilic cities aim at optimal natural relationships: knowledge and local place-strengthening, connection and connectivity, the awareness on the benefit of nature in an environment on large and small scales and through daily activities, moments and movements, and more conceptually a quest for wonder and awe in our lives that this connection to the natural environment could enhance.

The biophilic cities project from Beatley proposes a unilateral version of a city which would be exclusively organized around the green dimension, for the space, its practice and its social related life. His conception is rather radical, not only turning back to the modernity but also in the sense that it conceives vegetation as the only element to reach the truth of the human response to its environment. However, we can underline that vegetalization is not the only one guarant. Looking at the first settlements and castle towns in Europe or elsewhere in the world, the city-wall drew a clear separation between the urban and rural territories<sup>2</sup>. Cittat and nature were clearly defined and separated physically, but linked at the same time. The organic arrangement of cittat attested from a certain "biophilic" sense, by calling back to the organic human memory. The living vegetation was replaced by sculpted decorations on the facades of the buildings. The abstract dimension of nature played an equally major role in their urban living environment. The appropriation was associated to the relationship between the sight of those elements on facades or sculptures, with the individual pathways in the outdoors of organic patterns.

#### The experience of wellbeing resonates with an urban "genetic code"

Following Alexander ideas, for Salingaros (2010), the original geometry of human settlements underlies a form of "urban genetic code". The segments of this early code define patterns that cumulate information of multiplicity into two complementary mechanisms: increasing information and increasing the informational coherence. The first settlements followed the "code" <sup>3</sup>, by favouring connective geometry, where people interact on a pedestrian scale in a very compact spatial region (see chapter 1.2.3). However the 20<sup>th</sup> century let far too many dysfunctional- unsustainable or dead urban typologies. "Most cities today suffer from the imposition of such non-evolved urban typologies, misleadingly labelled as "modern". The hypothesis of the author is interesting, even though arguable.

<sup>&</sup>lt;sup>1</sup> By using a variety of strategies and tools, applied to a number of geographical and governmental scales; by extending principles beyond conventional urban parks, and beyond building-centric green design; by redefining the very essence of cities as places of wild and restorative nature, from rooftops to roadways to riverfronts, with vision but also through practice

 $<sup>^{2}</sup>$  A city-wall in most of the cases was separating a dense and organic urban entity (*cittat*) from the forest and the countryside. It proposed a sustainable socio-economico-spatial model in the exploitation of the natural resources and the exchanges and postures toward nature, as agreed by many scholars.

<sup>&</sup>lt;sup>3</sup> Elements of the "genetic code" of the city: "buildings enclosing a central plaza, low-rise but high-density occupation and mixed-use buildings, a pedestrian network connecting distributed plazas, a vehicular network superimposed on the pedestrian one…" Replacing that "genetic" code with a different or more abstract one and with formal design can lead to unsustainable configurations as would be the case for evolution threatened by change in genetic human code.

His point of view is radical since any patterns of modernism are rejected in the list of well-being elements. He argued that there is no sense of beauty in too much abstract and disorganized complexity of modernism; this has become an institution, accepted by all without testing the effect on human. Salingaros identifies three configurations that break the inherited harmonious urban code, and pledge against qualities for a sustainable environment<sup>1</sup>: - "dysfunctional regions", abandoned by their inhabitants, transformed and occupied by squatters;- dysfunctional regions that cannot be abandoned like social housing blocks, where a brutal geometry generates social dysfunctional behaviours (crime, rage, self-destruction etc...); - and urban regions which are kept functional only with tremendous expenditure of energy (unsustainable situation). The cost to the residents is even more concerning in terms of psychological stress.

- The healing dimension of urban versus the anxiety-inducing environmental entities proposed by modernity, enter into consideration with the body's response<sup>2</sup> induced by emotions when interacting with the urban environment. Urban spaces can generate strong anxiety when its intrinsic composition does not echo the geometries of humans and the natural codes. Numerous public spaces designed by architects and planners have received rather strong reproaches<sup>3</sup>. People are placed and can remain indefinitely in cognitive-dissonance to their instinctive biological reactions within the urban spaces (see figure 9). Hence, the modern ideology is not questioned much by place-making professionals.

- Moreover Salingaros emphasized the biophilic qualities of the informal settlements (especially in the developing world). Although slums are less healthy and secured than government-built social blocks (Turner, 1976, Salingaros *et al.*, 2006), they propose an economically vibrant system of inter-relations, close contact with natural elements and self-made ornamentations by the owners. Such elements are participating in the enhancement of outdoor spaces and its perception by individuals<sup>4</sup>.

- The biophilic effect depends on close and intimate contact with nature. It does not predestine a city to be only green (as argued by Beatley and his biophilic cities project). Salingaros sees in ornamentation that was unfortunately for him "banned from the built environment after 1908"<sup>1</sup>, a valuable element to

<sup>&</sup>lt;sup>1</sup> Salingaros (2010) defined qualitative elements that regenerate the urban environment and ensure its sustainability: 1- Access to clean air, water, shelter, and living space/ 2- Access to biophilic information in the natural environment: plants, trees, and animals/ 3- Access to biophilic information in the built environment: texture, color, ornament and art/ 4- Access to other human beings within an anxiety-free environment: public urban space, open-access residential and commercial spaces./ 5- Protection from anxiety-inducing objects: high speed traffic, large vehicles, threatening human beings, cantilevered and overhanging structures.

<sup>&</sup>lt;sup>2</sup> "Neurophysiologic response that reduces distress and empowers the body's natural defences to work to maintain a healthy steady state" (Salingaros, 2010)

<sup>&</sup>lt;sup>3</sup> As an example, public art objects and their non-biophilic design and geometries can generate a non-healing feeling (neutral effect) or anxiety (negative). They directly affect the quality of the urban space in which they are placed.

<sup>&</sup>lt;sup>4</sup> With the urban sprawl and the car-city, advocated by planners after World War II, the paradigm is that lawn replaced the natural environment and the forests with their biodiversity. They were the first quest of suburban residents. To some extent the urban sprawl was more detrimental to nature and biodiversity, than the trees destroyed to provide wood for heating and cooking in informal settlements that can enjoy relatively abundant vegetation from diverse types.

<sup>&</sup>lt;sup>1</sup> By the minimalist architectural environments movements

figure out natural features within the city. It represents the living or artificial source of biophilic information, producing the same effect on the brain, as a living natural source.

#### TABLE 1. BIOPHILIC DESIGN PATTERNS & BIOLOGICAL RESPONSES

Table 1 illustrates the functions of each of the 14 Patterns in supporting stress reduction, cognitive performance, emotion and mood enhancement and the human body. Patterns that are supported by more rigourous empirical data are marked with up to three asterisks (\*\*\*), indicating that the quantity and quality of available peer-reviewed evidence is robust and the potential for impact is great, and no asterisk indicates that there is minimal research to support the biological relationship between health and design, but the anecdotal information is compelling and adequate for hypothesizing its potential impact and importance as a unique pattern.

14	PATTERNS	*	STRESS REDUCTION	COGNITIVE PERFORMANCE	EMOTION, MOOD & PREFERENCE
	Visual Connection with Nature	•••	Lowered blood pressure and heart rate (Brown, Barton & Gladwell, 2013; van den Berg, Hartig, & Staats, 2007; Tsunetsugu & Miyazaki, 2005)	Improved mental engagement/ attentiveness (Biederman & Vessel, 2006)	Positively impacted attitude and overall happiness (Barton & Pretty, 2010)
NATURE IN THE SPACE	Non-Visual Connection with Nature	•••	Reduced systolic blood pressure and stress hormones (Park, Tsunetsugu, Kasetani et al., 2009; Hartig, Evans, Jamner et al., 2003; Orsega-Smith, Mowen, Payne et al., 2004; Ulrich, Simons, Losto et al., 1991)	Positively impacted cognitive performance (Mehta, Zhu & Cheema, 2012; Ljungberg, Neely, & Lundström, 2004)	Perceived improvements in mental health and tranquility (Li, Kobayashi, Inagaki et al., 2012; Jahncke, et al., 2011; Tsunetsugu, Park, & Miyazaki, 2010; Kim, Ren, & Fielding, 2007; Stügsdotter & Grahn, 2003)
	Non-Rhythmic Sensory Stimuli		Positively impacted heart rate, systolic blood pressure and sympathetic nervous system activity (LI, 2009; Park et al, 2008; Kahn et al., 2008; Beauchamp, et al., 2003; Ulrich et al., 1991)	Observed and quantified behavioral measures of attention and exploration (Windhager et al., 2011)	
	Thermal & Airflow Variability	••	Positively impacted comfort, well-being and productivity (Heerwagen, 2006; Tham & Willern, 2005; Wigo, 2005)	Positively impacted concentration (Hartig et al., 2003; Hartig et al., 1991; R. Kaplan & Kaplan, 1989)	Improved perception of temporal and spatial pleasure (alliesthesia) (Parkinson, de Dear & Candido, 2012; Zhang, Arens, Huizenga & Han, 2010; Arens, Zhang & Huizenga, 2006; Zhang, 2003; de Dear & Brager, 2002; Heschong, 1979)
	Presence of Water	:	Reduced stress, increased feelings of tranquility, lower heart rate and blood pressure (Alvarsson, Wiens, & Nilsson, 2010; Pheasant, Fisher, Watts et al., 2010; Blederman & Vessel, 2006)	Improved concentration and memory restoration (Avarsson et al., 2010; Biederman & Vessel, 2006) Enhanced perception and psychological responsiveness (Avarsson et al., 2010; Hunter et al., 2010)	Observed preferences and positive emotional responses Windhager, 2011; Barton & Pretty, 2010; White, Smith, Humphryse et al., 2010; Karmanov & Hamel, 2008; Biederma & Vessel, 2006; Heerwagen & Orians, 1993; Ruso & Atzwanger, 2003; Ulrich, 1983
	Dynamic & Diffuse Light	:	Positively impacted circadian system functioning (Figueiro, Brons, Pithick et al., 2011; Beckett & Roden, 2009) Increased visual comfort (Elyezadi, 2012; Kim & Kim, 2007)		
	Connection with Natural Systems				Enhanced positive health responses; Shifted perception of environment (Kellert et al., 2008)
NATURAL ANALOGUES	Biomorphic Forms & Patterns	+			Observed view preference (Vessel, 2012; Joye, 2007)
	Material Connection with Nature			Decreased diastolic blood pressure (Tsunetsugu, Myazaki & Sato, 2007) Improved creative performance (Lichtenfeld et al., 2012)	Improved comfort (Tsunetsugu, Miyazaki & Sato 2007)
	Complexity & Order	•••	Positively impacted perceptual and physiological stress responses (Salingaros, 2012; Joye, 2007; Taylor, 2006; S. Kaplan, 1988)		Observed view preference (Salingaros, 2012; Hägerhäll, Laike, Taylor et al., 2008; Hägerhäll, Purcella, & Taylor, 2004; Taylor, 2006)
NATURE OF THE SPACE	Prospect	• • •	Reduced stress (Grahn & Stigsdotter, 2010)	Reduced boredom, irritation, fatigue (Clearwater & Coss, 1991)	Improved comfort and perceived safety (Herzog & Bryce, 2007; Wang & Taylor, 2006; Petherick, 2000)
	Refuge	• • •		Improved concentration, attention and perception of safety (Grahn & Stigsdotter, 2010; Wang & Taylor, 2006; Petherick, 2000; Ulrich et al., 1993)	
	Mystery	* *			Induced strong pleasure response (Biederman, 2011; Salimpoor, Benovoy, Larcher et al., 2011; Ikemi, 2005; Blood & Zatorre, 2001)
	Risk/Peril				Resulted in strong dopamine or pleasure responses (Kohno et al., 2013; Wang & Tsien, 2011; Zald et al., 2008)

© 2014 Terrapin Bright Green / 14 Patterns of Biophilic Design

Figure 9 : Biophilic design patterns and biological responses

Source: Table, extracted from (Browning et al., 2014, p12)



- 1. Visual Connection with Nature A view to elements of nature, living systems and natural processes.
- 2. Non-Visual Connection with Nature Auditory, haptic, olfactory, or gustatory stimuli that engender a deliberate and positive reference to nature, living systems or natural processes.
- Non-Rhythmic Sensory Stimuli Stochastic and ephemeral connections with nature that may be analyzed statistically but may not be predicted precisely.
- 4. Thermal & Airflow Variability Subtle changes in air temperature, relative humidity, airflow across the skin, and surface temperatures that mimic natural environments.
- 5. Presence of Water A condition that enhances the experience of a place through the seeing, hearing or touching of water.
- 6. Dynamic & Diffuse Light Leveraging varying intensities of light and shadow that change over time to create conditions that occur in nature.
- 7. Connection with Natural Systems Awareness of natural processes, especially seasonal and temporal changes characteristic
  - of a healthy ecosystem.



- 8. Biomorphic Forms & Patterns Symbolic references to contoured. patterned, textured or numerical arrangements that persist in nature.
- 9. Material Connection with Nature Material and elements from nature that, through minimal processing. reflect the local ecology or geology to create a distinct sense of place.
- 10. Complexity & Order Rich sensory information that adheres to a spatial hierarchy similar to those encountered in nature

#### NATURE OF THE SPACE



- Prospect An unimpeded view over a distance for surveillance and planning. 12. Refuge
- A place for withdrawal, from environmental conditions or the main flow of activity, in which the individual is protected from behind and overhead. 13.
  - Mystery The promise of more information achieved through partially obscured views or other sensory devices that entice the individual to travel deeper into the environment.
- 14. Risk/Peril An identifiable threat coupled with a reliable safeguard.

#### **Figure 10 : Detail on the 14 patterns**

Source: Table, extracted from (Browning et al., 2014, p23)

- In the past, Sitte and many other theoreticians from the culturalist movement shared these observations. Additionaly, the general critic denounced the car-city encouraged by automobile and steel industries after WWII against the erased pedestrian city, the transfer of public outdoor spaces to shopping centres and malls models, encouraged by real estate developers and governments. The connectivity generated by the automobile and its infrastructure kept away the individual from a human-scale city. Psychologically, it turned outdoor environments into threatening entities (unless you stayed protected inside your car) with vast undefined open spaces anxiety. "Pedestrian inducing experience has therefore been reduced to internal space (private living space, inside cars, private commercial space and malls...)".

- Another important fact underlined by Salingaros is the cumulative effect on health brought on by negative environments. Hence, it is not possible to re-wire the psychological and physiological anxiety generated by a negative non-biophilic environment. The alarm signals induced by the wrong contemporary features and buildings are automatically secreted in the human brain (in a similar way to vertigo or altitude sickness) and their negative effects on our sense of wellbeing within the built environment are cumulative. Such a medical aspect is rather absent from research studies and necessitates further investigation. Urban design and planning partly developed arguments in favour of the Tokyo green metropolis (huge green projects, green belt ideas etc...). Some studies<sup>1</sup> cope with

<sup>&</sup>lt;sup>1</sup> Many scientific approaches have been studied on wellbeing, thermal qualities, health impacts, etc, provoked within outdoors spaces in neighbourhood. Walton D., Dravitzki V., Donn M. (2007), studied "the relative

environmental and psychological aspects of the green spaces on urban outdoor spaces: from their perception to their health and outdoors comfort related issues, through a more scientific approach, or by emphasizing the importance of walkable green spaces as a necessity in mega cities like Tokyo.

#### 2.4.2. The organic order to regenerate the small part of the city

 $\succ$  The CIAM<sup>1</sup> was a breakdown in the way of conceiving modes of production of cities, following the industrialization process from the late 19<sup>th</sup> century and along with technical progress in construction. The dominating roles of architects, planners and different developers and constructors, to mould the everyday life of people by gradually removing the power of initiative from them, characterized the beginning of the 20<sup>th</sup> century until nowadays. The globalization accentuated this phenomenon. This new mode for shaping a city encompasses large size interventions that denied details and were very prejudicial to old traditional modes of action, relying on stitching and aggregating urban entities and architectural details. Organic and dense traditional frames were the double victims of new rationalized and standardized typologies. They emerged from a different concept for regenerating buildings and urban frames, by large scale intervention, tabula rasa instead of the continuous small step transformations, as it used to be the case for centuries. From a broad perspective, urban growth machines become clients for exclusive professions around the design of built-places: architect, urban and regional planners, landscape architects, interior designers, cartographers, surveyors, historic preservationists, even public relations specialists with expertise in promoting a place. Design-experts mediate the relationship between political, economic, or mobilized powers and the built-places that they desire. The finished places that we see, inhabit, visit, and suffer from, are as much the consequence of decisions made by place-professionals as the wishes of clients upon whom they depend for their livelihood. This routinization, standardization, and rationalization of design practice that makes architecture firms efficiently profitable and professionally accountable, also raises questions about what it is exactly that architects provide: "style", which people might associate with a place. The stylistic turn from modernism to postmodernism is not just about changing tastes (or changing political economies) (Harvey, 1990); it is also about architects seeking to convince clients that they have a better way to move function to form amidst the changing political economy or urban areas (Ellin, 1996). As the failed urban renewal programs of modernism gave way to gentrifying city neighbourhoods (Ley, 1997), post-modern emporiums became right not only for selling but for other social goals such as growing a community or attracting capital. In the "Oregon experiment", Alexander C. (1978) criticized designers and planning attitudes and practices that have not evolved

influence of wind, sun and temperature on user comfort in urban outdoor spaces". Takano T., Nakamura K., Watanabe M. (2002) underlined the qualitative preference to the alleys in Tokyo's case (see appendix H). etc <sup>1</sup> CIAM: International Congress for Modern Architecture, established in 1928 in Sarraz, Switzerland.

since the beginning of the 20<sup>th</sup> century. He updated a crucial method for a small size urban fragment that can be interpreted as a serious alternative to massive standardization of actions within an urban planning system and general procedures of usual concerned stakeholders, which led in most of the cases to erase the particularities of a place. His interpretation does not especially focus on urban dense patterns, but generalized to any sort of urban fragment from small to average size, and includes old vernacular entities, as the experimentation in Oregon represents only a part of the university campus.

 $\succ$  Alexander proposes six fundamental principles based on the organic structure for the small and medium size entities of the city and their regenerations to be more sustainable, democratic and to avoid mistakes that have characterized the modern urban planning system for almost a century:

1- <u>The organic structure process (the emergence of the whole from local interventions)</u>: Community should reject a master plan based planning system, to avoid a fixed future plan. It favour a system of models with its own syntax directed by a planning board composed of community members as a representation of a larger number of residents, and also planning and construction actors. It is important to recall that organicity is not only a pattern but also a principle of participation managed exclusively by a community's members. They are the only ones eligible to manage the organic growth. As a result, organic frames drift only by collective actions in the environment they know better than others. Each user shapes his environment.

2- <u>The participative process</u> includes the users in the construction of their goods<sup>1</sup>. On the contrary, a poor participative process relies only on the architects and urbanists to achieve projects. This can be explained in the common sense that each human needs to develop a sense of territoriality, property and creation, to be able to identify themselves more easily to the fragment of environment they are interacting with. The feeling of appropriation of a place by the users is enhanced with a more participative structure in those three angles<sup>2</sup>. The chaos could emerge from such an extended participative structure if no common principles or models were established. Such traditional<sup>3</sup> models let the emergence of unique and diversified places, which adapted and transformed by small steps from one generation to the other. Hence, the users have the exclusive right to be the only architects of their own project (stimulation of imagination and affective feeling) and to receive the help of professionals as consultants only. For Alexander, only those projects should be financed and the time spent to the conception included in the budget. Big scale projects cannot follow such recommendations; however it can be very helpful for the regeneration of urban dense places and their small size projects.

<sup>&</sup>lt;sup>1</sup> An extreme but nonetheless very interesting example of this case are the slums where inhabitants construct with their own hands all the components of their houses, leading to a very organic pattern for the whole entity

<sup>&</sup>lt;sup>2</sup> The recent history of architecture and urban planning gave far much importance to only one actor, to shape the city when 3000 years at least of different practices balance it out.

<sup>&</sup>lt;sup>3</sup> In reference to the diverse traditional cultures

3- The fragmented growth (for every different step and their budget, favour is given to small size projects): The parallel is made with a living organism<sup>1</sup>, which has to regenerate, repair and adjust itself constantly to be able to preserve its balance and its global shape. The fragmented growth transforms, improves, keeps as much as possible constructions in the environment, follows sequences and is representative of traditional cultural practices all over the world<sup>2</sup>. For Alexander, it is opposed to the growth by massive unit, which characterizes most projects of recent urban planning systems, design and architecture. With massive unit growth, the environment development proceeds by sectors. It is not included into sequences of transformations but on the contrary supposes a finished entity (building) with a limited life span, destroyed and replaced by another limited time span structure. There is no recycling or repair process as for the fragmented growth but the acknowledgment that it is better to live in new structures than old ones<sup>3</sup>. The dynamics are also different, as fragmented growth represents a dynamic ongoing process and massive unit growth lies on a fragmented static conception of the environment<sup>4</sup>. Another major unavoidable consequence is the disproportionate and unfair development of some sectors of the territory and the lack of harmony causing major deterioration of places<sup>5</sup>. On the contrary keeping a balance on evolving elements are the key words of a fragmented growth process. This harmony between elements of the environment gives major attention to the linkage structure within an outdoor space, as it is more manageable to continuously control and change. For all those reasons, fragmented growth contributes to organicity when massive unit growth leads to destruction of organic order. To realize that beneficial order, favour for budget (internal or external sources) should be given to small projects and distributed to all size projects following those principles. 4- The Models (projects and their construction under control of development principles agreed by users of the community): They are defined by the collective practices from communities, according to their specificities and expectations. The declination of those models can be into as many elements as

<sup>&</sup>lt;sup>1</sup> The notion of growth and organicity, although more complex in environment, can be completely related to the running of the human body that is undergoing constant repairs, adjustments of biochemical functions, cell renewal and healing of damaged tissues in order to preserve global morphology. One main difference in the environment is the addition of new constructions, together with gradual changes divided in all the sectors and local repairs (windows, doors for the example of a building).

 $<sup>^{2}</sup>$  As an example, the perfect match to the human scale and wellbeing feeling from the historical Italian city also comes from the fact that it has been constructed progressively over time.

<sup>&</sup>lt;sup>3</sup> Not to mention the fact that massive unit growth is not environmentally friendly, one of the perverse effects of such an idea on the city is that more budgets, always adjusted upwards because of competitiveness and marginal provisional costs, are allocated to new structures rather than to the rehabilitation of older ones (where costs are directly related to real small needs). Further ahead the system does not recognize mistakes as part of the natural process of creation, except in the fragmented process. Mistakes are unavoidable but cost much more within a massive determined structure compared to small reparable ones.

<sup>&</sup>lt;sup>4</sup> Filled with an assemblage of isolated and replaceable elements and residual open spaces in between them.

<sup>&</sup>lt;sup>5</sup> That is for example the case of the large scale urban redevelopment of housing in the suburb which evolved into ghettos. That is also the reason why many old historical centers were damaged and some of them doomed to demolition or victims of the tabula rasa policy (historical slums) because budgets were constantly and preferably allocated to major redevelopments in areas where the land is cheaper.

considered important<sup>1</sup>. They are the main elements and their conditions are decided by the community, and adopted by the planning board for the elaboration of any projects. Those models can evolve and be reviewed every year by any member of the community, on the basis of experience and observation of facts issued from practices that need to be added or modified.

5- <u>The diagnostic</u> (a yearly based evaluation on the adaptation of the projects to the evolution and the needs of the community): Planning board can play a role of supervisor but not main actors and global models should be adopted<sup>2</sup>. To control the health of the environment, a global scheme is needed. It contains all detailed information of its components and can be easily accessible for users. It also defines places that are relatively healthy, places that requires some modifications, dead or useless zones, places that need models<sup>3</sup>. The schema proposed by Alexander is very much different from the master plan that is made to predict the future. His principle of diagnostic is made for the present situation, which gives more freedom to people to find solutions at the present time. This method has been used for centuries to build cities in Italia from the middle ages<sup>4</sup>, with similar models and a yearly control of the whole city by its citizens<sup>5</sup>. The principle of diagnostic can allow the planning board, in collaboration with community members, to establish an annual schema, adopted after public consultation and debates, and displayed to each member of the community and to any potential contractor.

6- <u>The coordination</u> (the global organic structure growth managed by a method of financing which regularizes the influx of individual projects): It is important to maintain the authenticity of the organic order; however such a structure can barely accept central control and give favour to a more democratic responsibility share to coordinate them. Thus, a planning board should provide models and a diagnostic for further changes and check whether projects are consistent to those models and diagnostic, while processing at all the scales of the project following an order of priority.

The intrinsic organic order is linked to the artistic effect produced to the walker in old cities. Hence, both aspects (mechanics and aesthetics) need to be recognized. The organic order inherent to old neighbourhoods' vital structure should influence their maintenance and regeneration.

<sup>&</sup>lt;sup>1</sup> Population, walkway, accessible green spaces, water access, main entrance, lightings, parking, south oriented outdoor spaces, positive value from the outdoor spaces, pedestrian ways, etc...

 $<sup>^2</sup>$  If we come back to our example of a living organism, following a fragmented growth, the organism can maintain a global order that can also be found in each of its parts. In fact, organisms proceed by detection and local repair. This screening process, adapted to the living environment is called the principle of diagnostic by Alexander. In the human body, the screening process is controlled by the endocrinal system that promotes the growth of cells in some parts and inhibits it in other parts. The cell's development but also the conditions of their growth, their reproduction, their replacement, and their decays are controlled for each cell and their integration in the whole body, through global settings defined by genetic information requirements. The human body's global order is able to repair the organism at local levels but also to control the embryo growth until it reaches its overall original shape defined by its genetic codes.

<sup>&</sup>lt;sup>3</sup> For example, a place that needs pedestrian or cycling ways can define those two new models etc...

<sup>&</sup>lt;sup>4</sup> John Larner (1971) noticed that the "organicity of Italian cities are the product of very precise procedures, based on decrees and laws"

<sup>&</sup>lt;sup>5</sup> "Those citizens (not professionals) had the responsibility to build development projects following the models inspiration" (Alexander, 1978).

#### 2.5. Conclusion

This chapter describes various approaches to apprehend the outdoor spaces within the urban environment, their impacts on human behaviour, perception and appropriation of the space and the urban heritage related issues regarding the "organicity", the *geni locci* and the visual characteristics of urban neighborhood of the HUL.

➢ First, I reviewed the main primary approaches on outdoors. With Conzen's first urban morphological methodology of analysis of the old city proceeding by layers of evolution from the fabrics, Whitehand deplored that nowadays the urban morphology is not used enough for reinforcing the urban heritage policies and for the sustainability of old fabric. Back then, Sitte explored and valued the beauty of vernacular and praised the necessity of artistic effect for the walker and a "human" scale. From his morphological studies on outdoors of old centres in Italy, five main characteristics were underlined for piazzas (the release from the central position to better connect with existing urban fabric and constructions; the enclosure for better readability of the place; the proportion and depth rather than the metrics for shaping theatrical effects; the irregularity to accentuate the necessary picturesque effect; and the arrangement of outdoors in successive groups of piazzas to increase the richness and surprises of the strolling paths). If the perception of the spectator used to be fundamental for shaping a harmonious piazza, the morphological approaches did not encompass the layers of visual interactions and the visual media as a tool itself.

➤ Different angles, such as structural, socio-cultural or through qualitative criteria from the visual field, were experienced to approach the urban question of visual perception along with urban design qualities, walking behaviour and navigation, readability and intelligibity of the city in global terms and through the decomposition of key-elements, which pledges for urban environments imageability(Lynch (1960). But notable doubts subsist in the visual research field, which could gain from being better explored. Additionally, the complex exploration of visual and walking paths experiences, their interdependence and the resulting understanding of the environment, are still under question. How about local *geni locci*, especially within very dense urban configuration? How to correlate visual spatial structure and the landmarks specificity with the individual singular experience? In that sense, the initial cognition of small scale spaces is fundamental for the understanding of larger scale spaces. Moreover, despite their embedded correspondences, the notions of visual field characterization and urban morphology were never attached. It is a difficult task which can, not withstanding, enrich the debates on the interesting contribution that studies on visual perception could also bring to urban design and wellbeing, urban regeneration and urban heritage to some extent.

> In parallel, outdoor spaces questioned elementary values for a human's wellbeing in his environment and motivated researchers toward the healing aspects of the outdoors and the natural environment through the biophilia concept from the biologist Edward O. Wilson, leading to the biophilic urban design hypothesis with Beatley and Salingaros. It is aiming at redefining the very

essence of a city by restoring the "green, organic and naturful" relationships of appropriation from a place by its citizens, whose fundamental quest of wonder is enhanced by the connection with nature. Hence, the connective capacity of a space is very much attached to the resonance between human biology, biophilic features and the urban code, respecting human scale, ornamentation and complex hierarchical scaling patterns to generate psychological wellbeing and deep understanding in a place. It favours to connective geometrical developments. By denying such fundamental rules, dysfunctional spatial arrangements do not facilitate walker interaction, and represent pathology in modern urban and architectural shapes, generating strong anxiety, as a consequence from the moderrn advocated architecture and urbanism, which started with the CIAM and from which effects on human has not been tested. The hypothesis is radical since patterns of modernism are rejected, as there is no sense of Beauty in too much abstract and disorganized complexity of modernism. Alexander defended the "organic order" and the benefit of its "fragmented growth" for the regeneration of small and average size urban entities, against the destructive dynamic of "growth by massive units" (modern process of redevelopments, its global scale and standardized frames). He questioned the way (stakeholders, models, time...) urban dense patterns have been erected over time, and described a system of regeneration manageable through a bottom-up participative structure including all the decision makers and shapers, around models firstly decided by the residents with the consulting help of professionals.

 $\succ$  It is nonetheless interesting to notice that studies on the connectedness ability of outdoor spaces in very dense old urban fabric, (or for informal settlements), which are a highly biophilic environment, following an organic order, are less exhaustive. They contribute to shape a singular atmosphere, attract the walker and are vital for the wellbeing feeling. Such aspects were at the heart of my selection process for the case study area. Thus, I also questioned the criteria of perception and their intrinsic universal meanings, in terms of density scaling and organicity, while experiencing the outdoors of old dense neighbourhoods.

> The UNESCO world heritage Committee in the Vienna memorandum underlined the originality and scenic quality, as fundamental characteristics of cultural landscapes and also insisted on values among which the spatial arrangement, the visual relationships, the vegetation. However only the scenic beauty and the historical skyline views were acknowledged as being part of the city identity. Different visual methods were developped in that sense at large scale but there are further needs to develop visual tools and interpretations to better grasp the *geni locci* value from the HUL densely built-up patterns, their visual specificities or singular spatial outdoors' arrangement. Hence, the local viewpoints can draw a valuable feature itself and be a strong spatial determinant of the place, also explaining urban configurational history. This last point is the core object of this research.



## PART II: Case study on outdoor spaces in Wakaba area of Shinjuku ward, Tokyo



## **3. THE CHOICE OF THE CASE STUDY AREA: CONTEXT, CHALLENGES OF THE URBAN DENSE FABRIC OF TOKYO**

## **INTRODUCTION**

### **PART I: literature review approaching the question**

1. THE NOTION OF CONNECTIVITY AND ITS USES IN LANDSCAPE AND URBAN FIELDS 2. MORPHOLOGICAL APPROACHES AND VISUAL CRITERIA FOR THE PERCEPTION OF URBAN OUTDOORS

## PART II: Case study on outdoor spaces in Wakaba area of Shinjuku ward, Tokyo



THE TRANSFORMATION OF THE VIEWPOINTS ANALYSIS

5. FIELD'S OBSERVATIONS ON WAKABA'S OUTDOORS, STRENGTHENING THE VIEWPOINTS ANALYSIS

CONCLUSION

## <u>The choice of the case study area: context, challenges of the urban dense fabric of Tokyo</u> Introduction

In the previous part I described the main issues on the perception and the notions of connectivity. It browsed the major actors in the debates and the different morphological analysis on urban open space. The aim of this chapter is to present the historical and morphological context, helping to apprehend the case study site in Tokyo. The city welcomes a unique type of "urbanicity", invented in Edo and the marks of its later numerous re-modelling, driven by the tendency to radically modernize urban space. The joy of strolling in the remaining old districts of the capital, in quest of the atmosphere of the lost Shitamachi resonates with existing singularities of this *geni locci*. Multiple layers of intertwined morphological frames interrogate the local memory and visual understanding of Tokyo's urban fabric, while strollers are challenged by the feeling of a perpetuated spirit of traditional atmosphere in some urban neighbourhoods.

This chapter will draw up with an historical overview, morphological roots and the specificities of pre and post war contexts of Edo-Tokyo's urban systems, focusing on the popular features of the capital. The area of Shitamachi is understood as the dense urban parts of the city. I will also broadly present some of the main challenges, threats and transformations of the urban dense fabric and the work on cultural landscape division maps, made for Shinjuku municipality. The selection process of Wakaba, the urban neighbourhood of Shinjuku will be exposed, through my diverse strolling and my quest for a certain authenticity, but mostly representative of a visual behaviour I developed, while being positively stimulated by some places. Wakaba has the particularity of having been a slum from late Edo period and Meiji era and is hosting an aging population, which used to live in the previous *nagaya*. Its cityscape confronts a upper side surrounded by temples, cemeteries and a shrine and characterized by large viewpoints on the elements of the landscape, with the spatial configuration of living area located within the deep hollow of the valley. Wakaba 2<sup>nd</sup> and 3<sup>rd</sup> districts draw a long lasting high density of the urban entities. They propose different viewpoints in comparison, which raised up my attention as being locally relevant for the identity of the place.

# **3.2.** Overview on pre-war context of Shitamachi and its evolution 3.2.1. Edo and its urban settlements' morphological roots

The Tokugawa period (1600-1868) developed an integrated urban system, based on the castle-town with a sophisticated administrative system controlling social changes, urban development and economic activity. It permitted the development of a very singular urban phenomenon, in the place of the lower classes area called Shitamachi. Topography played a major role in the structural composition of Edo, with its 7 main hills (Ueno, Hongo, Koishikawa-Meijiro, Ushigome, Yotsuya-Koujimachi,

Akasaka-Azabu and Shiba-Shirogane) (See Figure 11 and Appendix D). The castle was erected in Musashino plateau and the area for the commoners was on the alluvial lowlands. Yamanote (the high city) isn't a uniform land, but also contains a variation of multiple carved valleys, which form the bed of small rivers and canals, and are usually the places of small urban development of commoners and lower classes. Yamanote was divided into 3 main areas Jouhoku (north castle), Jousai (west castle), and Jounan (south castle). Three types of road can be noted as the main highways of Edo (5 principal roads between Edo and other provinces), the roads following the ridges and the roads along the valleys. As the highways were constructed during Edo, the network of older roads along temples attested from earlier establishments (prototypes for the later urban villages). Edo's growth followed a linear urban expansion along the radial highways, toward east and West and more particularly in Jouhoku and Jousai along Nakasendou (Hongo Avenue), Koushuu kaidou and Atsugi-kaidou (Aoyama Avenue). Further ahead, for every ridge road, there was a valley road, where the peasants used to settle. It encouraged the growth of the city and the propagation of commoner area prototypes, as a "special phenomenon encountered only in wet-rice cultures" (Jinnai, 1995). The temples and shrines were established along high hills, offering paths from the low dense city to the airy higher open space of the noble dwelling. They were not only sacred places but also the spaces dedicated to encounters. In that sense, they also contributed to the development of Edo through their entertainment quarters. Moreover, they contributed to shape the images of the city for their inhabitants, reinforcing the cosmological order, which is centred physically and metaphysically into the palace. As temples and shrines were placed at distant uplands, they played a symbolical role of protection, at the gates of Edo. The 3 main temples of Edo were Sensouji in Asakusa, Toueisan in Ueno and Zoujouji in Shiba area. They followed Taoist precepts for their situations (see appendix D). They permitted large gatherings of people, especially during festivals such as the Cherry blossom season (Hanami) and constituted a useful and "democratic" green outdoor space, necessary to inhabitants of dense urban fabrics. Later during the Meiji era, they became the first public parks. The bridge foot spaces hashizume (橋) and the fire breaks (hirokoji 広小路), designed for evacuation purposes at the edge of the city in case of disaster, developed into famous cultural hot spots (sakariba) for entertainment, communication and social interaction (Jinnai, 1995). Those spaces were often squatted and a main subject of government control through clearance restriction actions. The community open spaces, found within the block structures of the low city, were called kaishoji(会所地) or iriaichi(入会地). They used to be valuable areas where residents of the neighbourhood could gather around the well and the local divinity shrine, hidden from passing strangers. Those specific outdoor spaces later disappeared, with the high demand of housings. Finally, the commoner areas displayed almost no open space, and rather "residual outdoor spaces", within very small alleys and their interstices.

Looking at the whole picture, Edo seemed to be organized according to cosmological global order formed by a general division between lords, commoner, samourai around the palace, with main temples at the edge of the city to protect from the evil, and to welcome main festivals and pleasure
parts. Local order followed a socio-spatial juxtaposition of elements along with topographical dispositions.



Figure 11: left, Edo urban pattern on topography, east side of the castle. / right, topography of Tokyo Source: Left, author work adapted on "segregated residential sectors" in Edo figure taken from "Tokyo, a spatial anthropology" by Jinnai, superposed with topographical GIS data. / Right, author work on Zenrin map 1989, AutoCAD version superposed to topographical GIS data

The multiple juxtapositions and combinations started with the generic entity of a nucleous, formed by lord enclosed residences of *daimyou* in a large density frame on higher levels coupled with a lower lively and dense settlements for commoners (following the lead of the *daimyou*) with their open spaces and interstices. In between local shrines proposed community shared spaces for festivals. Thus the nuclei dispersed themselves in the whole tortuous territory of Edo (see Figure 12). Another dichotomy laid in informal and planned structures. When the upper town of Yamanote was planned (residences for hatamoto and daimyou, see figure 13), the people town could be planned or informal structures. Both configurations prefigured a social order, as rich commoners were established in planned areas of the Shitamachi, when less rich and other lower classes accumulated in more or less informal dense spaces. The figure 11 shows the spectrum of physical Shitamachi in Edo 1859, starting with its origin at Nihonbashi and following its extensions along the 5 main roads, starting with North East and toward the other peripheries.

Shitamachi area, the territory of a new urban culture, developed ahead the heart places of Nihonbashi, Kyobashi, Kanda or further north, Asakusa, Honjou, Fukagawa and on the bay Irifune-cho or Kakigara-cho... Step by step, the Shitamachi structure and atmosphere conquered new territories (for example the east part of Sumida River (Edogawa, Katsushika, Adachi, Arakawa...)).



**Figure 12: Spectrum of Shitamachi, within Edo spatial structure 1859** Source: Adapted from (Sorensen, 2005, p. 26)

> Green Edo and meaning of outdoor spaces, the time of Edo.

The landscape and the main view points on the territory organized the city: some streets face horizons toward the Mount Fuji or the Mount Tsukuba, as an example. Edo is made by aggregation and juxtaposition of little rural villages. However a sky view from Edo would have shown a city, where

60% was made from enclosed residences of the daimyou with their generous garden, to which the temples and shrines, gardens and cemeteries were added to the edges of the hills. The image is green and airy (Figure 13). Basically, the high city was the garden city, when the lower parts accumulated dense wooden houses with few outdoor spaces allocated for their residents. Commoners and peasants used temples and shrines as natural showplaces, enjoying seasonal delights. Another fact lies in the practices related to green spaces, which accentuated this permanence of nature within the city. Many samurais devoted their free time to the passion of horticulture (Pons, 1988). Moreover, this pervasive presence of greens in the city is also associated with the Buddhist notion of impermanence (*mujou*) following the natural cycle of birth and rebirth, or reconstruction and demolition. The wooden material of the houses coupled with seasons of green contributed to this urban Edo "floating world" (*ukiyo*), also enhanced by water and arts (Jinnai, 1995). The perpetual natural cycle and their rituals of purification which were embedded in festivals (*matsuri*) for each urban neighbourhood, situated the city, not only physically but temporally, as an essential object of mediation between humanity and nature. Customs and practices were major actors of the memory of places, more than the buildings.



**Figure 13: Hatamoto organization, topography, plot and blocks** Source: selected images (Jinnai (1995, p. 24, 44, 50).

# 3.2.2. Structure of Shitamachi: the nagaya-system, a socio-spatial urban dense entity

The *nagaya* house is not only a typology but a whole system weaving solidarities, as well as social and spatial interactions among members of communities (living families and working people). At the end of  $17^{\text{th}}$  century, Edo still had a checkerboard organization on the Chinese model, but the growing number of people in the central square and the expansion toward east and northern parts changed the shape of the city, which got to follow more naturally the topographical lines, along tortuous alleys. The initial square models left a centre empty. The main street in Nihonbashi could be very wide, up to 18m. However, within the block small alleys could be around 1m wide with a drain in the middle for water runoff. With a growing population, the sanitary outdoor space square was progressively filled with many new inhabitants: the poorest. Along alleys, *nagaya* houses made up the main façade (3m wide for each). Two types of *nagaya* were coexisting, the front-*nagaya* facing the alley (*omote nagaya*) where small merchants were living and back-*nagaya* facing an inner tiny

courtyard (*ura nagaya*) where the poorest families were grouped. It wasn't possible to hold a business in the back and the rent was cheaper by half than the front- *nagaya*. Inside, it was a row of units of some 15m2 in average, separated by thin partition walls. Each room could fit about 4 *tatami* with a small kitchen corner (around 9m2). Toilets and wheels were common (until Meiji, merchants were distributing water during the hot season). The rent was usually paid on a daily basis but the main income for the owner was to sell the tenants' excrements to surrounding peasants.



Figure 14: Top, block division system in Edo: A-Hatamoto residences, B- models for Shitamachi, C grid found in Nihonbashi / Middle, photo from Anjincho (安針町) in the Nihonbashi district in 1872/ down, the entrance of an alley of Shitamachi.

Source: (Sorensen, 2002, p. 43)/ photo appeared in the June 17 1872 issue of the newsmagazine The Far East, published in Yokohama by the Scottish publisher J. R. Black /(Jinnai, 1995, p. 125).

Nagaya were filled with a male atmosphere for a long time, with twice as many men compared to women by the end of the 18th century, against a ratio of 9 women for every 10 men by 1845. Many men left their family in rural places and came for work to Edo. Some bosses had the custom to welcome only single men<sup>1</sup> (Pons, 1988). The poorest inhabitants living *ura-nagaya* were composed of small craft workers, labour and buskers, samurais without masters (rounin), small improvised merchants, pushers carrying palanquins, rag pickers, and some artists (Hokusai was born in an *ura*nagaya). People were trying to live in a completely promiscuous atmosphere. This life style was depicted by stories from literature and rakugo. Because of the hard life, a kind of solidarity (ninjou) was an essential to survive<sup>2</sup>. The community was also inter-related by other types of relationships, such as the social obligation or sense of duty (giri) and the hierarchical relationship (on) in terms of love, friendship, and advice. Even though life wasn't easy within *nagaya* urban frame<sup>3</sup>, this system worked as a solid instrument for social integration. It played a main role in the big migrations of peasants towards the city, which reinforced the spirit of duty, its endurance (*nintai*) and contributed to settle collective manners of life. Further ahead, as noticed by Maki F. (1986), in contrast to the lord's residences, which enclosed their gardens in higher walls and nurtured a secret relationship with the streets in popular *nagaya* settlements, there was a visible continuity and connectivity of space. It

<sup>2</sup> The same situations are visible in current slums in the world. They are often examples of extreme dense urban.

<sup>&</sup>lt;sup>1</sup> By Mitsui and many other shops of Nihonbashi, men had to stay single until their 40 years old, as a custom-rule.

<sup>&</sup>lt;sup>3</sup> Chiku Masataro in *Asakusa shuuhen* (the periphery of Asakusa) described Shitaya neighbourhood nearby Asakusa in terms of despair using terms of renunciation (*akirame*).

played a great role in keeping the community spirit. Furthermore, a monitoring structure was attached to *nagaya* system. It guaranteed the peace of the community and evolved until nowadays despite its controversial characters at different periods since Edo. For example, the groups of 5 families and their representatives were in charge of collecting taxes and maintaining order (*goningumi*), as ruled by shogun<sup>1</sup>.

> The un-official growing importance of the lower class in urban villages from the low city Castles were mainly constructed between 1580 and 1615, with their town system (joukomachi). They had an empowerment effect on lords (*daimyou*) by concentrating their military power, but they also contributed to detaching the warriors from their land. It was a major step which facilitated the abolishment of domains during Meiji period. The castle town had also the important effect consecrating the city as a place of accumulation and consumption in favour of the new emerging bourgeoisie class of merchants (chounin). As the lords had to move from their castle to Edo, the merchants received the task of managing their domains. This lower class happened to develop itself in a very homogeneous and wealthy way, having a strong impact on the allowance of loans for financial and commercial transactions, despite the attempts from the ruling authorities (*bakufu*), to reduce their growing power. Little lords and *samourai* had recourse to loans from merchants, and somehow the paradox for the *bakufu* system, is that the warrior (*bushi*) elite among the 4 classes (warriors, peasantry, craft workers and merchants) wouldn't survive without the skills of the low ranking class (craft workers and merchants) and the complex system of transactions they were developing. It led to the dissolution of the feudal system at the end of Edo era, replaced by a social system based on economical relationships. Some samourai shifted to a lower status of merchants (Mitsubishi). This growing class tended not to interfere in political matters, which could explain its marginal role in the Meiji Restoration process; they never questioned their submission to authority and rather focused on local interests instead of seeking any kind of comprehensive visions either in local politics or urban planning (Sorensen, 2002)<sup>2</sup>. However it played a vital role in the emergence of Japanese urban cultures and mentalities, contrasting with ruling classes<sup>3</sup>. Edo was a magnet and underwent an accelerated

<sup>&</sup>lt;sup>1</sup> In 1888, after their abolishment, neighbourhood association (*tonarigumi*) and neighbourhood community (*chounaikai*), in charge of promoting Nation during militarism period, but evolved as an instrument of administrative relay nowadays regarding circulation, help for poorest persons and organization of festivals mainly. The *chounaikai* used to reproduce the same relationship from villages but within the urban neighbourhood. They were forbidden by American occupancy of Japan, but reappeared later.

 $<sup>^{2}</sup>$  This fundamental aspect of the neighbourhood subsisted until nowadays. The entrenchment phenomenon of the mass was supervised with a certain disdain by shogun authorities aiming to control them. The state used compartmentalization of mass neighbourhoods, enclosed with fences and guards and a monitoring system between the inhabitants themselves (*tonarigumi*).

<sup>&</sup>lt;sup>3</sup> Kanadehon Chuushingura, created in 1748 presents the story of 47 ronin. It was presented in the context of new urban popular culture from Edo. The theatre piece well represents the state of Edo, a city where merchants got richer but were excluded from political power through the hierarchical order of society at that time. Later, *Toukaidou Yotsuya kaidan* from Tsuruya Namboku, at the beginning of 19<sup>th</sup> century underlined this difference between economical strength from the new merchant class bourgeoisie and warrior class at the head by depicting the decadence of the Shogun period and a time of anarchist movements. According to Hirosue Tamotsu (1984), this masterpiece is the perfect reflection of "asobi no seishin", the sense of pleasure, which characterized the Edo

urban growth (from 1590 to 1720, Edo's population increased by 8000 people a year). The city had over a million inhabitants by the end of the 18<sup>th</sup> century (on the same level as London). The urban population grew from 1.4 million to 5 million from the beginning to the end of the 18<sup>th</sup> century, giving birth to an incredible active merchant class with a very singular culture.

Shitamachi was the place of the effervescence from the popular tradition, the new centre of subtle cultural innovation and development, with a special atmosphere among the diverse urban Edo villages. Edo popular culture originated from urban and rural local heritage and exchanges (through musicians, shaman (miko), travelling monks, beggars...). It developed in a wider proportion during the 17<sup>th</sup> century in urban Edo, as the place of all the Enlightened, a kind of "Siècle des Lumières". If the foreign knowledge was under the control of the Tokugawa power, local craft workers compensated for this lack of information by inventing and driving to perfection traditional techniques in an endless polishing of resulting objects, giving birth to the unique and refined characteristics of objects from Edo culture<sup>1</sup>. When the lords and their vassals were attributed periodical trips between their stronghold and Edo, the mass of people accumulated in the low city was in fact the only sedentary people in the city. That aspect contributed to create a loyal townsman mentality (with intrinsically closed relationships and roots with their home), a solid entrepreneurship and a spirit of devotion to their work. In parallel, a certain hedonism was enhanced in places of enjoyment (sakariba), reflecting a sort of expression from an "honest materialism" (Pons, 1988, p. 83), in the figure of Edo's child (Edokko). It contrasted with the sober code imposed by samurai bushidou. Writing, stages, the practice of arts<sup>2</sup> were part of Edo culture. Moreover, the 3<sup>rd</sup> class of craft workers (*shokunin*) and especially carpenters were modelling the city, following the lords' travels. They adapted new constructions, reconstructed after permanent disasters (fire, earthquakes etc...), invented new techniques to pump rain water and to dig wheels, standardized the wood construction system of the living cell, from Edo to all of Japan. It was a parallel way to complete cultural unification in rural and urban areas, for the nomadic ones (watari). The influences from the elite, rural and the new urban Edo cultures gave the matrix to the Japanese modernity. Urban Edo culture is not a sub-product of elite culture but a real innovation with 3 main characteristics: 1- There was an independent wish of culture from merchants and craft workers (art scenes with *kabuki* and pleasure arts at Yoshiwara) and no religious or moral forbidden issues

period but also a specific part of society, the low class with a certain "cynic sense" from popular crowd. Those two masterpieces of Japanese theatre underlined a cultural reality, much wider than the propaganda of cultural main stream, and which belongs to the majority of Edo population, but which heritage has been as well very much neglected by historian, a valuable treasure of Japanese tradition (Pons, 1988).

<sup>&</sup>lt;sup>1</sup> Yanagi Souetsu (1889-1961) noted that the people's arts were omitted in the Beauty codification of arts from Meiji. According to Yanagi Edo's craftwork had singular beauty in the sense that they were not personalized and reflected more the unconscious spirit of masses. The Edo people deeply contributed in erecting an everyday polished aesthetic on all the objects of their daily life. It propagated in the whole Japan. The documents on the life of rotaries (*heimin*) of the countryside's mountains and sea, craft workers (*shokunin*) and servants (*genin* and *shuuju*) were not in the favour of historians and were rediscovered later at the beginning of the 20<sup>th</sup> century starting with Yanagida Kunio (Pons, 1988).

<sup>&</sup>lt;sup>2</sup> The popular art or *mingei* were practiced everyday. The *mingei* word was elaborated by Yanagi Souetsu (ibid)

(unlike in the west). 2- From the idealism of *samourai*, the Edo culture showed itself very pragmatic; 3- The perpetual exchanges between urban and rural areas in all the castle towns of Japan.

#### 3.2.3. From Meiji restauration to modern shapes in urban traditions

Meiji era (1868-1912) was an effervescent period for Edo, re-baptized Tokyo. The population continued to grow up- around 4 million from 1895 to 1923)(Pons, 1988, p. 130)-, and railway systems as of 1880 contributed to its development on the territory, proposing a main landscape of new ghettos of workers and factories, out of the main centres of Tokyo.

New public spaces through western-oriented concepts

The Ginza centre changed its appearance after the 1872 fire, to become the western window of Japan.

The Ginza brick town was completed in 1872-73. It was a controlled urbanization attempt<sup>1</sup>, by paving and widening streets with sidewalks, cleaning canals, and providing a water supply. The monumental image aimed for Tokyo through the projects of the new Akasaka palace, based on the Versailles castle's model and Tokyo's station counter-balanced the new alcoves of the poor and Shitamachi itself, where some *Edokko* were already nostalgic of the past. With the collapse of the Tokugawa government, many daimyou establishments were left vacant and were re-used as facilities for the new Meiji government undergoing modernization with the introduction of Western elements and activities on the public spaces and promenades. The first acknowledged western-style urban park was Higa park (named nowadays Yokohama park) edified in 1876 (Hayashi and Hattori, 2006), with its waterfront promenade, gaslight and lined trees. Foreign settlements in Tsukiji, the government quarter along the Ginza brick town towards the palace, were designed to impress western visitors in order to renegotiate unequal treaties. Existing popular places (meishou) such as temples, shrines and cemeteries were rededicated into public parks, as it was the case for the 5 former main popular places of Ueno (Toueizan kan'eiji), Asakusa (Kinryuzan sensouji), Shiba (sanrokuzan zoujou-ji), Fukagawa (Tomioka Hachimangu) and Asukayama. It was not because of a supposed physical lack of public spaces but to reshape and adapt Tokyo with western standards and new conceptions of open spaces under the public management system of the new planning system (Dimmer, 2006). On a larger scale, feudal structures

<sup>&</sup>lt;sup>1</sup> The **Tokyo urban Improvement Act of 1888** (only for Tokyo) is the 1<sup>st</sup> Japanese planning Law, in order to remodel the pre-modern castle town of Edo into the modern capital of Tokyo, following the example of Haussmann with Paris (no master plan and only urban improvement projects designated on maps). The context of concentration of the population in the central area of Tokyo, which suffered serious social and urban problems due to urbanization and industrialization lead the government to the **City Planning Act of 1919**, as the 1<sup>st</sup> nation City Planning Act (applicable 1<sup>st</sup> to the 6 largest cities and then the smaller ones on the territory). It consisted in a Land Readjustment Program (based on a German model) for suburban development, infrastructures constructions from Urban Improvement program and a zoning system for the 1<sup>st</sup> time in Japan (based on an American model). The pre-war Japan system showed weak planning powers, revealed by the implementation of the act, as land use controls were weakened by politically strong landowners, construction programs suffered from lack of fiscal resources and the 1923 earthquake reconfigured planning strategies.

desegregated by assuming a clear demarcation between public and private spheres; this status, previously undefined, permitted a larger appropriation by their inhabitants. Further ahead, this demarcation drove "competing jurisdictions under one unitary bureaucratic" and "state" public space associated with officialdom and was alienated from the people, unless it was previously a publicly owned public space (Dimmer, 2006). On the local scale of a neighbourhood and its outdoor spaces organization, Meiji restoration ideas also impacted severely, with stimulation by state from clearances and re-allotment campaigns (figure 15).

#### Aiming toward a national culture

To consolidate national identity in front of "universalism" and the threat of the western world, the authorities of Meiji strenghtened the Japanese solidarity by underlining the Great culture and tradition of Japan. It represented mainly the culture from warriors and aristocratic elite (less than 10% of Edo population). The small tradition of the low classes of society was put aside. Culture appeared to be a perfect instrument to serve the national dogma, to encourage one main cultural stream and the singularity of Tradition into the service of modernization. It was the perfect instrument to legitimize the power with an institutionalization of an imperial system. Shinto's became an exclusive state religion, which was against the local practices in villages. Mixed public baths, free tradition of wedding in rural areas, and roughly speaking most of local customs and popular arts were annihilated, marginalized or transformed toward normalized aspects (Kabuki's repertory as an example). Samurai code (bushido) was erected as national faith, with its values of discipline, sacrifice, loyalty and was vulgarized among all of the population, especially the mass (instead of the possibility of its emancipation). Education and Army played a great role in the "samouraisation" of society. The ideology of family as a model for a company's development (kazokushugi), helped to calm down the increase of syndicalism movements during the introduction of the industrial production system. Popular culture was put off for conservative purposes.

# Physical clearance but persistent Shitamachi spirit

The earthquake of 1923 destroyed the low city entirely and formalized the modernization process of Tokyo under a new wind of pragmatism, this time different from Meiji Restoration. Through Taishou (1912-1926) and the beginning of Showa, another step of the masses culture was born: the mass consumption symbolized by the department store (Mitsukoshi). The western utopia reached a larger part of society. This new world and the censured spirit towards building the unity of the Nation, led popular cultures to a kind of absurd "stage", a period called "erotic, grotesque and non-sense" (*ero-gouro-nansensu*), showing the taste of a future despair<sup>1</sup>.

<sup>&</sup>lt;sup>1</sup> The 30's, before the end of the war, were characterized by a spirit of "days without tomorrow" or a "sensation without feelings", after the hopes from the Taishou democracy attempt, as described by Oya Soichi in the review *Chuoukouron* in 1929 (Pons, 2008, p135). Revival sponsor through the exemple of the "Group of scientific studies on thought" (*shisou no kagaku kenkyukai*) were intellectual pioneers who defended popular mass culture as important as elite culture. Article "Japanese popular culture", published by the "Group of scientific studies on thought", Greenwood press, 1963.



Nihonbashi, 1928. Proud Nihonbashi (literally "Japan bridge"), Tokyo's main con mercial and fimancial centre in 1928, five years after the 1923 earthquake. Nihonbashi today shown in Figure 5.14, page 192.



Nagaya in Tokyo, The traditional urban bousing for the urban poor, wooden sheels (noghouse", (urggy) commonly occupied the tran portion of the deep lost. The landown would often manage and live above a shop froming the street, while their employees, or poor ar ans lived in the rear areas accessed by a narrow covered lane from the street. *Bource: Communicated Amust & Subsidianded Haning, Tokyo Preferural Education Department, Social Bure* 



The initiative of Meiji authorities did not completely succeed in erecting one-way for Japan. The popular spirit of suspicion and defiance towards the authorities in *Shitamachi* resisted between the meshes of an excessive normalisation process, the new masses' culture of modernization, folklorisation (as a sort of "revival" sponsor).

The physical disappearance of *Shitamachi* after 1923 and after the American raids of 1945 hasn't erased the *Shitamachi* spirit, with the tentative re-conquest of the little tradition of Japan in its everyday life forms, by popular cultures in the neighbourhoods' alcoves of the metropolis. *Shitamachi* invented a new socio-spatial relationship to the city, with a kind of traditional sociability (despite modern sociability occurrence) and a unique relationship to the street. It is the source toward which one can identify up until today the Japanese specificity of urban essence, especially if not exclusively in dense alcoves of Tokyo, which could resist physical reconfiguring. The WWII bombs destroyed physically the last remaining places (Sumida River), but reconstruction went through the same anarchic process and

some small groups of old houses persisted in the shade of high buildings (in Kagurazaka, Yanaka or Hongo, in Mukojima, around the station of Hikifune, in Tsukudajima, Minowa and Negishi, etc). From a physical place, Shitamachi became an abstraction upon a dense frame with mixed practices, between an image of past values and present customs. But back then, during Edo, the distinction was also mitigated. The limits were unclear and Shitamachi, always over-populated, had various frames composition according to its geographical situation. Nihonbashi was the heart of Shitamachi, and the place of rich merchants. However along main streets were hundreds of insalubrious little vernacular alleys cumulating nagaya style houses or just penthouses, where poor people piled up (see Figure 15).

Figure 15: Top, Nihonbashi modernized window in 1928/Middle, Outdoors from nagaya in Tokyo, 1928/ Down, Street re-allotment campaign from Ministry of interior poster/ Source: (Sorensen, 2002, p. 109, 112)/(Jinnai, 1995, p. 129) Shitamachi expressed multiple faces and was in fact a world hard to categorize and to physically fix. It displayed evolving (social mutation, physical translations...) urban models, combining itself to colourful worlds of beauty and tragedy<sup>1</sup>. From poor parts of Shitamachi, a spirit of mutual help and solidarity tinged with fatalism and fate acceptance was perceptible, together with accumulating images (decadence, quest of pleasures...) in richer parts of Shitamachi. The main characteristic, conserved since Edo, was to be the place of high concentration of people, a dense urban world (from informal compact slums to larger rich merchant houses), and the only places where you could take refuge from fast development and changes of Tokyo. There you can walk near pots and greenery in an atmosphere of craft workers' footprints and everyday objects, cheap restaurants (where memories and stories are told), the small noise of a merchant's bells (now replaced by a vans' speakers) and geta shoe-wear (kara-koro) can be heard, where you can talk and laugh freely with the first person you meet on the street and where people try to accommodate poverty and make life acceptable. Strolling in Shitamachi could be described as looking for a sense of human history in a city of constant change. This world has been depicted by many authors and film- makers among them Yamada Yoji in the 70's<sup>2</sup>, but this feeling can be shared nowadays as well by anyone in a few remaining alcoves of dense frames, in Yanaka, Nezu, Hongo, Kagurazaka, Wakaba areas etc.

# 3.3. Major issues for the dense urban fabric of Tokyo in a globalizing post-war context

3.3.1. Review on a set of policies and urban regulation tools affecting urban neighbourhoods structure from the Post-war, to the Bubble burst and the lost decades

The post-war period was characterized by an "iron triangle" of the Liberal Democratic Party, the central government bureaucracy, and the big business. They worked together effectively to mobilize available resources and produced the spectacular economic growth. "The accumulated capital was always mobilized for investment in productive sectors, and an urban development policy focused on infrastructure was promoted...the housing supply was left to the private sector, and only during emergencies such as natural disasters were public measures initiated or expanded" (Honjo, 1984). During the rapid economic growth of the 1950s and 1960s, Japan had an extremely weak system of urban land planning and development control. The role of the city planning was seen as the supply of

<sup>&</sup>lt;sup>1</sup> After the big fire of 1657 (*Meiriki*), Shitamachi spread towards northern parts and Sumida, (Fukagawa, Honjo, Kameido appeared) but not exclusively, also towards the west side, or along the main roads. What were the common points between Asakusa (its temples and festivals) and Senju (place of executions and devoted to non-human people (*hinin*)); the very poor areas of Fukagawa and Honjo (with their proletarian atmosphere of factory workers, who protested during the 30's about their working conditions, see Yokoyama Gennosuke, 1990) compared to its nearby neighbourhood of Negishi bucolic place; or among the 3 slums of Edo-Tokyo, the Shark River Bridge town (called Tanimachi and now Wakaba area) juxtaposed to the prestige of Akasaka new Versailles castle?

<sup>&</sup>lt;sup>2</sup> Films from Yamada Yoji (Otokowa tsuraiyo!) take place in Shitamachi and portrait an Edokko, an open minded, kind and happy man.

infrastructure for economic growth: highways, ports and airports, industrial water supply, serviced industrial sites, and low cost public housing for workers (Morimura, 1994). A severe environmental crisis occurred during the 1960s, mainly because the large-scale development of heavy and chemical industries intermixed with or in close proximity to residential and commercial areas, as a direct result of a weak planning system, combined with almost non-existent pollution controls. Eventually, large numbers of local environmental protest movements developed to lobby for better pollution control regulations and against industrial development (Mc Kean, 1981). This conflict extended to urban planning policy, when the left convinced enough of the electorate that "the conservative government and their allies in the localities were responsible for the pollution, the lack of social programs, and the support of business interests at the expense of the residents" (Samuels, 1983). Urban restructuring and redevelopment in the early post-war period was carried out principally along major arterial roads and at nodes of the public transport system. Little money was spent on residential areas and low priority was given to public goods such as parks, local roads or sidewalks. The main planning tool was a weak zoning system, which was very much the product of a strong central control, with only four zones (residential, commercial, industrial and quasi-industrial). It led to an uncontrolled sprawl of housing, without primary requirements in terms of basic infrastructures, such as municipal sewers, parks, piped gas supply or even sidewalks etc...



**Figure 16 : Different types of urban fragments (planned and unplanned) in Shinjuku ward from late 50's** Source: Historical Photo Book of Shinjuku municipality

- The building code regulation from 1919, protected many older traditional neighbourhoods, characterised by fragmented urban fabric and narrow roads from earlier periods. The regulation severely limits the height of buildings and development capacity and helped protect many inner-city districts from redevelopment (Onishi, 1994). However such areas of "life space" have come under repeated pressure from profitable redevelopment to "economic space" since the 1960s. The code

limited the height to 30m, for earthquake security reasons, but it was abolished by the 1970's revision of the Building Standard Law, because of the improvements in engineering technology using steel and reinforced concrete. This concrete brought larger developments to the so-called "mansion room", high rise and inner-condominium buildings. The condominium boom created severe conflicts in many areas, for noise, congestion and mainly because they blocked direct sunlight to neighbouring houses, which was a major residential quality of life. Consequently, in residential areas of Tokyo, groups of local citizens organized to oppose the construction of high-rise apartment buildings, which blocked the sunlight (Ishizuka and Ishida, 1988). In 1972, the Supreme Court stated that Article 25 of the constitution, which guarantees "minimum standards of wholesome and cultural living", protected the right to sunshine, and that the infringement of sunshine rights was liable for damages (Mc Kean, 1981). In 1973, the citizen movements drafted and presented to the TMG (Tokyo Metropolitan Government), their own proposal for a sunlight protection ordinance (*Hiatari Jôrei*). Many sunshine cases were won against developers and even against governments in the case of an elevated expressway.

- The new City Planning Law of 1968 emerged in that context, where weight was allocated to urban quality of life and the will for the local government to receive the tools to control land-development and improve the urban environment, with tighter regulation for developers. Three main changes increased the power of local governments giving leverage to protect themselves from redevelopment (the creation of an Exclusive Residential 1 zone with a 10m height control, Height control zones, and Sunlight preservation regulations<sup>1</sup>). However, a rich fiscal situation brought on by rapid economic growth, benefited infrastructure construction (Shinkansen, expressways, sewerages and streets etc...), and the strong construction program went on under "weak planning controls"<sup>2</sup>. Regarding open spaces, the 1960s and 1970s planning restricted the civil need to the minimum, as 10m2 became the requirement for parkland per person in urban area. Nowadays, fashionable words such as "quality of life" and "amenity» brought the institution towards a promotion of quality of life (Planning policy guidelines for a beautiful Country), re-questioning the previous minimum civil effort as insufficient. This last regulation regarding parking severely endangered the composition of outdoor spaces, especially in dense areas. It also severely affected the structure of the houses, turning it into a

<sup>&</sup>lt;sup>1</sup> - The Exclusive Residential Zone 1 introduction, as 1<sup>st</sup> land use zone "meaningfully restricting land uses" (Sorensen 2003) imposed a 10m absolute height limit and was effective in the allocated zones. Tokyo prefecture and most Tokyo's wards were under progressive administrations control giving priorities to existing traditional residential communities. Thus the new tool effectively barred redevelopments to high rise.

<sup>-</sup> The Height control zones, as amendment to the Building standard law in 1972.

<sup>-</sup> Sunlight preservation regulation: revision to the building standards law, approved in 1976 requiring all local governments to draft their own sunshine standards (specifying the minimum hours of unimpeded sunlight cast to the north of new buildings on the winter solstice when the sun is at its lowest).

 $<sup>^{2}</sup>$  With generous subsidies of the various central government agencies to local governments and within localities themselves. Moreover each municipality was too busy with big construction projects which contributed to industrial estates and to the economic growth, than to look after desire future image and liveability for their own community.

management and provision of parking space, such as providing space for the car to enter the alley and modifying the entrance step for cars.

#### > New urban global cores and the accumulation of capital (see Appendix K):

Capitalist industrial strategies are unavoidably territorial strategies, as geographic patterns in production and consumption create places of growth and decline (Storper and Walker, 1989). The globalization of economic activity has not made place unimportant but rather has given rise to new kinds of places such as the "global city" (Knox, 1993, Knox and Taylor, 1995, Sassen, 1991). Tokyo became one of the major financial centres for international transactions of capital, providing various spaces for internationalization in its heart. The expansion of Tokyo toward suburbs was encouraged by the strategies of private railways companies. They devoted Shinjuku station to be the biggest node, linking commuting workers from their living places in the suburbs with their working places in central Tokyo. Since the 70's the magnitude of financial and business sectors raised land prices, contributing to a huge accumulation of capital in the city. A new urban core was encouraged by deregulation of financial markets, specialized producer service complexes and integration into the world market. This core produced impacts on the broader city, impacts which are not so evident to characterise. Two types of firms, from regional and national markets (which are able to install their headquarters anywhere in the territory) and high competitive and innovative world firms (which benefit from being in the core city) need corporate service complexes, located in the city, reinforcing the concentration tendency (Sassen, 2000). Further ahead, centrality built by CBD also benefits from being near the government decision places, located in the city<sup>1</sup>. The quest for a global city took many shapes in Tokyo. Internationalization came along with new dense spaces, with the concentrations of markets, headquarters of foreign firms and service producers, in the heart of Tokyo (Nihombashi, Kasumigaseki, Toranomon). Commercial and residential spaces were a product of an accumulation of capital controlled by real estate and general construction companies<sup>2</sup>. While economic growth had certainly brought Japanese people higher incomes and greater consumption, the urban quality of life had not improved, and may even have worsened <sup>3</sup>(Douglass, 1993). Tokyo's development into a world city lies in its flexible manufacturing process, which captured a major share of world markets. It allowed the creation of vast trade surpluses, and encouraged the growth of financial service industries,

<sup>&</sup>lt;sup>1</sup> 2/3rds of all public levies are collected by the national government and redistributed afterwards, which drives the fiscal structure in intergovernmental relations for the favour of centre accumulation. In the same way, authorization and permission are made on the same place, which is an important key-factor for headquarters to be located on the political centre (Takahashi and Sugiura, 1996).

<sup>&</sup>lt;sup>2</sup> "Political coalitions for urban restructuring were made by national and local governments, large scale urban development corporations, and the ruling conservative Liberal Democratic Party (LDP). Obsolete industrial areas located in the inner cities have been cleared and often replaced by post-modern style high-rise office buildings, condominiums for high income residents, and prestigious business parks containing shopping malls, museums and concert halls (Machimura, 1998)".

<sup>&</sup>lt;sup>3</sup> The social impact of restructuring, upward spiralling land prices and rents from the Bubble market, displacement of population from central city areas, lengthening commutes etc...

that in turn increased the capital's dominance over Japanese economy, as well as intensified the competition for space in central areas, exacerbating housing problems and other social tensions (Fujita, 1991).

The main player in the globalization process was the Japanese Central government and TMG (see appendix G), which saw its role as fostering Tokyo's emergence as a premier world city by creating advantageous locations for high tech office towers and high amenity living spaces (Saito, 2003). The priority was always "economic space", on "life space" (Friedmann, 1988). **The minkatsu policy**, inspired by Reagan and Thatcher's policies and promoted by Nakasone, reorganized the urban space in pursuit of economic growth. **The 4<sup>th</sup> Capital Regional Development Plan** in 1983 proposed the restructuring of mono-centric regional structure to the polycentric one, by the construction of 11 existing urban centres (later, four more centres were added), as "satellite business sub-centres", to discourage the over-concentration of business in central Tokyo and reduce negative externalities. Those sub-centres created new and supplementary functions and helped expand the role of Tokyo, rather than absorbing excess capacity from Tokyo. This policy was also implemented at TMG level. Six centres were designated as sub-centres (Shinjuku, Shibuya, Ikebukuro, Ueno, Kinshicho and Osaki). In 1988, a 7<sup>th</sup> reclaimed land was added on Tokyo bay, and called the water-front sub-centre.

The Relaxation of FAR control in the 1990s and the abolishment of Factory restriction Law introduced in 1959 to remove large factories and university campuses from the 23 *ku* (district division). They were partly successful in the respect of industrial development of suburban and local areas. Positive aspects of the recentralization was to reduce commuting time, and also the growth of the number of children in the inner city and retail shops for local residents (particularly in Minato and Chuo ku), both helping the revitalization and stability of the community. However negative impacts from the high-rise booming were to develop severe conflicts between developers and residents, as the constructions deteriorated the landscape and blocked direct sunlight. Land for office building increased to 30% from 1986 to 1991, with an office vacancy of only 0.3%. The disposal of public land to private sectors in pursuit of urban redevelopment was largely connected to the privatization of Japan National Railways. Since the late 1990s Ishihara, as the newly elected governor of Tokyo, set up drastic changes in urban planning strategies and priorities, with a main focus on Tokyo, as a world competitive city. "Tokyo megapolis concept" (TMG 2001) emphasized the role of CBD on competitiveness and the agglomeration of business functions in the central core.

The bubble burst caused damages to the National Japanese economy and the country, as the system almost collapsed under the weight of bad real estate loans. By the end of the 1990s, the **"Emergency Economic Package"** was an attempt to approach the problem from a fundamental perspective, with a new set of policies. During the two booming periods, in the 1980s and since 1997, the single mansions supplied explosively and declined after the bubble burst. They were constructed on the suburban area

for the 1<sup>st</sup> booming (decentralization), as single mansions and in inner Tokyo for the 2<sup>nd</sup> one (recentralization), in the form of high-rise condominiums, over 20 floors high. Since the late 1990s, and throughout the "lost decades", Tokyo was subjected to a recentralization phenomenon with a boom in demand for high-rise construction, facilitated by an urban regeneration strategy. A rapid population influx occurred in the inner city. Differently from western gentrification process, this influx of new comers has taken place without displacing existing renter and home owners. (Takagi 2002, Sonobe 2001). They were more the result of the construction of new prestige high-rise complexes and condominium in a relatively central part of the city, investigating mainly the bay and using the large plots of previous industrial and distribution land-facilities (Waley, 1997). Since the 1990's to the early 2000's, the core population is growing again (see data on Appendix H and I).

In the Japanese case, globalization influenced urban changes by providing a convincing political argument for the weakening of local planning controls and participation processes, and not especially through direct foreign investment in urban re-development, as is the case in other countries. Except during the highest moment in the 1970s for the citizen's mobilization and progressive control of local governments, issues of quality of life and urban liveability continue to be neglected and life space continues to be redeveloped as economic space.

# 3.3.2. Review on the local urban impacts from the waves of deregulations and re-regulation

# > 80's deregulation with Minkatsu policy from Nakasone:

- Review by the MoC (Ministry of Construction) from the zoning of all the areas in central Tokyo that were exclusive residential 1, with the idea to mix them with high-rise buildings by rezoning them into Exclusive Residential zone 2 (Hebbert and Nakai, 1994).

- March 1983, the MoC ordered all local governments to encourage development by relaxing regulations, by specifically increasing the ratio of building volume to lot size, rezoning residential zones to commercial ones and weakening carious restrictions on urban fringe land development (Hayakawa and Hirayama, 1991).

- Strong pressure on the local governments to abolish their non-statutory "development Manuals", which specified required levels of contribution to public infrastructure to get a development permit.

- Incentive to provide more inner public space, modelled after New York's Plaza Bonus system, as a major new planning measure: extra height and floor space allowances in return for the provision of public open space or plazas at ground level.

Planning deregulation, fiscal stimuli, and infrastructure spending were successful beyond expectations during the 2<sup>nd</sup> part of the 1980s. Rising land prices created incentives for the high-rises redevelopment of existing low-rise inner city residential areas. During the Bubble economy period of the 1980s, when real-estate speculation reached a feverish pace in Tokyo, huge damages were done to the urban fabric

through land pressures. Some landowners were happy to sell their properties at very high prices, but for those reluctant to sell, "land sharks" (*jiageya*) encouraged people to leave and to proceed for land assembly through intimidation and violence<sup>1</sup> (Hayakawa and Hirayama, 1991). Housing problems increased sharply, particularly for the very poor (Kodama 1990, Watanabe 1992, Oizumi 1994). The land readjustment project (*Tochi kukaku seiri*), from the German Adikes Act in the 20<sup>th</sup> century, is based on the assumption that whenever you re-adjust the roads to enlarge them with 10-15% of private land for public use, the owners will gain value for their remaining land. But since the 1990's Bubble burst, it's not true anymore and this assumption is very difficult to implement, since all planning schemes would need to be reviewed. In parallel, to resist and preserve the neighbourhood's quality of life and later identity and memory of their places, communities fought and organized (see appendix J).

# > 90's re-regulations, public pressure to address the land inflation crisis in favour of the re-regulation of land development:

- The Basic Land Law of 1989: "First, public welfare should be given priority over private profit in the ownership and use of land. Second, land should be used in a proper and orderly fashion. Third, land should not be an object of speculation. Fourth, landowners should return a part of their profits to the public through imposition (Oizumi, 1994)."

- The strengthening of the city planning law, including provisions for Master Planning and improving zoning regulations among others (Watanabe 1992, Oizumi 1994, Sorensen 2002).

In the present context and since the 1990s, a series of changes were made to the Building standards Law by the central government, again to deregulate the property development industry and make land development profitable. The government also set up the "headquarters for urban regeneration" within the cabinet in 2001 (Ministry of Land Infrastructure and Transport, MLIT 2002) to strengthen the international competitiveness of Japanese cities, promote private involvement in urban development for economic recovery and the disposal of bad loans. The urban regeneration strategy consists of 3 main programs: an urban regeneration project by state initiative, urban development by private investment, and nationwide urban regeneration projects to be carried out by local governments, NPO or the voluntary sector. Most of the planning powers of the former Construction Ministry have been already delegated to local and prefecture governments. District and land use plans are now mostly delegated to the local governments, with sometimes the consent of the prefecture governments but not longer the central ones. However, the power of local governments was weakened again in the sense that municipalities cannot prevent their implementation, or negotiate their impacts. They allowed much larger buildings to be built in smaller sites than with previous regulation. Hence, numerous

<sup>&</sup>lt;sup>1</sup> Many harmful tactics were used to destroy inner city communities and facilitate the land assembly process. As for example, buying privately operated public baths, that used to function as an essential public facility (in areas where many houses had no baths of their own), and a key neighborhood meeting place. The number of public baths declined from 22650 in 1964 to 39 by the end of 1986 (Douglass, 1993)

changes to the Building Standard Law (*kensetsu kijun hô*) over the past 20-30 years were done to increase floor space (see figure 16 and see appendix R). Among them, 4 are particularly notable:

1- 1992: change for calculating FAR, with imprecision allocated to the ground floor level definition.

2- 1996: all common space such as corridors, lobbies, and elevator exempted from the calculation of floor space for the FAR.

3- 1987: a series of relaxations to the regulation of permitted building envelopes (see figure 17), which eliminated what had functioned as a strict height limitation with zoning.

4- A series of changes to the Plaza bonus system (*sougou sekkei*), introduced originally in the 1970s in imitation of New York's system. Original FAR bonus for providing public open space was a 20% increase in floor area and changed to 50% extra floor, under Nakasone deregulation policies, and up to 100% after the Kobe earthquake, to allow the rebuilding of condominium in Kobe but applicable in the whole national territory.

5- 2002: change in the Plaza bonus system from a discretionary system (that had to be confirmed by local Building Standard Committee- *Kenchiku Shinsakai*) to an as-of-right system.



Note Two deregulations in 1987 greatly expanded the allowable building envelope, first by making the restriction line vertical after a set distance, then by allowing the slant plane to be pushed toward the street by a distance equal to the building setback.

Permitted building envelopes before and after deregulation. Note: Successive deregulations of the national Building Standards law have allowed super-high-risetuolings to be built affactent to inversion reinfurbranks.

Figure 17: Successive deregulation and incentives to contruct more FAR

Source: (Sorensen and Fuck, 2007)

# > Latest incentives for another de-regulation since the 2000's

- June 2002, a special Urban Regeneration Act by the Koizumi government which establishes an urban regeneration office within the national cabinet. This office has the authority to designate Urban Regeneration Areas in which greatly weakened development regulations will apply and FAR bonus systems (allowing buildings heights and volumes, Plazas etc...) permitted directly by a central government instead of requiring local government consultation (similar to the previous *minkatsu policy* from Nakasone in the 80s). After a 15 year period of decline, land prices started rising again in Tokyo in the later part of 2005. The appendix R shows the block's transformation and densification with new concrete buildings in neighbourhoods.

# 3.3.3. Tokyo urban legacy

# > The essence of the outdoors in the neighbourhoods of Tokyo

Edo-Tokyo developed since its foundation, a strong intertwined relationship to natural elements, through its general composition (high and low towns / Shitamachi- Hatamoto), but also within each entity of this strong socio-topographical separation. If the residences of the high city and the surrounding temples and shrines were always depicted with abundant natural gardens, giving the aspects of a high garden town, the low and merchant city, with a very dense built-frame also developed this strong sense toward nature, visible through pots of plants. In fact Edo-Tokyo always developed a very high biophilic level (see chapter 2.4), in its physical and abstract dimensions. The natural "biophilic"sense took as well an abstract dimension through the attachment to seasonal festivities and their histories, through different forms of craftworks mainly focused on natural representations and images, through the dense pathways of the different frames in Shitamachi, in between wood houses, as an oneiric representation of a dense wood forest. Physically, in the dense urban frames, the wood material, coupled with unordered vegetal elements here and there, the presence of water elements through diverse small and bigger channels in between rows of houses or back alleys, field plots for vegetables and fruit gardens, added to the general organic and natural sense of Edo-Tokyo. The essence of Tokyo remains biophilic despite its transformation. Various urban alcoves still testify of this early biophilic capacity and Tokyo somehow developed new forms to express this natural and vegetal sense. The literature is abundant emphasizing the natural richness of old dense urban neighbourhoods with their declinations of various greeneries in alleys and thresholds of residents, through their arrangements etc... More specifically, in this open landscape of small outdoor spaces and small garden (tsuboniwa) composition where each little cm2 is used by the owner, Maki F. (1986) sees a singular principle of the aesthetic of the ritual journey process (toutatsu no gishiki) with gradual unveiling, playing as a set of small sequences to be discovered, especially within Shitamachi frames but also along the numerous and tortuous alleys through a labyrinth network in T or L shapes. Moreover, Maki F. (2001) underlined the early Showa period of his childhood, where Tokyo was filled with dark and secret places:

"There were shadows, especially in the still-verdant districts where large estates or temples were clustered. Wooden houses and stone paving also created areas of darkness." "The entire area<sup>1</sup> became a world of silence whenever it snowed. Yet on the thoroughfares where the streetcars ran, and at the bottom of the hills, small shops clustered together as they do now and created an atmosphere more like that of the low city. Places to play near home existed for children, and travelling a bit further on bicycle, one could discover secret places. Each child developed what the critic Takeo Okuno<sup>2</sup> has called a "primary

<sup>&</sup>lt;sup>1</sup> About the old Yamate districts of Tokyo

<sup>&</sup>lt;sup>2</sup> Takeo Okuno, in his *Bungaku ni okeru gen fukei* (The primary landscape in Japanese literature), illustrates the fact that not only did the Japanese city retain the aspects of an enormous village until quite recently (and even still today), but also has always included intrinsically rural quality.

landscape"... The open fields in the city in the city were sacred taboo areas, not just undeveloped vacant lots. Such areas always included latent quality of inner space...Unlike a village, Tokyo was an endless series of overlapping scenes, and I could even imagine that the frontier started just beyond my vision". (Maki, 2001, p. 56)

Maki compares the narrow labyrinth of small lanes in Shitamachi with their complex topography and their projected shadow from trees, with a deep forest where reality and imagination mingle and where its centre is invisible (*oku*). It is also the dialectic of the unclear cloud, where a stable totality would be denied, to keep the poetic aspect of unclear boundaries, heterogeneity, the light and shadow play and the strength of an autonomous fragment in an unstable balance toward the totality. In that schema, the sequences and their intervals (ma) are privileged and the fragment, an entity from the whole can express a whole in itself. If in the West the notion of space contains 3 dimensions and the time as the 4<sup>th</sup> one, in Japan, it is made of a succession of bi-dimensional layers and depth of space is expressed by those layers of time (Isozaki, 1978). As ma is the first articulation between real/imaginary, past/future, emptiness/ fullness, oku leads to a sort of subjective depth within space, where the principle of centre itself is denied. Such principles permit the organisation of territory on different scales up to the living cell, not around a fix centre but around something not determined, which will be embraced and enveloped. "On the contrary to the act of delimitation, which is actif, the wrapping process supposes inaction and, at the same time, a flexibility which allows adaptation and free transformation according to what should be enveloped<sup>1</sup>(Maki, 1979). Such process automatically leads to an evolving "delaying" of space, as "a way to structure the experience of space involving the time dimension" (Maki, 1979). The real dimension of depth is the one of time and the different perception of levels are organized according to a succession of time and space. Thus, the dialectic between the intrinsic ma and oku notions of structuring from Japanese urban and architectural space is similar to the respective figures of crystal and cloud. The crystal is a network of interlocked plans, reflecting themselves and defining intervals between emptiness and fullness, transparency and opacity. The cloud is the dispersal of the crystal by the constant disruptions created by the constitutive intervals of ma, without the aim of finding a centre, which would bind the different fragments in a coherent whole (Salat, 1986). The whole-cloud becomes the envelope of all subjectivities and the genius loci of a place is determined by the ability to share a theatrical scene in a time interval, binding present and future in the intrinsic depth, as the key notion of understanding the spatial relationship.

#### General issues on the urban cultural landscape

- Before, the urban landscape and conservation purposes were closely related to building conservation, as the most important objects in managing urban quality. Thus, some districts received the 'Historic

<sup>&</sup>lt;sup>1</sup> Translation from french text : « Contrairement à l'acte de délimitation qui est actif, le processus d'enveloppement implique la passivité et en même temps une fléxibilité qui permet d'adapter et de transformer librement suivant la forme de ce qui doit être enveloppée . »

Landscape district" designation. By designating land as a historic district, the buildings could be protected, by regulating the external appearance while the internal parts could be adapted to modern use. This regulation was very popular and more than 500 local governments (15% of local governments in Japan for 2004) have passed similar ordinances. However they are recommendations and lack mandatory enforcement, as property rights in Japan are too strong to be controlled by local governments. Reading the TMG master plan and urban development recommendations, it appears that for Tokyo, except the 76 classified historical monuments and 29 spot-areas for important historical scenic view preservation (March 2005), only the historical cultural landscape and natural preservation values seem to be mentioned and they appeared to be cited within the sustainable environmental issues in the "Tokyo's 10 years plan". There are no separate and official considerations on urban heritage areas (except the area of 100m surrounding a classified precious and outstanding historical building) nor on ordinary urban fabric as valuable historical assets for the place and the city memory. In Tokyo, the idea of urban structure is linked to regional axes. The historical Road Improvement Project, which began in the early 1980s, is a way to conserve urban area through small projects of street enhancement and also as a way for individual projects to be implemented with less difficulty and with the support of the Central government. The special Urban Regeneration Act from 2002, a 10 year act, was enacted to accelerate relaxation of regulations and boost economy. Some results could be produced in terms of urban preservation by retaining historical buildings and by transferring unused development rights (TDR) to other sites (case of Marunouchi). Taxation policy has also been an obstacle, as the inheritance of historic buildings is very costly. Nowadays, the government is relaxing taxation policy and simultaneously imposing some stricter regulations to maintain the appearance of those buildings (Nishimura, 2004).

- 2004: Art 2. Landscape Cultural Properties Protection Law.

In the law, not only the landscape, but also the townscape, the urban landscape and the skyline are to be controlled. Ordinances are made by a central government in order to control property more easily. With the Landscape Law (*keikan hô*), implemented in 2005, municipalities finally received legal means to create height regulations diverging from national urban planning law, but had little success in fighting high-rise developers (Sorensen, 2007). However it became possible to work more efficiently on the 'anonymous urban area without any historic buildings' scale. Bottom up approaches for better liveability and for the memory of neighbourhoods were encouraged. However the sustainability of embedded urban fabrics remains a complex issue under multiple threats. The beauty and recognition of the value of an "old" neighbourhood are mainly established by taking into consideration the remaining historical buildings. The value of an urban vernacular structure, and that of its open spaces, are not taken into consideration and are often denied. The conservation of historic buildings and districts has a very low priority in the urban planning system, which considers districts with a high density of old buildings as a possibly hazardous area and a problem to be solved with redevelopment.

preservation of historical assets, and even more so in ordinary dense areas without historical significance or exceptional architectural constructions. In response, *machizukuri* groups turned to preservation and the reuse of individual buildings or to the resurrection of the lost townscape through different cultural activities, such as art or literature (Yanesen revival with art and Shinjuku-ward with writer's places) (see Appendix J). Favour is systematically given to the large-scale development projects with state and private capitals: public projects of comprehensive redevelopments to reconfigure existing road systems, as in Fukaya; or to eliminate crowded areas with narrow streets, such as the Kobe reconstruction projects; or to build city planning roads and large-scale infrastructure. The issue is complex, between a regeneration respectful of the local identity, permitting redevlopments or mixed-scaled entities along with local criteria and the preservation of the urban area, depending on building's conservation and the status of "Historic Landscape District".

#### > The joy of historical strolling in Tokyo's dense neighbourhood

Seeking the experience of strolling in Edo started as a trend of rediscovery of the outdoor spaces from intrinsic Shitamachi. The experience, on a human scale, of exploring the capital's ancient neighbourhoods, was a stark contrast to the radical transformations the city was undergoing on a whole different scale, the global one. Indeed, Tokyo was aiming for the "Global City" status during the Bubble Economy, hence the fast growing, large-scale constructions. It was also a citizen's answer to the globalization machine, which continuously demolishes the "Edo» atmosphere of those places, coupled with a nostalgic and historical interest in Edo culture. The narrow network of alleys from Edo (*Roji*) were part of the daily life fabric and took the role of a space for communication, where highdensity communities in which different generations and classes, lived together in symbiosis (Kurokawa, 2006). There were intermediary spaces without a clear-cut division between private and public life, and with the scale of localities and the nostalgic smell of Shitamachi that everyone wants to experience. Until nowadays, numerous roji in dense neighbourhoods have survived maintaining a positive effect not only on the community life, but on any walker passing by. There are numerous literatures on walking in Tokyo and the machiaruki (city walking) phenomenon (which started during the 70's and more so in the 80's), a tendency in rediscovering and documenting the remaining *roji*, known as "roji revival movement" (Urban planner Tateno Mitsuhiko maps of Tokyo)<sup>1</sup>. This trend

<sup>&</sup>lt;sup>1</sup> It has developed for more than 20 years illustrated with *Tokyo nijikan wourukingu* (*Walking in Tokyo for 2 hours*), *Araku* (*Walking*), *Kanjiru* (*Felling*), *Egaku* (*Drawing*), *watashi dake no tokyo sanpo* (*Tokyo walk by myself*). Nagai Kafuu (1879-1959), *Hiyorigeta* (*Wooden clogs for good weather*) pictures a "flâneur" or sanponian (*Stroller*), who leisurely wandered through the city, reflecting on the past when faced with the present, critical of the modern age and nostalgic about the indigenous housing lost with Japan's modernization. Some other interesting work, as from Kimura Shouhachi (1893-1958), *Tokyo hanjouki* (*Report on prosperity of Tokyo*, 1958) and from Kobayashi Nobuhiko, *Tokyo sanbusaku* (*Tokyo trilogy*), depicting 70 years of interweaving studies of autobiography and places in Tokyo. Kobayashi Nobuhiko and Araki Nobuyoshi, *Shisetsu Tokyo hanjouki* (*My interpretation of the account of Tokyo's prosperity*, 1984 and 1992) describes the changes of urban life during the economic high growth period of the 60's, 70's, the globalization of the Japanese economy and the consequent fragmentation and commercialization of urban space. Kurokawa Kishou, in *Toshi no kakumei* (*The* 

toward rediscovery of lost Shitamachi is also a strong indicator toward the lack of human scale that modern shapes and homogenization of globalization brought to the experience of space. People naturally return to the nostalgic image of an "urban system" closed to a certain memory of Edo.

#### 3.4. Shinjuku cultural landscape

#### 3.4.1. Information on Shinjuku ward

#### Looking at the general history of the ward:

- From the start of shoguna of Edo in 1603, five main ways (Tokaidou, Nakasendou, Nikko-kaiduo, Oshu-kaidou and Koshu-kaidou) were established starting from Nihonbashi bridge in the different directions of the realm. With the development of the Koshu-Kaidou Avenue linking Nihonbashi bridge to Kofu area (further ahead Nakasenda Avenue leading to Shimo-suwa area), the Naito Shinjuku Lodge opened its doors to business in 1698, in the middle of the Edo Period, as a mid-way station for travellers from Edo centre to Takaido (1st inn) and prospered as one of the four leading inns in Edo. Once at the edge of Edo, after the demolitions of the World War II, the ward contained the start of urbanization process. However this process dates back to 1636, when temples and shrines changed location to the Yotsuya area in the city of Edo with the construction of the outer moat of the Edo Castle. Later, during the Meiji and Showa era, the railroad systems developed, linking suburbs to the capital centre, Shinjuku station being the main node. In the 1920-30's the urbanization process deeply increased the population from the area, formed with Yotsuya and Ushigome (born in 1878), and with Yodobashi (divided into the towns of Yodobashi, Okubo, Totsuka and Ochiai in Toyotama County). The Tokyo Air Raid from May through August in 1945 burnt the pre-war downtown areas of Shinjuku Station, Yotsuya, Kagurazaka and Takadanobaba, leaving only 6,836 buildings out of the 56,459 preexisting ones and 70000 people out of the previous  $400000^{1}$ .

- After the war, on March 15<sup>th</sup> 1947, the three areas of the former Yotsuya, Ushigome, and Yodobashi cities merged to create Shinjuku City. Shinjuku, the new downtown district, continued to grow rapidly as a representation of Tokyo's world city, a centre of international affairs, information and culture, cumulating now the biggest multimodal node in its main station but also various cultural assets and traditional events. As a consequence, Shinjuku also proposes a complex mix of local-global frame interactions from the urban features to the typologies of the buildings but also for the diverse types of open spaces (local-global, private-public). The multi-faceted town offers a bustling shopping area at the East Exit of Shinjuku station, rows of high-rise office buildings at the West Exit, dispersed quiet

*revolution of city*, 2006) described the rediscovery of the *roji*, promoted by experts but also by a broader public, as a democratic spatial concept, with a background of an aging society and shrinking cities. Kawamoto Saburou, with *Watashino Tokyo machi aruki (My walking of Tokyo's machi*, 1990) follows places where famous writers lived and used to write. Etc.

<sup>&</sup>lt;sup>1</sup> Source: Shinjuku ward office (http://www.city.shinjuku.lg.jp)

residential areas but also many historical areas, from which the most representative would be Kagurazaka.



Figure 18: Panel with different maps (From left to right and top to bottom, Shinjuku ward maps of district map, topography, Zoning areas, fire disaster map, FAR, activities, master plan, green map). Source: Shinjuku ward documents

### > Looking at current documents from the ward (see figure 18 and appendix L)

Shinjuku City is located almost at the centre of the 23 cities of Tokyo, adjacent to the cities of Chiyoda, Minato, Bunkyo, Toshima, Nakano and Shibuya. The area is 18.23 km2 and about 29.4 km in perimeter, 6.5 km east-west, 6.3 km north-south with a total population of 318086 people (as of the 1st of January 2012) (Shinjuku municipality, n.d.). Shinjuku has a very rich topography, with plateaus (Yodobashi and Toshima areas) and lowlands. In between the plateau areas of Yotsuya, Ushigome, Tsunohazu, Kashiwagi, Okubo, Totsuka, and Ochiai, from which the highest reaches 44.6m (Hakoneyama in Toyama park), lie different neighbourhoods in the Shitamachi lowlands areas, with the lowest part being in the Iidabashi area at 4.2m. The average height is about 30m. "The geological layers of the plateau area from the surface consist of the loamy layer of the Kanto Plain, the Musashino sand layer and the Tokyo layer. The geological layers of the lowland area consist of alluvium and the Tokyo layer. In both the Plateau and Lowland areas there is the Miura layer underneath the Tokyo layer." (Shinjuku municipality, n.d.). The ward is divided into various zones (figure 18). Around the main Shinjuku station and following the main roads (in pink on the zoning map), higher constructions (high FAR) with service and commercial activities are possible. Basically, it reflects the global scale of the place. In the other zones, mixed uses and residential areas have smaller FAR, representing an average and local scale of diverse neighbourhoods. Shinjuku ward is also very green, with a set of various parks, at different scales (from the neighbourhood parks to the metropolis scale facility as Shinjuku Gyoen). The south-eastern part of the ward displays many small gardens and greeneries, as visible on the green map. The fire disaster map is pointing out the wood constructions, typically represented in old densely built neighbourhoods, against concrete constructions. It is an interesting indicator of old urban frame in the metropolis, although considered hazardous and dangerous.

# 3.4.2. Cultural landscape division map

With the exception of the specific case of Chiyoda ward, Shinjuku ward is so far, the only one ward which considered the multiplicity of its fragmented cultural landscape, a work made by the ward office in collaboration with the Urban Design Laboratory from the University of Tokyo through the publication of 10 landscape guidelines of Shinjuku (*keikan machizukuri* guidebooks) (see figure 19). It's an important factor in the choice of the area of the case study for this research.

The methodology developed by the Urban Design Laboratory, to analyse the cultural landscape, describes the specificities of the cityscape: topography, historical long views, cultural and religious assets, the specific history of the area, the remaining old houses and urban elements, block

arrangements, network features, greeneries, social specificity and identity of the place, urban-signal elements... The topography of Tokyo and Shinjuku ward more specifically, contains many variations. As we mentioned in the first part of this chapter, the view criteria and its control were very important since Edo, participating to the cosmology and the deep understanding of the place (with specific views from the city to the surroundings landscapes and mountains, such as Mont Fuji).



Figure 19: Selection of areas in Shinjuku ward (red colour and circles) for their morphological specificities and high densities of their outdoor spaces Source: Author modified map on cityscapes guidelines provided by Shinjuku ward

Within the 10 areas of the ward, 72 specific cityscapes were identified (Figure 19) and described according to the properties following the methodology. For each of them some dominant characteristics were mentioned, such as the authentic and valuable socio-urban richness, giving its strength to the cultural landscape. For example, in Okubo, a Korean city, the social specificity but also the remaining elongated plot pattern issued from agricultural fields during Edo, are underlined. In Ochiai, it is the specificities of the block which are underlined. In Wakaba or Arakichou, the deep valleys sculpted the landscape and the space composition. In Tomihisacho, the guideline highlights the high density of constructions, with very small plots, but also the harmony they create Etc.

Each cityscape in the fragmented urban patterns of Shinjuku ward offers complex spatial structures, which are observable while walking. They are created by the arrangements of plots and blocks, the

densities of buildings, the different patterns and densities of open spaces, the social appropriation and transformations. However within each of those 72 different urban patterns of ordinary neighbourhoods, even more urban specificities contribute to isolate additional frames, especially when paying attention to the outdoor spaces' characteristics and densities. The guidelines pay a deep attention to the present elements of the landscape (open and built spaces, greens...) that are redundant or unique in each place. It also emphasizes the different layers of pre and post war reconstructions, reflected above the persistent urban print of Edo, from the urban house & garden within its plot's fences, to the condominium and POPS, offices towers and their plazas, remaining wood houses among temples and shrines, and the infinite declinations of their mixed products etc... All of those typologies together with their social expression participate in building singular cultural landscapes in Shinjuku ward. The cultural landscape guidelines very positively impacted the ward, for the inhabitants and visitors were able to rediscover their place, and the municipality raised the attention on the inherited cultural value of the landscape, in a place where redevelopments are under strong economic pressure.

I decided to focus in Shinjuku ward because of various aspects: the ward used to be a peri-urban area during Edo, has a rich history, and contained the start of the urbanization during Meiji. Its topography is very rich and the lowland areas welcome many neighborhoods organized for a long time. The ward combines global and local scales, with the biggest station node of Shinjuku and its administrative and business area, compared to residential and mixed used areas. Shinjuku cultural landscape map highlights 72 cityscapes, among which highly fragmented and diverse urban entities are readable. The multile urban patterns also provide different typologies of built and outdoors, as from the old historical wood houses, to the condominium tower, and from the local small neighborhood alley's greeneries to the global plazzas and city parcs. Additionnally, supplimentary features detach themselves from the rest of the fabric, when paying attention to the outdoors'characteristics and densities.

# **3.5. Selecting the case study area of Wakaba in Shinjuku ward** 3.5.1. Precising my position of stroller, as a foreign architect



The selection of the case study area has been done following a holistic and selfless behaviours, while strolling by bicycle and on foot. I used the map displayed by the ward and the atlas map of Tokyo for orientation. I decided to look at each different cultural landscape in the entire ward, without any preferences, focusing on the visual perception on outdoors attached to the singularity of atmospheres in the experienced residents neighbourhoods. I combined such first approach, with other

information from the ward. I was looking for a neighborhood with enough everyday vernacular fabric to be studied and without too many historical or social prints (monuments, citizen involvments, etc...)

It is important to precise my position, as a foreign European architect, living in Tokyo. My position of observer/stroller is biased and the fact of acculturation but without assimilation. It might proceed with time, from a new and personal invented mix between multiculturalim (coexistence of different cultures without combination or assimilation) and little syncretism (the cultural mix, as a combination between the culture of origin and the new one). We can assume that a Japanese architect would understand automatically the multiple urban and architectural sings and codes, which necessitate a lot more time to be understood and appropriated for a foreigner. Especially the task is as hard as the environement (in Tokyo) is almost opposite in various aspects, than European cities and landscape. Many elements, from the local to the global reading of the city<sup>1</sup>, but also necessities from everyday life, interplay in assessing the place (distances, the convenient store's system or the service city concept, the shopping habits, the absence of streets' designation, etc.). A trivial subject or object can become a huge concern for a foreigner, and even the subject of recurrent analysis and focus<sup>2</sup>. Although depending on each individual mental structure, I would assume that any foreigner, additionally architect-urban planner, shell a new place, step by step, by focusing first on a limited elements to assess the whole, which permit him to become independant in the new context through the understanding of a limited number of aspects/objects from the visible spectrum. The choice of the elements, more or less vital, varies from an individual to another, but speaks as well from the landscape evidences, that might touch rather everyone (Japanese and foreigner). The common meeting points nearby the stations, automatically established by everyone, are good exemples. However for many months (years), the foreigner can have the feeling of "floatting" in Tokyo, drowned by the amount of information and the langage opacity, but attached to the spinal column he gradually shapes around incremental few elements that connect him to the place, to hidden or mute codes and shape the image of the city and his own acculturation process. The site selection process occured at the end of 2009, around 2 years after I arrived in Tokyo for the first time in October 2007, which is a rather early time, but enough to have already a structured image of the place, built with my own syntax and also a bit of knowledge on the specificities of local architectural and urban phenomenon. My way of looking at the metropolis urban structures evolved since my arrivals:

- From looking as a tourist, at the whole landscape and its main general characteristics and differences (stations, bay skyline, different districts specificities in Asakusa, Ginza, Shinjuku, Shibuya, etc.);

<sup>&</sup>lt;sup>1</sup> The centre of the old city is a void nearby an elevated highway with a motorway junction, and surrounded by imposing office buildings, compared to the historical dense cores and networks in Europe; the highways are elevated, not at the edge of the city, and relatively silent; the edge of the metropolis, the separation between old and new frames, the start of periurban are not clearly delimitated; the train stations are imposing and represent the real cores of the different parts; the commercial function and its "aesthetic" langage is prominent everywhere, while in Paris the historical heritage facades tends to soften it, the city works by juxtaposed fragments with incremental orders for each alcoves, whereas concentric models of center, and suburbans, etc...

 $<sup>^{2}</sup>$  As an exemple, when I arrived in Tokyo, I was astonished by the cleanliness of the city (compared to Paris, first, but also other places I visited in Europe or elsewhere in the world. It might look strange, but in my very personal experience of the city, this cleanliness drove me to search for the dirtyness in Tokyo, while strolling. Hence, I started to get interest on the subject and the different definitions of clean and dirty places, etc.

- To architectural interests and the built dimension. As an architect arriving in one of the architects' world Mecca cities I rapidly concentrated on the different sort of buildings: the most outstanding ones (temples, "traditionnal" wood constructions in between the average production, the architects' constructions, huge size buildings and complexes as Tokyo midtown, Mori center, shopping malls in stations and depatment stores, Nishi-Shinjuku and the metropolitan governement buildings, Ginza etc..) and the sea of average size mansions and common houses. Compared to the white city of Paris, or the homogeneity of facades' materials in European cities, my eyes also caught the numerous types and colors of buildings' materials, from concrete to the plastic's imitations of wood;

- Afterward by paying attention to the elements of the outdoors, as a foreign resident of the city but also looking at the important linkage and the urban network, as an urban observer . Hence, after a certain time being exposed to the profusion of materials and signages in the city (advertising signs, lights, noise of the station nodes, crowded parts of the city), which became very tiring to some extend, and after getting somehow jaded by the similarity of common construction of houses and mansions and their multiple materials, my eyes paid attention to what happened in between the built dimension, the grid, scales and elements of the outdoor spaces, such as the greeneries, the natural beauty in parks and along planted rivers, etc.

# 3.5.2. Visual behaviours on outdoors defining characteristics for the selection

# During the practice of cycling-walking, the movement, the sight, the curiosity and joy coordinating the choices of places, while looking at outdoors

Since my arrival to Tokyo, I was cycling extensively all around the main centre. It can be very easy to get lost in the neighbourhood alcoves of Tokyo, but some elements built my stroll's images:

- The stations and the main roads (elevated highways, train tracks) to escape from the complicated topography and the labyrinthine fabrics, from which I got lost many times.

- The strong dichotomy global / station node and local/urban neighbourhood, as juxtaposed scales of the fabric and the buildings, representing a sort of parallel language of the metropolis.

- Questionning the North-south-east-west directions (although confusing many times);

- The electric poles and the blue metallic plates carrying the names and numbers of districts, coordinated with my Atlas map of Tokyo which I always carry in my bag;

- The feeling of changing the fabric's density, while cycling;

- The change of topography and other signals of the landscapes, from a fragment/district to another, such signals are various: temples or shrine, outstanding construction (size, style or materials), the crowd or the absence of people on the streets, the change of sonority from very crowded to quiet place where you could hear birds and the wind in between trees, local signs as the inhabitants' panels or marks, pedestrian streets, the presence of numerous bicycles or the absence of cars, etc...;

- The various displays of green, from organized planted outdoors to more vernacular languages;

♦ Cycling in the different parts of Tokyo created a mechanism of looking at the city, which is also coordinated to the celerity. First, eyes were attracted by the landscape evidences (topography, stone walls, presence of numerous cheery trees, outstanding public spaces etc...). Then in the neighbourhoods, I focused on the different outdoor elements (more particularly through alleys and then in between two houses, as the cats, diverse furnitures, ground material, and complex or rich greeneries, bicycles, the presence of wells and small god's altars or small canals but also excessive darkness or complex reflexion of light and shade in between...). The sight while cycling on the main streets, at high speed (bicycle) and low speed (bicycle and walking) drove my curiosity to stop at some places and not others, and then to walk within a block or through different arrangements of constructions. This practice became an automatism in my daily strolling and a sort of visual scan toward my reading of the places.

The different outdoor spaces and their footprint and personality on the landscape became more relevant to my eyes. Some aspects participated to my different cycling stops in residential areas:

- First of all the outdoors discuss in terms of contrast from an urban fragment to an adjoining one, and from a neighbourhood to another: depending on the size, the depth and the arrangements of the blocks ( example of Tomihisachou very small blocks, against Okubo big rectangle blocks with small width, or Kita-Shinjuku 2-3-chome large blocks) and their correlated multiple built and outdoors typologies.

- Second in terms of density of outdoors' arrangements mostly the high density fabric with its lanes (roji) and larger density fabric with the garden properties and larger streets (Okubo), and then the network of empty plots and small gardens and parks.

- Third in terms of appealing elements, texture and skins of the materials (ground and buildings), light, natural elements disposals, within the viewfield: Some outdoors were well ordered and nicely arranged and could permit to any walker to understand the different modes of spatial appropriations by the residents. The variety and irregularity of those displays could be seen from a neighbour to another, but also from a neighbourhood to another. They reflect the local neighbors' rules of outdoors cohabitations and enhancement, often a wish to mark the identity of their place and supposedly a pride (wood panels signage in Yanesen, outdoors displays of the *monjaya* in Tsukishima, wood old types of fences nearby the ryotei and historical houses of Kagurazaka, different types of pavements or only the soils, and various different displays).

According to the level of my curiosity, I had to walk from the street to the alleys, from an external atmosphere to a more internal area, within a block or within an urban configuration with a higher level of intimacy. The question was to determine the components of the view media and their roles in this choice process. Basically, from the street, I had a visual field blocked by buildings, walls, fences, or a visual field that could read the outdoors until reaching an obstacle or until reaching a non-obstacle. More specifically, the capacity of the viewline from the street to generate attraction and to

read the innerside of a block was among the most relevant characteristic. In this regard, not all the viewpoints in between constructions were interesting and appealing:

- Many of them were leading to walls in concrete from condominiums or from fences. Such viewpoints from the street's level toward flat walls were rather un-appealing and when the contrast between the types and the scales of the constructions was strong, they were anxiogenic. Some inbetween outdoors were full of storages and blocked the visual access. Moreover parkings and the abundance of cars in small grained fabric was also a visual disturbance and anxiogenic.

- I decided to favour characteristics of the perception that underlines urban design qualities, which generate better appropriation, positive feelings, visual stimulation for the walker behaviour within the urban frame and, as discussed in the chapter 2 (parts 2.3.2 and 2.4): imageability, legibility, enclosure, human scale, transparency, linkage, complexity and coherence (see part 2.3.2, table 1 from Ewing and Handy, 2009). Those criteria, studied by various academics through multiple analytical methods<sup>1</sup>, reflect individual perceptual qualities and their objectivities to some extent, which can acknowledge my position of "universal"stroller selecting holistically a case study area.



**Figure 20:** The viewpoints and visual behaviour: Source: Author photos taken in Shinjuku ward (a-b-Shinjuku-3-chome, d-Shinjuku-7-chome), in Setagaya ward (c-gTaishidou-4-chome, f-Kamiuma 5-chome) and Chuo ward (e-h-Tsukishima-4-chome)

- The viewpoints on outdoors can reflect a visual behaviour, which underline the unity of the place. Moreover, this visual behaviour can change from a place to another. For example, some places propose only visual T-shape (along with the street patterns) (figure 20-c). Some other attract the view toward the sky, as they propose higher constructions (along Shinjuku road) (figure 20-a). Accordingly, such

<sup>&</sup>lt;sup>1</sup> from Sitte, to Alexander and Salingaros, Lynch (imageability and cognitive maps), Gombrich, Hillier & Hanson (intelligibility and connectivity graph), Conroy & Bafna, Kuipers *et al.*( the skeleton map), etc.

places can cumulate blocked viewpoints from the street, because the facades of the buildings are large and the space in between construction is reduced or insignificant proportionally and the displays in between the concrete walls are absent. It can drive the curiosity toward questioning the back scenery of the blocks (figure 20-b). Some neighbourhoods delimitated the plots from the public realm with high fences and walls (different height were observed depending on the places), which implies a closure in the visual field, turning the viewpoints toward the nice displays of the streets or the lively street's activity (in Setagaya ward, there are many outstanding properties with big houses, their beautiful garden separated from the neighbor) (figure 20-c). Usually the density of such place is lower or average. Often, the visual behaviour is confronted to highly fragmented urban fabric. Consequently the visual practice seems fragmented and the view is dissipated (figure d-e). For example, too many condominiums, mansions and parkings spread overall within smaller grained patterns propose various kind of viewpoints without unity (figure 20-e those condominiums and mansions are just adjoining the lane in the photo h)). The small-grained fabric with high density of houses proposed less separation between public and private realm (figure 20 g-h) and more visual accesses to the diversity of outdoors. If not too much fragmented and organized in several blocks (depending on their sizes), it can propose a coherent and richer pattern of related visual behaviour (blocked, transversal, etc...). Hence, it became interesting for me to look deeper on the perception of small-scale spaces, as they represent the first entity that permit the cognition of larger scale spaces<sup>1</sup>, and the imageability of the whole.

- The effect of long visual breakthrough would give to my eyes the impression of transparency as being understood as long depth perspectives/transversal viewpoints through the block's most innersides (figure 20-f, figure 23 bottom-right). Additionaly regarding those viewpoints, and because of privacy reasons, fences or impracticable small outdoors, I was not able in many cases of dense patterns, to walk through the considered outdoor spaces, but very importantly I could visually access the depth of the block. In that regard, we can recall Gehl (1989) who developed the notions of integration (physical permeability) and transparency (visual permeability), in his work for the necessity of close-encounters in the cities through buildings and public space. Such transparency capacity of the viewpoints partly permitted to draw my "image of the city" for the neighbourhoods in Tokyo and to assess the legibility<sup>2</sup> of the place. For Lynch, it is a significant quality of the city, useful for way findings but also vital for local resident's wellbeing and appropriation (see part 2.3.1). Moreover it recalls what Maki evoked as the undeterminated heart of the forest, a key-specificity of the local spatiality and the urban legacy of Tokyo's blocks in old neighborhoods (see part 3.3.3). The visual breakthrough could be enhanced by greeneries all along its path or by the proportions of the outdoors. Some alleys or outdoors paths of 1m width and even less, can go across the whole block's

<sup>&</sup>lt;sup>1</sup> See Down and Stea, 1977, cited in Jiang et al., 2000, chapter 2.3.1

 $<sup>^{2}</sup>$  The legibility is for Lynch (1960), "the ease with which (a city) parts can be recognized and can be organized into a coherent pattern". (see chapter 2.3.1).

length over several tens of meters. I observed that such contrast is more emphasized in the smallgrained fabric. Hence, referring to Sitte, the picturesque effect would be increased<sup>1</sup>.

✤ I felt the same joy and the positive stimulation, while strolling and discovering new piazzas, small lanes or hidden courtyards in the historical parts of Florence, Geneva or Paris. A parallel can be drawn between such vernacular places and biophilia, as the experience of wellbeing resonates with urban "genetic codes" highlighted in historical vernacular urban fabric, according to Salingaros (see chapter 2.4).

# Let's resume, the main characteristics of the visual mechanism and the related outdoors, used to select the resident neighborhoods:

A- Outdoors with deep appropriation by their residents through nice displays; the feelings of positive stimulation and visual curiosity (against anxiogenic places);

B- places that give favour to a more organized visual behaviour (not dissipated/fragmented) reflecting a coherent urban entity of several blocks or a district, no matter the types of viewlines (blocked, or transversal, in T shape etc...). They favour the sense of enclosure, which is a positive qualitative feeling and permits as well to mentally shape the structural pattern, as underlined by Kuipers *et al.*<sup>2</sup>

C- Small grained fabric, which display more visual openings to the variety of outdoors shaped by the residents, and less fences. It can permit to study the cognition of small scale spaces, but also offer more complexity, understood as the visual richness of a place<sup>3</sup>;

D- Blocks with contrasting visual breakthrough in between construction or following alleys, as a way to assess the readability of the place and the appropriation feeling. The visual breakthrough refers to the transparency of a place, which permit a better imageability of the whole entity. Moreover they recall the quest of the unknown heart of the forest, part of the Tokyo spatial legacy;

E- Places that encourage the artistic or a picturesque effect and mostly referred as vernacular (usually favored by the walker and mentioned in walking guides for Shinjuku ward as an example). It pledges for spatial codes favoring wellbeing for any individuals (including my own feelings in the place);

# 3.5.3. Narrowing the choices toward Wakaba neighborhood

I found singular identities and richness in the outdoors' displays in the neighbourhoods of the Shinjuku ward. The open spaces, in Kabukichou, Okubo or Akebonobashi draw various atmospheres. Many outdoors are carrying much more value than the only functions they were designed for, despite rather

<sup>&</sup>lt;sup>1</sup> the five elements for shaping harmonious outdoors (*symmetria*), by Sitte (see chapter 2, parts 2.2.2. and 2.2.3.)

 $<sup>^{2}</sup>$  the" the skeleton map" emerging over time from the cumulative experience of navigating an environment; the interdependency of both visually distinctive elements and spatial structure. Hence the structure permits the recognition of elements and any set of elements are by necessity structured. (Kuipers *et al.*, 2003), see part 2.3.1

<sup>&</sup>lt;sup>3</sup> "An interesting walking network will have the psychological effect of making distance seem shorter"(Gehl, 1987); "narrow buildings in varying arrangements add to the complexity, while wide buildings subtract" (Jacobs and Appleyard, 1987), see chapter 2.3.1 and 2.3.2;

similar architectural languages of the buidings. Why in some specific ordinary places, does this atmosphere plead in favour of uniqueness? The legacy from Edo left its footprints, and the remaining elements participate in shaping the unique atmosphere in neighbourhoods of each cultural landscapes. I selected some areas, keeping in mind the visual mechanism I developed and looking at the roles of the outdoors in dense neighbourhoods, their appropriations, specific features compared to built elements, the feeling of joy by walking there and the certainty that they carried valuable memory. To complete the characteristics of the visual mechanism, I also used the Google maps tool to identify more specific urban alcoves with singular patterns, focusing on the outdoors' shapes and visible density (see figure 21).





Figure 21: Main bicycle and walking paths in Shinjuku ward /From top to bottom and left to right: 1<sup>st</sup> (black and red circles), 2<sup>nd</sup> (yellow circles) and 3<sup>rd</sup> steps (green colour on the outdoors) of the site selection process in Shinjuku ward, focusing on the specificities of their outdoors (morphology and densitiy) Source: Author work on ward - 10 areas map and on Google earth collage map- AutoCAD map version from Zenrin 1989.

Touristic guides completed my observations only afterward. With both, field observation and maps (mainly the landscape division maps of the ward), I made a first selection of urban samples taken in different cityscapes. Moreover the high degree of fragmentations resulted in some cases to relatively small-sized neighbourhood entities, which is another crucial aspect for decision-making, as explained in the point B. Each selected area (red & yellow circles and green open spaces in figure 21) have different compositions and densities of outdoors, interacting differently with the surrounding constructions.

<u>Selections:</u> Wakaba2-3 chome taken from Wakaba cityscape, Okubo-1-chome from Okubo cityscape, Tomihisachou, Shinjuku 6-7 chome, Ushigome Yanagichou (green patterns of outdoors in figure 21).

> Although emanating from former agricultural delineation, the block's system and its outdoors network in Okubo, was not a small-grained fabric (criteria C) unlike the other four selected areas. The non-outstanding network of open spaces<sup>1</sup> within high density fabric, became the main focus, but I needed to add supplementary criteria of selection, which suggest further questions or characteristics:

F- The focus on the densities of outdoors' networks that visually detach themselves from the rest of the urban frames in the neighbourhood, in order to isolate interesting alcoves from the network.

G- The urban entities should not have a direct view on outstanding elements of the cultural landscape as temples, shrines or any relevant historical and cultural assets, or specific vocation of the place;

As an example, an urban composition like Arakichou is difficult to apprehend without binding the complex relationship between buildings and topography. As a consequence, the analysis of the only characteristics and impacts of the row structural patterns itself becomes harder; Similarly,

<sup>&</sup>lt;sup>1</sup> streets and alleys, common open spaces as small parks, the spaces in between houses, the entrance spaces

neighborhoods with quite numerous historical remainings associated to the strong district printmark, as the past Tokyo's pleasure district of Kagurazaka, is hard to consider for the same difficuties of isolating the network's characteristics more easily. Many other parameters are predominant<sup>1</sup> and interplaying, even before looking at the pure urban fabric.

H- The distinction between "local" outdoor spaces and the outdoors from redevelopment projects (POPS: privately owned public spaces) was already a point on which areas could be distinguished.

Mostly standardized, POPS contribute to the feeling of reproducted homogeneous similar patterns that merge the different cultural landscapes into one entity. I experienced less capacity to stimulate the walk. In large plot areas all over the ward, redeveloped with condominiums, the POPS configurations have often the same density, aesthetic and urban design furniture styles. POPS reduce the possibility of uniqueness and often benefit from their juxtaposition with vernacular pattern, as underlined by Alexander and Salingaros. Comparatively, the search of "ordinary frame" appeared to be somehow tricked, as the hidden aim was to look for outdoors with uniqueness in their arrangements, strong appealing qualities and the feeling of locality. They often resonate with special historical backgrounds, old pockets of popular culture and high density of the small-grained fabric.

First Wakaba landscape visual signals

- The main elements from the Wakaba cultural landscape underlined by the guideline (figure 23), were also the object of my first experience of the place. From Shinjuku road, along the slope of the main street, the numerous temples, shrines, and cemeteries provided wide open spaces. Those temples located in the upper parts, surrounded a hollow, playing the role of signals, dungeons or watchtowers and providing wider views on other temples and on the dense network of houses downstream. Disseminated around the hollow, they delimitated a sort of visual boundary with temples.



They also contrasted with the organized patterns from the Shinjuku road in other districts, because of their generous display of open spaces with topographical disposals in "stairs" (figure 22). Other streets, following a slope, led to the hollow, perpendicular to the main road. All of them proposed a walk through enhanced gardens and greeneries from temple toward the downstream part, with large stairs near the shrine, and a descendant or ascendant view on the street.

Figure 22 : Wakaba zoom on topography and street's slopes Source: extract p36 from Shinjuku ward keikan machizukuri guidebook n°1

The sharp slopes and such visual accidents could be caught by the view at a glance through the large open spaces of the cemeteries (figure 23). It participated to the quick understanding of the

<sup>&</sup>lt;sup>1</sup> Touristic and lively after-work spots, ancien maiko place with historical ryotei and many visible outstanding historical constructions, socially mixed with part of the french citizen quater, strongly fragmented by the overscaled condominiums in between the historical patterns etc... Some other parameter as the strong involvment in citizen actions for the preservation of their place (Kagurazaka or YaNeSen) can also interplay.

topographical configuration and stimulated the walk towards the different "temple-dungeons", as signals surrounding the hollow of the valley, and the first visual elements that attracted the sight from the Shinjuku road and from other access streets.

Some other elements attesting from the past history of the neighbourhood or nice constructions were also important factors, as wells, kami shrine, a kura house, a hidden canal, some old wood houses (most of them seemed to have been small shops in the past). Mostly, according to the criteria G, I excluded the visual incidences produced by the outstanding cultural landscape elements (temples, cemeteries, street's sloapes and sharp topography).

- The contrast between wide open space and the high density perceived from the arrangement of houses along the lanes also played a major role in the selection process. The lanes are numerous, generously provided with greeneries, and sometimes tortuous enough to generate a certain sense of "organicity" and vernacular, exacerbated by their high density and the tight arrangments of houses in the blocks. The interest and view toward the appropriation made by the residents was redundant. The place seems peaceful, harmonious, and encouraged my curiosity to discover more the innerside of the blocks, following the criteria A and E.



Figure 23 : Top-down, from left to right: Among the main signals- elements that attract the view for the walker, as the wide open spaces from temples, shrine and their cemeteries, perspective within sharp slopes of streets, important elements from the local history or attesting the topography (*tori* from shrine, stairs, wells, old small channel), singular houses (old deteriorated house, traditional red house and *kura* house...), small lanes inspiring curiosity...
Source: Photos from author taken in March 2010 (first venue to the site)

To confort the criteria C, the extreme narrowness in some places seems to have encouraged even richer enhancement of the outdoors, to cope with the lack of space, or the fear to be in the deep hollow. Additionally, from the main street, the different lanes provided many contrasting long viewpoints breakthrough, crossing the blocks, responding to the criteria D. Hence, I developed visual behaviour, by looking right or left from the street and discovering each time, even within 30cm in between 2 houses, long transversal viewpoints, which made my first structural image of the place, as a long spine with its numerous nerves. It conforted the criteria B. In contrast, they offered a very small visual landscape of open space compared to the wide views firstly experienced. Downstream, to experience wide views was not possible anymore. This fact visually isolated the alcove from its surroundings, providing a sense of enclosure of the entity, along with criteria B. The material of small lanes' network of outdoors was abundant enough (in comparison to Arakichou valley, as an example) to become a field study, following criteria F (figure 23-bottom right, last photo). It covers the second and third districts of Wakaba and responds to all the criteria ABCDEFGH. I selected Wakaba 2-3 chome, before learning of the past vocation of this place, known as one of the three slums of the late Edo-Tokyo, or the threat of being at the highest rank of disaster area due to the high density of its extensive smallgrained network (see part 3.6). The landscape small scale outdoors, their high density of arrangements, contrasting with very long visual breakthroughs to the most innersides of blocks, attracted me strongly; as a universal quest of human scale, or a universal capacity to recognise vernacular fabric, similarly to many historical centres in European or Asian cities.

#### 3.6. Wakaba area: background and data collecting



Figure 24 : Extract from 1883 map, Yotsuya area Source: Book from Historical maps of Shinjuku

Part of the Musashino Plains, the intersection of Yotsuya Yonchome used to be a single road along deep thickets and valleys on either sides, with four teahouses where travellers could rest. The name of Yotsuya from the "four valleys" evolved into the "four shops." The Wakaba area, at the lowland from Yotsuya is composed of 3 sub-districts and belongs to one of the four valleys from Shinjuku, in between the two plateaus of Yotsuya and Akasaka. The place is filled with many temples their cemeteries and shrines and was devoted to death during the Edo era. At that time, the 1<sup>st</sup> district on the upper site welcomed daimyos habitations and the 2<sup>nd</sup> and 3<sup>rd</sup> districts, in the hollow of the valley, formed an informal urban pattern (slum, figure 25-left bottom). This "special place" was named Tanimachi or the Shark river bridge town. Nowadays, the area is popular for walkers, following a growing interest for the rediscovery of the Shinjuku urban neighbourhood's treasures through walking paths. The figure 26 shows local walking routes and some famous personalities of the past that belong to the local history.



Figure 25 : Left (top and down), localization of wakaba area in extracts' maps of informal patterns in Edo/ Right, Wakaba topographical curves

Source: Left, author work adapted from map taken in Sorensen Andre, "The making of urban Japan" and map taken "segregated residential sectors" in Edo figure taken from "Tokyo, a spatial anthropology" by Jinnai/ Right, author work on GIS topography data and AutoCAD 1989 Zenrin map.



Figure 26 : Wakaba district and surroundings, walking tour and cultural assets Source: History of Shinjuku ward

The Shark River bridge slum, from the beginning of the Meiji era (1868) to the early Showa (1943), precisely started at the northern part, ahead of the main entrance (Geihinkan) of the Crowns Prince's palace (Touguu Gosho), along Sotobori Avenue, facing the Imperial guard and the bridge above Sakura River. The river disappeared and used to flow from the Shinjuku Street in the Yotsuya 3<sup>rd</sup> district, down along the slope to the bridge and the Shark River Bridge Gate next to the Akasaka

Imperial Guard headquarters<sup>1</sup>. Then its course went further along Akasakamitsuke Street, to the San'nōshita( $\mu \pm \tau$ ) pond, and poured itself into the Shiodome River from Tokyo's bay. The origin of the name of that area had many theories. Among them came the story of a shark that happened to have its birthplace in the neighbourhood. There used to be a monument to commemorate the birthplace of the Shark River Bridge, as published in 1903 by the Yotsuya district<sup>2</sup>.

There were three slum areas at that time in Tokyo, reported by Yokoyama in 1899, a journalist at Mainichishinbun: "The Yotsuya Shark River bridge" (Yotsuya samegahashi /四谷鮫河橋) the latest opened, "The Grass new-net-town" (Shinmōmachi/芝新綱町) and "The valley of a thousand years" town (Shitaya Mannenmachi /下谷万年町). As Tokyo was evolving and transforming very quickly, with effort put into military development (Sino-Japanese war of 1894-95), cheap labour was hired in big proportion, especially for those who lost their lands across the country and were coming to Tokyo in search for new work. With their families, they gathered in the slums<sup>3</sup>. Tanimachi was crowded with "thousands of very poor people" compacted in "low eaves and broken walls" constructions (Yokoyama, 1945) (see figure 27-left). "It was something", described the author from his observations in 1899. A young journalist, living in the slum, Matsubara Iwagorō and a volunteer, was working in a leftover store as a servant and reported his experience which was serialized as "Tokyo's dark side" in 1893<sup>4</sup>. The main task was to collect the leftover food from the Ichigaya Military Academy (nowadays the Defence Agency) and to sell them to the poor, as people usually had no money to buy the US bonds. The food was usually mixed together. The harvest wasn't regular and there were days of famine as well (figure 27- Right).



Figure 27: Left- The shark river bridge dinner time, October 1903<sup>5</sup>/Right- "Leftover store-Tokyo dark" by Matsubara<sup>6</sup>

Source: http://homepage2.nifty.com/aquarian/Tokyo/Samegabashi/Tky030122.htm

<sup>&</sup>lt;sup>1</sup> the police were also the Shark River Bridge Imperial Guard as the residents liked to name them <sup>2</sup>Original name :新撰東京名所図絵・四谷区の部

<sup>&</sup>lt;sup>3</sup> Source: http://homepage2.nifty.com/aquarian/Tokyo/Samegabashi/Tky030122.htm

<sup>4</sup>最暗黒の東京(明治26年、1893、民友社)

<sup>&</sup>lt;sup>5</sup> Original text:「鮫河橋貧家の夕(明治 36 年 10 月)」(風俗画報臨時増刊「新撰東京名所図絵・四谷 区乃部(上)」明治 36 年東陽堂刊より転載、原図は色塗り)

<sup>&</sup>lt;sup>6</sup> Original text: 松原岩五郎 『最暗黒の東京』にある「残飯屋」の挿画

From his walker observations "Hiyorigeta", published in 1915<sup>1</sup>: from the starting point of the Minami Motomachi Kōen Park looking towards the slope, the author Nagai Kafu expressed his astonishment on the extent of the development of the slum that was considered a shame, for the positive image that Tokyo wanted to show to the foreigners. The possibility of an Expo in Yoyogi Park was cancelled because of its proximity with the area. Taisho era made a point into the clearance of such frames, relegating the poor to the outskirts of the city. By 1943, the name of the slum was changed from the Shark River Bridge to Wakaba town. However the area distinguished itself by the creation of the 1<sup>st</sup> nursery facility in Tokyo made to provide early childhood education for the children of the area. Futaba Nursery garden Shinjuku (1887-1973) (二葉保育園新宿分園) had also a crucial role after World War II, welcoming orphans, abandoned children and injured mothers. In 1954, Tokunaga Jo (徳永恕), a woman, received the 1<sup>st</sup> prize as honorary citizen for her work in this nursery. Since then, the nursery school has been rebuilt, enlarged and welcomes children from working middle class women nowadays.

#### Looking at historical maps:

#### - Water (Sakura river evolution, see figure 28)

Along the main street of Wakaba area, there used to be the river Sakura during Edo, connected to the pond of the palace and which disappeared. The river remained on the borders of what is now, the  $3^{rd}$  district. However, until today, I noticed the persistence of a small water channel, buried in some part of the area, running form the  $2^{nd}$  to the  $3^{rd}$  district along the slope. The River also flowed along small alleys from the  $3^{rd}$  district. The small river, mentioned on the maps, persisted in the Meiji period, despite the construction of elevated train tracks, but disappeared after, probably due to the damaging effect of large sized buildings and condominium constructions that blocked the water flow.



Figure 28: Water elements in Wakaba area, in Edo, Meiji and Heisei Source: author work on Edo, Meiji and Heisei map support



Figure 29: Wakaba 2-3-chome area, historical maps' extracts Source: Shinjuku ward documents

- Plot owner and division evolution (see figure 29, maps 1828-1850-1887-1912-1922-1955)

The plot division map from Meiji-1887 and from 1955 show almost no changes. Although, information aren't visible from previous Edo's maps, we can make the hypothesis of a relative high preservation of the delineations of the plots pattern in Wakaba 2-3 chome.



1947 Jul. 24

Figure 30: Wakaba area before and after US raids in 1944 and 1947, extracts from photo archives Source: <u>http://archive.gsi.go.jp/airphoto/</u>

- Density of inhabited area evolution (see figure 29, 3<sup>rd</sup> row, maps 1911-1923-1940)

The 1920-30's saw a very high urbanization process in Yotsuya city, with a deep increase in population. As is visible on the map the density of population and construction, density is pretty high and never stopped until the war. This place used to be a slum in late Edo, so the tradition of a Shitamachi welcoming many new comers might have been maintained. Looking at the aerial photography from archives, the topography and the smaller grained fabric of Wakaba 2-3 chome in 1944 (figure 30), in the hollow of a valley is clearly visible compared to the rest of Yotsuya area. The

distinction between the urban composition and the typologies can be noticed as well, emphasizing nagaya type housing along deep long alleys in a very dense arrangement (Shitamachi) compared to detached houses on the upper parts of the Yotsuya area. On the map, two buildings on a larger scale than average are represented. They are possibly the first mansions. After the raids, the remaining built frames, as visible on the map of 1947, show major demolitions and some sparse alcoves of constructions. Scattered empty spaces (white plots) are notable (one of them will be occupied by the present Marusho supermarket later).

#### **b** Looking at general information from the ward on Wakaba area (figure 31):

A: The Wakaba area is situated among the lowest levels of the ward and the lowest one at the South-East side of the ward, from the topographical lines of 25 and 30m and surrounded by temples and a shrine area situated at the 35m level line. Especially the lowest part of Wakaba used to be a slum, close to the nearby station of Shinanomachi, (another popular place during Edo and Meiji).



Figure 31: Wakaba area, extracts from Shinjuku ward maps (topography, district map, zoning map, landscape division map, activities map, fire disaster map, FAR map, green map) Source: Shinjuku ward documents

B: Wakaba has three sub-districts, two in the hollow of the valley, which used to be the popular parts and the 1<sup>st</sup> one above. The temple part located on the upper parts in Wakaba 1<sup>st</sup> district, Sugacho, Minamimotomachi.

C: From the comprehensive development area map, Wakaba 2-3 chome belongs to two categories with the same ground coefficient at 60% and 30m height for buildings. Wakaba 1-chome and Sugacho have also 60% but 20m maximum height for construction.

D: The Wakaba area and a part of the Sugacho district (containing the shrine and temples) belong to the same landscape cultural division area.

E: The area contains mainly apartment houses and residences, as well as some utilities and shops.

F: The area is made in great majority of wood constructions, which are fire and disaster sensitive. Houses contain materials such as mortar, plaster, ceramic tiles, cement, stones and mud. There are also important houses only made of wooden structures and facades. Some other constructions are fire and disaster resistant, made with a concrete structure.

G: More precisely the FAR map (Floor area ratio) shows a majority of two floor constructions followed in small numbers, in decreasing order, by three floor buildings, then from four to ten floor buildings in small proportion but regularly distributed in the whole area.

H: The green map shows that Wakaba had linear green occupation, following the morphologies of alleys, in great majority. The main big open spaces of vegetation, representing parks are in surrounding districts. Large green spaces within the district are exclusively representing cemeteries.

> Looking at the figure 32, a top down illustration on dangerous factors for Wakaba, comparing the  $3^{rd}$  and the  $2^{nd}$  districts: on their vulnerability to fire, level 5 ranking against level 3; on building collapse, level 5 against level 3. In general, all disasters included, the  $3^{rd}$  district has a level 4 danger level and the  $2^{nd}$  district, a level 3 one. Focus on Wakaba in the master plan (figure 32, top image):

- It is noticeable that all historical temples and shrines, following the topography have been included in a cultural and historical protection and promotion status. The similar assets from Sugacho district are also included in this common consideration.

- As vulnerable to disaster districts, they are under the improving safety and security feeling program.

- Two main demarcation roads are underlined, as they allow access to the main street, which is also planned to be reorganized in order to improve the accessibility of the area and the overall circulation. Thus, the main street is planned to be a connecting main road between the Shinjuku road to the north, and the palace to the south toward the Sotobori road, on the east side. The planned network will also connect easily to the Gaien Higashi road on the west side. The whole network of roads has been planned to improve circulation and connection to important traffic roads.

- On the southern part, along Shinanomachi, it is planned to signify and plumb in water ways to the rest of the ward's water ways.

- Shinanomachi is viewed as a lively part with many local interchanges.

- On the northern part, along Shinjuku road, a bustling area is planned.

The first remarks on the master plan regarding Wakaba area, is that the community and the spatial authenticity of the place are not integrated in the master plan. Everything is designed as if the place was an average neighbourhood, on which any modification could serve to enhance other recognized surrounding places or elements, such as Shinanomachi's old district and the fabric along Shinjuku road. Thus, Wakaba seems to be relayed to the only traffic optimization and its destiny is to get rid of the fear attached to the vulnerability of its constructions.



Figure 32: Wakaba area, extracts from Shinjuku ward maps (topography, district map, zoning map, landscape division map, activities map, fire disaster map, FAR map, green map) Source: Shinjuku ward documents

Another thing is that only cultural religious assets are considered elements to be underlined, detached from the neighbourhood itself. It shows an incomplete perception of the Wakaba cultural landscape,

with the high risk to get partitioned rapidly<sup>1</sup>. The green map from TMG (figure 31, H) shows important vegetation following the morphologies of the alleys, especially in Wakaba 3-*chome*. However these kinds of greeneries, which many walkers deeply appreciate on the way to main parks, are not integrated in the green master plan (figure 32). The green belt around the ward follows the rail tracks through the southern part of Wakaba's 3<sup>rd</sup> district towards the Olympics Park and the Shinjuku Gyoen Park. The position of the light green spot refers to the green outdoors from the temples and their cemeteries, but the subtle greeneries of small dense places is not considered in Wakaba as in other areas of the ward.

#### 3.7. Conclusion

This chapter permitted to succinctly describe the physical and historical contexts of Tokyo, in which this research takes place and which also participate into drawing up the different steps for selecting the case study site. Such a process was also at the origin of the leading argument of my work, based on a visual mechanism. I focused on the elements related to the urban neighbourhoods and their roots in Shitamachi, a physical place but also a conveyed image of popular culture over the centuries. Depicted by many scholars and writers, the legacy of Shitamachi in Tokyo turned to an abstraction, which is hard to describe but palpable until nowadays in densely built-up entities of the metropolis. The interest for the area of Wakaba in the Shinjuku ward is the result of a holistic approach that I seek through my numerous strolls in Tokyo. It follows visual guidance, the stimulations of places enhanced by their residents, visual and structural aspects of outdoors in the small-grained patterns of Wakaba-2-3 chome.

Edo created a very original urban culture and modes of appropriation of the territory. The main shapers of Edo culture and Edo "urbanicity" were living in Shitamachi, made of diverse densely builtup neighbourhoods, from the planned area of Nihonbashi to all the multiple scattered alcoves downstream, following social and topographical orders of the city. With Meiji Restoration started a desire for universalism and the strengthening of national identity before the threat brought by the western world. Natural disasters and the growing industrialization-urbanization processes, eased by the railway system, pledged for the clearance of the low city habitat and its redevelopment. As a result of social and economical transformations, popular neighbourhoods partly mutated, but in some urban alcoves of the capital, the nostalgic "Shitamachi atmosphere" is still palpable. Edo developed a singular socio-spatial organization of buildings and outdoors within planned or informal Shitamachi, through the *nagaya* systems, characterized by a strong linkage of their inhabitants and a high urban

<sup>&</sup>lt;sup>1</sup> The process is already in action, as one big mansion has been constructed during the time of the field study, over a two-year period (2010-2011), in the 3<sup>rd</sup> district. I observed the demolition and construction process. This observation is for the main building site. Another huge condominium was being contructed when I visited the site in June and september 2012 and smaller concrete constructions also appeared. Another condo under construction noticed this year 2014.

density in their arrangments. The WWII American raids erased most of Shitamachi's neighbourhoods but spontaneous processes led by their inhabitants restored entities of impermanent order. In some of them, still today, anyone can experience the floating spirit of *sakariba* from the water city or the perpetual quest of *oku* in everyday actions and through interacting with a spatial intrinsic order.

The blurred boundaries between the public and the private realms, characterizing the open spaces of traditional neighbourhoods, slowly evolved with the introduction of different western prototypes (parks, sidewalks, or squares...) but also globalized models, with often mitigated adaptations. Local innovative outdoor concoctions based on the cosmologic primary order justifies until nowadays part of the observable "Shitamachi atmosphere". However the landscape of vernacular outdoors cumulated in those dense neighbourhoods are under continuous threat. Citizen movements (in Yanesen, as an example) underwent different steps of battle for recognition of their urban specificities, against a "global order" that permits exclusive economic redevelopment of space against the liveability, the identity, or the shared memory of the place. At the beginning of the 1970s, local governments, citizen activists, and external experts advanced alternative types of public spaces, and modes of shaping outdoors, as a reaction against planning authorities and private provisions of public space. Standardized POPS have been created in significant amounts in many downtowns, proposing a homogenised landscape. They've benefit from incentive planning instruments since the late 1960s, illustrating the changing power relation, and the social and economic trends of global location marketing. The post war period reconstruction and regulations in favour of economic growth accelerated the urban fragmentation and the globalization brought another danger of homogenization of the urban fabric. The systematization of the outdoor spaces production encouraged a disregard and fear of urban vernacular dense frames in Tokyo, often considered by the urban planning system as a nuisance for the optimization of the circulation or in case of natural disasters. Additionally to the economical land pressure, it led to a serious diminishing of their physical presence in favour of land conveyors and government incentives to address the economical crisis.

Whereas the land price inflation from the late 1980s had pushed prices so high that only offices and commercial uses could be built in most central city areas, declines in the land prices have once again made the inner-city high-rise residential units affordable to a significant segment of the population for the joy of developers. A 2nd fact from the 1990s is the growing demands for better life quality, and better housing, especially in the inner city, after the 1980s decentralization toward suburb and commuter time. This phenomenon was encouraged by several policies from the central Tokyo wards, through local ordinances for a 'housing linkage program' (*jûtaku fuchi gimu*), in order to face declining population and vitality. It applied to the larger developments with incentives provided to build housing atop new office space. In the meantime, TMG enlarged it with FAR bonuses several times for Plazas Bonus developments (Sôgô sekkei), for residential use. Before, the revision of the Building Standard law in 1990, another plan was introduced to permit larger FAR (up to 150% of normal FAR limit). In 2006, as the land prices started to grow again for the 1st time after 15 years of

stagnation, new growth dynamics could emerge that could restrict the ability of citizens to gain greater influence in managing urban change. In parallel, the new Landscape Law of 2006, raised up debates on the cultural landscapes in Tokyo and brought a hope for the old neighbourhoods, still threatened by numerous redevelopments encouraged by the regulations.

Impacts on urban dense frames	*disappearance of nagaya system *societ conflicts from engiphochoods piposing environemental environemental inurban quality of life *1960s: many residents movements in neighborhoods *1960s: many residential zone residential zone	*many harmful tactics *many harmful tactics to destroy inner city communities and facilitate land assembly process *public baths decline (22650 in 1964 to 39 in 1986 as an ex.)	*weakened local government of fragmentation of fragmentation of urban neighborhoods built frames and outdoors frames an entration, constructions as mansier plan *from 1998; Yanesen, succondominiums endoniniums
Major urban and planning transformations	*iron trangle for priority on *weak zonning system with 4 ypes (resioning system with 4 ypes (resioning commercial, industrial, quasi-industrial) *condominium boom *condominium boom *1958: regulation with New city planning law *1957: regulation with New city planning law *1977: brieflyt como & sunlight preservation (Building Standard Parting law *1007: regulation ter person for planting system regibbourhood level with high community participation	*1983: 4 <sup>th</sup> capital regional development plan with 11 promoted new urban cores (6 in Tobyo) *4ccentralization with suburban single mansions	*1989: regulation with Basic land hav and sterguhening of clup planning law "1990: deregulation of FAR control and abolishment of factory restriction law "nunnerous changes in building standard law angainst neighborhood law against neighborhoo
Major event	<ul> <li>1945. WWII</li> <li>bombings</li> <li>bombings</li> <li>bortings</li> <li>borting</li> <li>severe</li> <li>environmental</li> <li>crisis</li> <li>two main</li> <li>rotion</li> <li>framing</li> <li>severe</li> </ul>	*1982: Nakasone Minkatsu policy booming period &deregulation	* 1990's: lost economic economic stagnation growth 1990's: *late 1990's: economic package
Major new outdoors types	hew provision of public open space by phanning arterial roads and nodes of public rearsport system retransport system retranspo		
Post-WWII	Shouwa 1945-1989		Heisei 1989

Impacts on urban dense frames	E-Creation of Singular E-Creation of Singular developped by by sterm system developped by by E-Commoner and ever japan -*Edo culture spread all over japan -*edd construction homogenetization -*mintai: nagrya duty and endurance spirit homogenetization -*entension endurance spirit -*entension endurance spirit -*entension edurance to shiramachi within Edo territory	*clearance of dense patterns "Edo lower class culture "Edo lower class culture system: mostalgic gystem: nostalgic Edokto "new ghettos of workers and factories	*demolition of the low eity from disaster *popular duture: ero- gouro-nansensu *reconstruction under similar spontaneous informal principles of dense neighborhoods
Major urban and planning transformations	<ul> <li>upper class planned residences for normadic residences for normadic storard and informal shitamachi downstream for permanent inhabitants of permanent inhabitants of permanent was along main highways and north Sumida (after</li> </ul>	-Ginza modernized as western window urban improvement act improvement act improvement act improgram *infrastructuren program *infrastructuren erostruction erostruction program *infrastructuren program *infrastructuren	
Major event	<ul> <li>1603: castle town system (joukomachi)</li> <li>1657: Edo big fire</li> <li>*1657: Edo big fire</li> <li>*Edo urban growth</li> <li>form rural areas</li> <li>from rural areas</li> <li>areas</li> </ul>	<ul> <li>Tokyo baptized</li> <li>1872/5 fire in Gintza</li> <li>1872/5 fire in Gintza</li> <li>1880: samouraisation</li> <li>from society</li> <li>from society</li> <li>1880: railway</li> <li>ystem</li> <li>Tokyo continues</li> <li>its urban growth</li> </ul>	*1923: Kantou earthquake *mass consumption *militarisation *WWII
Major new outdoors types	<ul> <li>top hill Daimyo's</li> <li>top hill comples and shrine open spaces:</li> <li>top hill temples and shrine open spaces:</li> <li>there are an experision of the space (hashizune)</li> <li>there are an outdoors (spaces on outdoors spaces on outdoors (statariby) open space within Shitmachi magnue block structure</li> <li>main street and alleys</li> </ul>	*New public Parks from temples, shrine and centeticres open spaces and centeticres open spaces shrine tens, spaces bene, spaces fuctors, shrine tens, shrine spaces properties and sidewalk in central area based on area based on tempera cities as Paris purdoors	*1930's: garden city
Pre- WWII	Edo 1600-1868	Meiji 1868-1912	Taishou 1912-1926 Shouwa 1926-1945

 Table 3: Main issues and challenges of outdoor spaces from Edo to Tokyo (author work)

 Source: Author work

## Other information and questions helping to define the case study area



#### - the exception of the world city status:

land economical pressure, regulation into favor or urban redevelopment damaging the cultural landscapes, already very fragmented - a laboratory of urban and architectural forms:

complexity from the high hybridization of the fabrics. - fragile conditions of the old urban neighborhoods in

inherited Shitamachi areas of the central parts - a great concern still nowadays and a constant fight - small-grained features with high density are even more concerned and threatened (disaster regulation, etc...) - criteria of evaluation from the atmosphere of such

place still need implementations - interestinf case study for the other asian incremental

vernacular small-grained fabrics undergoing the same conditions and economical pressures

- Shinjuku cultural landscape map, 72 cityscapes:

characteristics and positive qualities of walking through

\*the singularity of the Kagurazaka historical area project - highly fragmented, multiple urban patterns and

(old historical wood houses, condominium tower, etc)

(greenery in alleys to the global plazzas and city parcs)

sharp topography and contrasts: valley/ hollow
 Shitamachi atmosphere: «The little Asakusa»

- part of cultural landscape division map-

- surrounded by parks, and temples in the upper parts

"the only ward to have identified landscape"

the cityscapes

- multiple built typologies:

- multiple outdoors patterns:

- near the old Edo outer moat

WAKABA AREA

alcoves



Okubo-1-chome: ABdE Tomihisachou: ABCdFGH Shinjuku 6-7-chome: AbcdE Arakichou:acE

Tokyo

central wards

Wakaba cityscape: ABCPEH

WAKABA-2-3-CHOME LIVING PLACES: - important network of living area in the lowlands - nagaya system marks, along alleys ancient poor area (one of the three slimns of Edo) - very high density of houses' arrangement; the highest rank for disaster vulnerability - remainings that picture older times' life: wells, hidden canal, small kami altar, old wood houses - aged and decreasing population - municipality target for redevelopments; streets' enlargements and condominiums

Wakaba-2-3-chome: ABCDEFGH

# Chapter 3

Selecting the case study area: Wakaba 2-3 chome

Holistic process based on elaborated visual behaviour through numerous strolls in Tokyo: favoring perception criteria:imageability/legibility/ enclosure/ human scale/transparency/ complewity/ coherence/linkage

Cycling (high speed) and walking (low speed) stops: - the elements of the landscape evidence - the outdoors: they discuss in terms of \*contrast from an urban fragment to an adjoining one (size, depth, block's arrangements) \*density (high density fabric with lanes and larger density fabric with properties and garden) \*appealing elements, texture and skins of the materials and light, natural elements disposals, within the viewfield

Main selective characteristics of the visual mechanism and the related outdoors:

A- Outdoors with deep appropriation by their residents through nice displays; A (strong) a (weak) favor the feelings of positive stimulation and visual curiosity (against anxiogenic places)

B- places that give favour to a more organized visual behaviour (not dissipated/fragmented) reflecting a coherent urban entity of several blocks or a district; Bb "favour the sense of enclosure (positive qualitative feeling) "permits to mentally shape the structural pattern)

C- Small-grained fabric; Cc \*more visual openings displays to the variety of outdoors shaped by the residents, and less fences. "favor the cognition of small scale spaces, offer more complexity (visual richness of a place)

D- Blocks with contrasting visual breakthrough; Dd \*favor transparency of the place/blocks which permit a better imageability of the place \*a way to assess the readability and the appropriation feeling \*recall the quest of the unknown heart of the forest, part of the Tokyo spatial legacy

E- Places encouraging the artistic or picturesque effect; Ee \*vernacular usually favored by the walker . \*wellbeing spatial codes for any individuals

F- The focus on higher density of outdoors' networks; Ff to isolate interesting alcoves from the network that visually detach themselves from the rest of the urban frame

G- The urban entities should not have a direct view on outstanding elements of the cultural landscape; Gg (as temples, shrines or any relevant historical and cultural assets, or specific vocation of the place)

H- The distinction between "local" outdoor spaces and the outdoors from redevelopment projects (POPS); Hh \*POPS contributes to homogeneization of the landscape; \*hte outdoors of the selection should be less fragmented in proportion by POPS

## 4. MORPHOLOGICAL ANALYSIS ON THE TRANSFORMATION OF THE OUTDOORS IN WAKABA: THE CHOICE OF THE VIEWPOINTS ANALYSIS

## **INTRODUCTION**

### PART I: literature review approaching the question

1. THE NOTION OF CONNECTIVITY AND ITS USES IN LANDSCAPE AND URBAN FIELDS 2. MORPHOLOGICAL APPROACHES AND VISUAL CRITERIA FOR THE PERCEPTION OF URBAN OUTDOORS



# 4. <u>Morphological analysis on the transformation of the outdoors in Wakaba: the choice of the viewpoints analysis</u>

#### 4.1. Introduction

> In chapter 3, we presented the first approach for the case study analysis, by showing the selection process for the area, based on a holistic visual approach through extensive walks. Indeniably, the cultural landscape of Wakaba carries singularities that recall the nostalgic and popular atmosphere of Shitamachi. Notably, the alcove of the  $2^{nd}$  and  $3^{rd}$  districts, situated in the hollow of a valley, offers traces of the past *nagaya* urban dense system. The area is surrounded by temples at the top of the valley, reinforced by a wall that sustains the sharp topography and participates to enclose the living pattern and to display an interesting visual field network for the walker. The landscape of the outdoors in the dense pattern, through a network of very tight lanes, is a key factor in the atmosphere.

 $\triangleright$  Chapter 4 aims to study the evolution of such outdoors by looking at the morphological specificities of the place, which participate in the singular atmosphere and stimulate the behaviour of the walker. Especially, I introduce the viewpoint analysis as a finer attempt toward the small-grained fabric and to "measure" the visual potential from specific arrangements outdoors over time. The method displays a range of selected visual tools, as an echo to my first visual practices of the area from the public space.

 $\succ$  The methodology proceeds through the comparison of maps at different periods, superimposing historical layers of visual patterns for the space and by quantifying the results. The various visual tools defined, are attached to a hypothetical stroller that I cast on maps from different periods. This chapter will describe the three main steps toward defining such tools:

- 1st step: A primary analysis of the outdoors, understood as a rather common morphological approach by mapping buildings and street evolutions and by quantifying the density of outdoor spaces (see 4.3).

- 2nd step: The viewpoint analysis, as a new morphological approach introduced in this research, with a set of local viewing tools adapted to the high density of the place, that I defined as the "viewpoint analysis of outdoors" (see 4.4). The results underlined a *visual landmark* for the place.

- 3rd step: An accurate visual approach, introducing the connectivity tools to obtain the main outcome of this analysis, *the structural visual connectivity* (see 4.5).

Limitations of this analysis:

This viewpoint analysis, as a configurational approach, is a first step in the evaluation process of the role of outdoor spaces for the singularity of Wakaba's dense urban patterns, and for the maintenance of visual factors that shape the relationship with the cityscape. As a complementary step, the chapter 5 will analyse elements of today and the visual components apprehended in the field. Such morphological approaches (configurational and descriptive) could be completed with further qualitative aspects, social factors, regulations, etc, but it will not be the object of this research.

#### 4.2. Premiminary notes on Wakaba analysis and methodology

4.2.1. Precise delineation of the study area in Wakaba: 2 types of visual relationships



**Figure 33: Wakaba 2-3 chome, selection criteria/ bottom left, 10 samples division for analysis** Source: Modified from map p37 in "Shinjuku ward *keikan machizukuri* guidebook n°1"/ bottom left from Author work with Zenrin row map support

Wakaba 1-*chome* (1<sup>st</sup> district) is located at the top of a valley and can benefit from views on cultural assets such as shrines and temples. Unlike the 1<sup>st</sup> district, Wakaba 2-3-*chome* districts present introverted arrangements of plots and houses with higher densities along a main street, no astonishing views on the surroundings religious, cultural or geographical elements, and the aspect of a consequently wide alcove of concentrated life enclosed in the hollow of the valley. The topographical situation is already an important factor to separate the configuration of the 1<sup>st</sup> district with the 2<sup>nd</sup> and the 3<sup>rd</sup> parts. The 1<sup>st</sup> district used to have larger plot-size, being inherited from the plot system of the

daimyos and samurai *bukechi*. Thus, planning decisions and regulations could easily be applied there, in terms of enlarging the streets and alleys for security issues and a better car-circulation. The large size could also benefit from the implantation of larger buildings and condominium, in the front of Shinjuku Street and also inside the blocks of the  $1^{st}$  district. The  $2^{nd}$  and  $3^{rd}$  districts inherited the informal dense patterns from the previous slum ( $3^{rd}$  district) and the deep alleys with the system of *nagaya* (see chapter 3). They display various types of constructions and outdoor spaces appropriations, in a significant amount for study (see figure 33). Those two last districts have been chosen for the case study as they present denser, singular and older types of street patterns and houses' arrangements, with a notable atmosphere of popular life style.

Going into further detail for a relevant demarcation of the study site, Wakaba 2-3-chome also present some general inequalities for our study. Originally, I divided the two districts into fifteen block-samples, following the delineation and morphologies of the blocks but also according to the visual interactions I noticed. It reduced the area of study to the ten central block- samples (coloured blocks, Figure 34). The block-samples 11 to 15 welcome temples and shrines, with their cemeteries adjoining alcoves of houses for the blocks 11 and 13. Their outdoors' landscape is preconditioned by the temples, which propose "extraordinary" direct views on their outdoors, such as the cemeteries. Such a visual relationship is very different from the rest of the housing patterns. The views on all the religious complexes are wide open and allow the easy apprehension of the whole site and its topography. They also benefit from a higher topographical level, between the hollow of the valley and the top level, which give them a favoured position in terms of visual fields.



For those reasons, they have been removed from the study area of the ten samples, which welcome a mainly introverted living area and a different visual relationship to the site. Wakaba proposes two types of visual relationships, mainly defined by the topography and which determined the study area. The 1<sup>st</sup> type allows the apprehension of the whole site at a glance, with little obstacles, and comes from the position of a walker near the temples, the shrines and their cemeteries, located on hillsides. It corresponds to the samples 11 to 15 and strongly impacts the cultural landscape. The 2<sup>nd</sup> type of visual relationships is the very opposite of the 1<sup>st</sup> one and concerns the network of short views, preconditioned by the low topography and many obstacles (houses, greeneries, fences...), provided by looking at the densely built pattern. It represents the studied samples 1 to 10.

Figure 34: Wakaba 2-3 chome, 15 to 10 samples division for analysis Source: Author work with Zenrin row map support

#### 4.2.2. The choice of the Map supports

Since I want to describe morphologically the mechanism of change from the outdoor spaces of Wakaba 2-3-*chome*, I decided to analyse the samples by comparing maps over different periods.

The most precise existing work supports are the Zenrin maps. In such maps, regarding the area of Wakaba, the level of precision offers the drawings of plots and, most importantly, are the built delineations so that the dimension of built and non-built entities can be observed. It is not the case with historical maps that draw the characteristics of plots and land, or the general built densities without detailing the precise delineation of buildings. However in the Zenrin material support, from one year to another, the level of precision proposed is not the same. The oldest material from Zenrin is the 1967 map. All the maps from 1967 to 1976 and later offer an approximate built delineation.



**Figure 35: Extract from Zenrin row map of Wakaba 3<sup>rd</sup> district** Source: Zenrin maps from 1967, 1989, 1999 and 2008

Only from the 1989 maps, is it possible to have more accurate drawings on the exact position and measurements of houses and buildings (see figure 35). I decided to use the maps from 1967-1976-1989-1999-2008 Zenrin and the most recent one (2011) for details.

The written names of the different owners could allow the association of early undefined frames of built, by going back to the precise drawings in 2008, for each of the five considered periods. I have redrawn all of the 5 maps (especially the old maps which were un-précised), with an Autocad version of the Zenrin map from 1989, which needed to be adapted. As a consequence, in some places, the position of houses and their sizes is very approximate (green delineation on the drawings, see figure 38) and I am perfectly aware of such limitations for my conclusions. All the work has been done using Autocad software, for the scaling and measurement capacities it displays.

All material support used for this research:

- ZENRIN paper maps 1967-1976-1989-1999-2008 and 2011 (chapter 4)
- Autocad version, extract from Zenrin map of 1989 (chapter 4)
- Historical maps (Edo period up to 1967), main observations of 1895 Meiji map (chapter 3).
- Aerial photos (chapter 3)
- Field observation photos that I took (chapter 5)
- Surveys from the Residents (chapter 5 and appendix N)

#### 4.2.3. Notes on the chosen outdoor spaces

- The research focuses on the mechanism of transformation from outdoor spaces. It supposes open spaces in the blocks from the private plot (around the house or the condominium) to the appropriation of open spaces in the alleys (public or private ones) and their relationships with the public street.

- Therefore public open spaces such as Parks, streets aren't the focus of this study, set aside that they represent the space from which any walker can perceive the landscape of different outdoors. Public space such as the street and the public alleys with their unclear status<sup>1</sup> participate in shaping the global neighbourhood's landscape of outdoor spaces shared by everyone while strolling. They will be considered only for that property, but not for any quantitative calculations or analysis.

- In the Zenrin maps, it is possible to clearly identify public streets and some alleys. However many alleys (privately owned by residents) are not represented clearly. The mapping analysis only will consider the public space of the main street and alleys which are clearly specified. The rest of the outdoors will be considered as private (plots and some alleys).

- The production of modern and global forms of POPS, now part of ordinary landscapes of Tokyo, will be considered only in their interactions and participation for the decay and the fragmentation of local-traditional forms of "privately" owned open spaces (as we could name them).

- The term of "outdoor space" physically refers to the space out of the door, in the plot but also immediately surrounding the plot. There is an unclear limit which contributes to the richness and the singularity of the place in the neighbourhoods of Tokyo. It has a "vernacular" dimension.

- The analysis is based on the outdoor spaces. Therefore, analysis parameters of variety and richness of views (from the visual field), will only consider from the position of people (inhabitant or walker) and their perceptions from the ground level of a given open space. It can be from public open space, such as streets or alleys, and from private open space, such as entrances, empty plots or gardening spaces and non-public registered status alleys. For example any views which emerge from the window of a house or the upper levels of a building won't be considered in this research paper<sup>2</sup>. The direction of the view lines drawn on the maps are considered straight to the eye's individual horizon. They follow similar visual orientations, as described by Gehl in his research (see figure 9, chapter 2).

- The open space often refers to parks, or a planned element with planning tools, from the public sphere. However in our case, the landscapes of outdoors contribute to the elaboration of an open space shared by everyone and representative of embedded values<sup>3</sup>. This particular open space has no regulatory tools, unlike other types of open spaces (Parks, streets, and POPS). Thus, except from being considered as part of the cultural landscape, they appear to be more vulnerable, because they lack a regulatory system. In this research, I try to characterize through a specific morphological approach.

<sup>&</sup>lt;sup>1</sup> Especially we can consider that there is a public dimension in the private open spaces and the semi-private appropriation of the public spaces by the residents. Thus, the demarcation public-private is more complex.

<sup>&</sup>lt;sup>2</sup> I'll focus on the walker view from the public space although they can walk toward more private parts.

<sup>&</sup>lt;sup>3</sup> Social health, historical specificity, spatial disposition related to neighbourhood customs etc... (chapter 2)

#### 4.2.4. Notes on the method to approach the present situation through comparative old maps

In order to qualify the different aspects of the present dense urban frames in the given samples, observing the current situation could provide precious information on the outdoor spaces, especially qualitative ones. However that data could not be compared with absent qualitative observations of the same frames in the past, with the same objects at older periods (1967 for example). It is obviously difficult to observe the past qualitative environment. In that sense, the proposed morphological analysis aims at settling comparative criteria for the analysis of the outdoors' space performance (in quantitative terms); to objectively compare them better with the present observable situation.

For the morphological analysis on outdoors, the results and outcomes will be presented in terms of the maps support comparison for the different considered periods, and through a quantitative approach using graphics and tables. I studied buildings (new construction evolution, size changes, public streets and alleys change (length and configuration), outdoor densities, various tools developed around viewing attributes (types, configurations and length evolutions), and the resulting outdoors' shapes. Methodologies for the outdoor spaces analysis of evolution from 1967 to nowadays:

- Classical approach on the changes of morphologies (built and streets evolutions, part 4.3.1)
- Densities of outdoor spaces (quantitative approach of their evolution, part 4.3.2)
- Viewpoints analysis (introduction of different tools: production of maps and quantitative results through graphs and tables, parts 4.4 and 4.5)
- Resulting morphologies description (parts 4.5.3 and 4.5.4, conclusion)

#### 4.3. Primary analysis on outdoors

4.3.1. Approach on built and public space changes

The 1<sup>st</sup> approach represents the basic step for analysis of any urban pattern, by looking at the evolution from the public space (strictly defined) and the built objects. Figure 36 shows the principle of analysis, focusing on the extracts of sample 1. It starts by looking at the maps from Edo up to the Zenrin map of 1976. They underline land patterns, their division into larger parcels, along which some new alleys appeared successively and were represented<sup>1</sup>. The built changes from 1967 to 2008 are also underlined with red colour. In sample 1, a new mansion appeared from 1999, but some alleys and houses disappeared. Much agricultural delineation of land fields represent walking paths (see chapter 3.7). Their borders, eventually transformed, and they evolved into alleys, with the general city process of built densification. Wakaba went under a strong densification process and the alleys display the borders' marks from the Edo and Meiji fields.

<sup>&</sup>lt;sup>1</sup> Obviously there are unrepresented alleys



Figure 36: Right, streets' evolution maps from 1850 to 2008 in Wakaba sample 1/ Left, Built changes from 1999 to 2008

Source: Historical maps and author work on Zenrin maps



Figure 37: Public streets evolution: superposition from different periods (1967 to 2008) Source: Author work with Zenrin map support









Figure 39: Main street length 2008 Source: Author work

On the 1967 map of public space (figures 37 &38), we can see that the Wakaba area proposes mainly dead end alleys hooked to the main street (figure 39) on one side and almost bumping to the wall of the valley on the other side. Only blocks 7 and 5 propose continuous ways in between alleys and streets, where it is possible to meet again at another position of the main street after walking in the network of alleys. Figures 37 and 38 establish the evolution of streets and alleys from 1967 to 2008. We can notice two main processes on the general evolution:

1- Many private ways turned to "officially recognized" alleys (especially from the 1967 to 1976 maps), and were represented in the maps of Zenrin. There is an important increase in the total length of alleys within the 10 sample-blocks (See the graph Figure 40). Possible explanations could be because of the land delineation with the progressive division into smaller lots or through the recognisance of a public status for private open spaces and paths.



Figure 40: Evolution of alley's length and total length (in meter) from 1967 to 2008 Source: Author work on Zenrin map support

2- The general decrease in the number of alleys and their lengths as shown in the graph (figure 40), especially from 1976 to 2008. Only the blocks 3-4 and 7-8 show a very reticent increase in the length

of their alleys. Since no alleys were created in those blocks, such increase is probably due to an existing private path which was officially drawn later. The alleys from the blocks 1-5-6 and 2 received the strongest decrease of their lengths, leading consequently to the progressive shortening and disappearance of the alleys. Such phenomenon is explained by the assembly of plots into bigger ones for the construction of new massive condominiums. Looking more carefully at the total length, in 1976, the walking possibilities within the 10 blocks represented 2.27 km and in 2008, the total length reached 1.89 km, which is a loss of 370 m (around 17% of its walking capacity in 28 years). The way along the main street represents almost 1 km (770m + 210m) and 770m considering the 10 samples, from the north to the south (figure 39). This length was stable over the years. However there are two to three times more walking possibilities while moving in each block. It is the diversity of a walking a path, which is affected when the length of alleys are decreased.

Many alleys (*roji*) disappeared and the existing ones had their depth toward the block reduced. If we observe the general trend by sample:

- 1-5-6: from 1967 to 1976, numerous new alleys appeared, uniting one point of the public space to another. However on the 1989 map, the first disappearance of an entire alley is in sample 5 and some alleys from sample 1 were shortened. This can be explained by the possibility of a land assembly that brought up some parts of recognized (public dimension) alleys, not necessary for reaching some small plots. It can also show the will for new owners to enclose parts of privately owned outdoors. In 1999, samples 5 and 1 were cleared with the removal of short irregular alleys. In 2008's map, another important adjoining alley, between the backyard main alley and the main street, disappeared. In total, three big operations of land assembly can be drawn from 1967 to 2008.

- 7-8: those samples were pretty stable with only a short section of alleys in sample 7. This sample is the only one in the area which proposes a sort of grid composition, with a rather organized access to the centre of the block, in comparison to the pattern of alleys in sample 1.

- 3-4: these samples, in opposition to the grid arrangement, propose dead-end alleys, which bump into the wall of the valley for one part and the concrete fence from the huge upstream condominium for the other part. From 1967 to 1976, more alleys appeared, whether as a consequence of land subdivision into smaller plots, or through the recognition of private outdoors. Until 2008, the alleys seem stable.

- 2: from 1967 to 1976, many alleys were drawn, and sections from existing ones as well. They present similar configuration to the ones for sample 3-4. They cross the block more or less directly to the valley wall in a dead end. They never meet to form the beginning of a grid. The same processes as in sample 1 are perceptible while observing the 1989 maps. The alleys are shortened and one of them completely disappeared, consequently to a supposed land assembly. Short sections of alleys are cleared (1999 map) to get an optimized shape of the land. From 1999 to 2008, the length and numbers of alleys which were deleted is considerable, at the north and southern parts of the sample. Two major operations and assembly of lands occurred for big plots.

- 9: few changes occurred, except the disappearance of a section from an alley from 1999 to 2008.

- 10: few changes also occurred, with the disappearance of one alley and the enlargement of a parallel one for a middle size project of construction. The sample presents the same pattern of dead end alleys.

#### Looking at figure 41, on the buildings' evolution from 1967 to 2008:

In 1967, most of the constructions are small houses (among the smallest, a construction measured 10m2 in sample 1, see tables in figure 42). Only four bigger constructions are notable (samples 6, 2, 9 and 4) but in acceptable proportions (around four times the average size of a house) compared to the average scale observed. In most of the cases (samples 10, 2 3, 4, 5), houses are juxtaposed facing the alley, in a sort of comb configuration. The alleys and the other types of outdoors within the block form a sort of grid. In sample 1, the arrangement of houses seems random, following the tortuous paths, with a centre of gravity in the heart of the block. Samples 8 and 6 contain a rank of houses along the street or the long alley. Their depth is very short compared to the others. Samples 7 and 9 follow a grid pattern, where the houses compose small blocks with an open space around the middle space.

From 1967 to 1976, many new small houses appeared (above the wall of the valley from sample 10) and a larger construction size (supermarket) in sample 2. On the map of 1989, sample 7 welcomed many new buildings, when samples 2 and 5 lost constructions. A huge construction appeared in the southern part of block 5 (school). On the map of 1999, we can observe that this time, samples 1 and 2 welcome the most important changes in terms of constructions, with big new constructions replacing small houses and vacant spaces. From 1989 to 1999, in the studied samples, one big mansion appeared (sample 5) and three average sized buildings (sample 5, 2 and 11). From 1999 to 2008, five big mansions were constructed and another big building (part of the school in sample 5).

In figure 42, all the statistical data (tables by samples of study) regarding the construction (changes mentioned in red, surface of built, size of construction, number of buildings etc...) but also the length and numbers of alleys and their evolutions, is collected. The percentage of outdoors compared to buildings has been measured as well (see 4.3.2). For all the considered samples, the number of constructions by block decreased, but the biggest surface of building (condominium) increased. As a consequence, the average surface of building increased. However, from figure 41, we can notice than from one period to another, the new constructions (mentioned in red) tend to slightly increase their dimensions. They took more space from the outdoors to be built and many times they slightly reached the borders of their plots (see black circles in the 1999 and 1989 maps, from sample 10 on figure 41). What was previously a small but possible passage between two houses, accessible to humans, evolved into a dead space of a dozen centimetres or the cats' realm. However the number of new house constructions from 1967 to 2008 is not representative enough to impute the increase of building's average surface, in comparison to the massive mansions which had been constructed.



**Figure 41: Wakaba 2-3-chome fabric evolution from 1967 to 2008** Source: Author work on Zenrin map support

		1901	1976	1989	1999	2008
	ua S					
7 0	2					
1	5 4	XL: 361m2	XL: 361m2	XL: 361m2	XL: 484m2 XS:10m2	XL: 657m2 XS:10m2
	C	M: 39m2	ACTION	A DITONIE E	Norionic E	A
1	S.br	11017	11017	11017	10938	10881
<u>-</u>	S os	5854	5746	5871	6114	5333
5	% os/br	53.1%	52.1%	53,3%	55.9%	49%
6	S. built	5163	5271	5146	4824	5548
-	nb.blg	131	139	132	108	101
	S.roji	726	965	881	783	738
	nb. roji	10	£37 m	540	469	12
	r.lengh	489 m	627 m	548	408	425 m
mple	elements	1967	1976	1989	1999	2008
A.			ESS.			
10		8 Dec	EL	2200	2200	- 500
	q	XX	XXX	2 X 12		
2				220	20	
6	3	1 Alexandre	1		A A A A A A A A A A A A A A A A A A A	25
5	4			Lake	Faith	Lin
1	S.br	7057	7057	7057	7057	7057
7	S os	3258	3215	3079	3065	2986
-	% os/br	46.2%	45.5%	43.6%	43.4%	42.3%
8	S. built	3799	3842	3978	3992	4071
	nb.blg	99	99	99	97	95
	S.roji	504	514	503	503	503
	nb. roji					1. The second
	r.lengh	317 m	328 m	323 m	323 m	374 m
M: ave	rage surfac	e of buildings (bigges)	and smallest excluded)	)/ m2		
XS: sm	allest surfa	ace of buildings / m2	S.br: surf	ace of block (roii include	ed)/ m2	new construct
XL: bio	igest surfac	ce of buildings / m2	S os surfa	ce of open spaces (roji	included)	built delineati
S.roji:	surface roji	i / m2	% os/b: p	ercentage open spaces,	/ buildings (roji included	)
nb. roji	i: number o	of rojis identified in ma	s. built: s	urface of buildings / m2	2	
r.lengh	: total leng	h of rojis cumulated/	m nb.blg:nui	mber of buildings		

The green delineations represent the approximate position and measurements of the constructions, that I drawn. It's due to the imprecision on the maps from 1967 and 1976, where owners are underlined but the positions of the buildings and the distances seem very random.

Block ample	elements	1967	1976	1989	1999	2008
7 1 6	10 0 2 3 5 9					
2	S.br	10066	10017	10017	10017	10017
3	S os	5234	5471	5449	5121	5010
4	% os/br	52.0%	54.6%	54.4%	51.1%	50.0%
-	S. built	4832	4546	4668	4896	5007
	nb.blg	96	94	99	99	99
	S.roji	722	813	810	797	786
	nb. roji	9	13	13	12	12
_	r.lengh	393 m	461 m	456 m	449 m	449 m
lock ample	elements	1967	1976	1989	1999	2008
7 n 1 7 1 6	9 9 3. 5 4					
	S.br	5495	5495	5495	5495	5495
2	S os	2531	2055	2052	2147	2120
	% os/br	46.1%	37.4%	37.3%	39.1%	38.6%
	S. built	2964	3440	3443	3348	3375
	nb.blg	73	76	75	69	37
		3.4.4	310	251	251	155
	S.roji	196	510			
	S.roji nb. roji	196 7	11	10	9	6

S.roji: surface roji / m2

nb. roji: number of rojis identified in maps S os surface of open spaces (roji included) r.lengh: total lengh of rojis cumulated/ m

S.br: surface of block (roji included)/ m2

% os/b: percentage open spaces/ buildings (roji included)

S. built: surface of buildings / m2 nb.blg:number of buildings

new construction built delineation

mple	elements	1967	1976	1989	1999	2008
7 1 6	10 2 3 5 4	XL: 241m2 XS:13m2 M: 57m2	XL: 241m2 XS:13m2 M: m2	XL: 241m2 XS:21m2 M: m2	XL: 241m2 XS:29m2 M: m2	XL: 460m2 XS:32m2 M: 86m2
	S.br	5186	5186	5186	5186	5186
0	S os	2118	2118	1925	2078	2601
3	% os/br	40.8%	40.8%	37.1%	40.1%	50.1%
	S. built	3068	3068	3261	3108	2585
	nb.blg	54	54	53	45	30
	5.roji	191	245	233	233	199
	nb. roji	6	6	6	6	6
	r.lengh	137	191	180	180	141
ock mple	elements	1967	1976	1989	1999	2008
		M: 53m2	EnE	<b>B</b> FFF	BRIE	M: 58m2
0	S.br	9166	9166	9166	9166	9147
0	S.br S os	9166 3556	9166 3460	9166 3400	9166 4163	9147 4006
0	S.br S os % os/br	9166 3556 38.8%	9166 3460 37.7%	9166 3400 37,1%	9166 4163 45.4%	9147 4005 43.8%
0	S.br S os % os/br S. built	9166 3556 38.8% 5610	9166 3460 37.7% 5706	9166 3400 37.1% 5766 106	9166 4163 45.4% 5003 96	9147 4005 43.8% 5141 88
0	S.br S os % os/br S. built nb.blg	9166 3556 38.8% 5610 105 658	9166 3460 37.7% 5706 104 737	9166 3400 37.1% 5766 106 738	9166 4163 45.4% 5003 96 704	9147 4006 43.8% 5141 88 729
0	S.br S os % os/br S. built nb.blg S.roji	9166 3556 38.8% 5610 105 658 11	9166 3460 37.7% 5706 104 737 14	9166 3400 37.1% 5766 106 738 14	9166 4163 45,4% 5003 96 704 14	9147 4005 43.8% 5141 88 729 14
0	S.br S os % os/br S. built nb.blg S.roji nb. roji r.lengh	9166 3556 38.8% 5610 105 658 11 346	9166 3460 37.7% 5706 104 737 14 378	9166 3400 37.1% 5766 106 738 14 378	9166 4163 45.4% 5003 96 704 14 366	9147         4006         43.8%         5141         88         729         14         367

Figure 42: Wakaba 10 block-samples, metric data on built and alleys from 1999 to 2008 Source: Author work on Zenrin map support

#### 4.3.2. Approach on density of the outdoor spaces

Since the research aimed at approaching the evolution of outdoors, I continued with the calculation on the percentage of the outdoor spaces (private outdoors on the plot, private paths, gardens and terraces...) compared to built ones. From table 4, the average percentage of outdoor spaces within the block decreased. A possible reason was exposed in the last part (the average house surface increased, less houses but bigger constructions, especially massive ones such as condominiums). However it depends on the samples considered. The samples 1-5-6 and 2 significantly decreased their outdoor spaces. Both of them welcomed massive condominiums, but were also the heart of a very lively neighbourhood community in the past (information from resident surveys) with many houses and local shops replaced in block sample 2 by a supermarket and a condominium and in block samples 1-5-6 by three condominiums. On the contrary, samples 9 and 10 notably increased their percentage of outdoor spaces, but also their parking lots.



Samples	1967	1976	1989	1999	2008
1-5-6	53.1%	52.1%	53.3%	55.9%	49%
7-8	46.2%	45.5%	43.6%	43.4%	42.3%
2	46.1%	37.4%	37.3%	39.1%	38.6%
3-4	52.0%	54.6%	54.4%	51.1%	50.0%
9	40.8%	40.8%	37.1%	40.1%	50.1%
10	38.8%	37.7%	37.1%	45.4%	43.8%
average	46.2%	44.7%	43.8%	45.8%	45.6%

 Table 4 : Evolution of percentage from outdoor spaces surface in a block by sample
 Source: author work from survey material

Given the important difference between the average and the percentage in each different sample, it might be interesting to settle criteria by blocks better than for the whole area. However the study of the density of outdoors by sample does not provide enough information to approach more precisely the characteristics of the outdoors, on such a small scale. It can eventually participate in evaluating the average percentage of outdoors that should be respected but as a complement to a morphological approach which would give a more honest representation from the conditions of the outdoors, from which a special atmosphere emanates.

#### 4.3.3. Conclusion- discussion

Different parameters of evolution from 1967 to 2008 (five periods of maps: 1967, 1976, 1989, 1999, 2008) have been measured in order to find specificities on the evolution and transformation of the outdoors in this dense neighbourhood, as a primary approach to the Wakaba site:

- Public space of the street and the alleys: changes through the measurements of their length
- Changes in the surface size of the buildings and in the number of constructions in the block
- The proportion of outdoor spaces within the block, compared to built ones

The area proposes mainly dead end alleys toward the wall of the valley. Only block samples 1 and 7 propose alternative patterns for the arrangement of the alleys. Sample 1 previously had an "organic" composition and sample 7 follows until nowadays a grid pattern that permits access to the inner side of the block. As underlined, samples 1 and 2 received the most important changes, with a progressive shortening of long alleys toward their complete disappearance and the deletion of short length alleys to clear the plot, in order to proceed to land assembly for the big constructions. The number of constructions (by block sample for the 10 studied ones) decreased. The average size and the size of the biggest construction increased, mainly explained by the introduction of five out scaled mansions. The outdoor spaces proportion within the block mostly decreased due to the densification of the area and an average of 45, 6% could be established to broadly characterize the built/outdoors density for the neighbourhood. However observing the average block-density would be more precise on the conditions of each block's outdoors.

As a conclusion, this primary approach could provide general information on built and outdoors changes since 1967. It also permitted to describe the main characteristics of alleys and the built arrangement in a block; however it is not sufficient to precisely enlighten the possibilities of outdoors, their morphological characteristics and their changes over the past decades. The systematic maps analysis contains inaccuracies (outdoors qualifications, especially regarding the alleys that are recognized and those not mentioned but which also play the role of access to private plots). Moreover, the comparison and analysis of the previous outdoors evolution and the observation of the present outdoors criteria through this first approach, can hardly establish a linkage with the stroller's visual perception of the place, and the richness of the visual field experienced. I introduced another type of analysis to bind the visual practice of the space made by a stroller, the consideration of all the subtle types of outdoors (from the alleys, lanes, and gardens in the plot to the forgotten small space in between houses), and the possible evolution of such characteristics. Thus, the next part develops this new morphological approach, based on visual parameters that I detailed.

# **4.4. Viewpoints morphological analysis on the outdoors of Wakaba** 4.4.1. Viewpoints tools description and methodology

This chapter introduces the tools to approach the specificity of outdoors, by establishing a correlation with the stroller's visual practices of the area and the evolution at different times. The same periods and maps will be used, starting with the Zenrin maps from 1967 to 2008, and 2011 for details. Here are the different parameters of the morphological viewing approach:

> A- Let's recall that public place is interpreted as the publicly accessible spaces and contains the main street and the alleys or lanes recognized<sup>1</sup>. All the other types of outdoors, privately owned, from which an individual could also view the landscape will not be considered in order to have an equal measure of comparison between the different periods and due to the imprecision of their uses for a walker. Supposedly, such public space might have characteristics that permit to operate a slight difference between the privacy of plot, lanes or alleys. Then the view from that estimated publicprivate border<sup>2</sup> is considered. Experiencing the real cannot find an equivalent in the drawings from the Zenrin maps. Hence, the drawing of the public value of an alley or an outdoor remains the main criteria. Another reason lies in the fact that the stroller can be anyone. For instance, a stranger might feel too shy to explore more private outdoor areas when reaching the public-private border, despite there being no physical fences to obstruct his path.

> B- Position of my view lines in the visual field: The views are considered 1.60m from the position of the eyes, for a hypothetical stroller in the main street or in recognised alleys (see figure 43). The red spot is the most likely position considered on the streets.

#### > C- Four kinds of views that a walker could have from public space (figure 43):

1- Views blocked by human construction (represented fences, objects and a building's wall) or by natural, cultural or topographical features from the main street / represented in dark green.

2- Views blocked (given the same conditions) from the public space of alleys inside a block / brown.

3- Transversal views from the main street to another public space (street to alley or street to street)/ represented in light green.

4- Transversal views from a private outdoor space to another one (alley to alley)/ orange.

> **D- Elaboration of a set of viewpoint maps for each year studied** (1967, 1976, 1989, 1999 and 2008) and quantitative data in tables and graphs from the evolution of the drawings (see 4.4.3). The range of view lines, displayed to a stroller in his visual field, is infinite from an angle defined by two obstacles. To limit the boundless amount of lines, I will consider the longest view line from the eyes of the stroller to an obstacle. It supposes to draw diagonals in the given outdoors, by searching which position, from the border of the public space, can provide the estimated longest line to the obstacle. Concretely, the method consists in drawing on the map, at different periods, lines among the four types that represent the longest way until bumping into an obstacle (buildings, walls, fences...)<sup>3</sup>. The result is the whole area viewpoints map. The figure 43 displays the process, where the view line has been drawn in between the buildings (pink and purple) in the Autocad drawing of 2008 and 1976.

<sup>&</sup>lt;sup>1</sup> Alleys and lanes, which are represented in the different maps are considered as "recognized" public space, although they might be probably privately owned by the concerned residents

 $<sup>^{2}</sup>$  This border between public and private open space can be sometimes very difficult to determine for a walker, as private spaces can display public qualities and public spaces can be privately appropriated by the resident. However, the lines which separate public and private, on the drawing maps, appear to be more reliable for the evaluation process of this analysis.

<sup>&</sup>lt;sup>3</sup> View lines from an imaginary stroller situated in the main street or alley and walking in the whole area. The red spot of the figure 43 represents this imaginary stroller and his obstacles, drawn in black.

Then, by removing all the information of the maps, we obtain the viewpoint maps for each period, with the four types of view tools introduced (figure 43).

 $\succ$  E- I selected Wakaba for its charming atmosphere and the richness of its visual environment. Hence, this analysis aims at emphasizing criteria I judged positively. In that sense, defining elements and tools that can underline such an aspect, was fundamental.



## Figure 43: top: Position of my viewpoints line regarding academic field (a,b,c)/ middle: Principles/ Down: views' tools (zoom on sample 1)

Source: Author work on extracts on the top from Conroy and Bafna (2003), and for the middle-left illustration Gehl *et al.* (2006)

 $\succ$  F- The richness of views can be defined in reference to their interaction with the cultural assets (preserved old houses, temples and shrines, cemeteries etc...), the topographical configuration (stairs, old stone walls, etc...), the natural features (small canals, little parks, specific trees like *sakura*, the greeneries made by the residents etc...), and any interesting aesthetical outfit (singular features for architectural facades or fences, natural, beautiful or peculiar composition etc...). The number of accidents or the relevant objects composing the view contribute also to the richness of a viewpoint. They organize the visual articulation of the spaces (the angle of a building, a big tree signalling the entrance of a lane etc...). Most of those visual qualities are perceptible by walking in the area. Given the fact that a walker cannot appreciate such physical qualities by walking in the same conditions in the past, the row data of the maps with supplementary criteria/indicators of visual richness are considered, as defined in the further points.

 $\succ$  G- The length of a view: a long view in a densely built-up neighbourhood is a positive qualitative life aspect. It can participate in a better circulation of air; give more opportunities for light and more shapes of lights according to the moments of the day; provide more opportunities to catch elements of the landscapes and its variations, which help the residents or the walker to better sense the space and time of a place. Having a more distant view can also psychologically change your relationship to the space, especially when living in small houses. The visible outdoor space belongs to the interior space, as an extension of the living area.

> H- The lengths, types, directions, compositions and numbers of the viewpoint lines are interesting indicators of the perception from the outdoors for the walker that can be evaluated through the different time periods of the maps. They show the evolution of the outdoors landscape in terms of capacity but also through the possibilities of visual interactions (with objects or humans<sup>1</sup>). For example, a predominance of blocked views<sup>2</sup> can express morphologies of outdoors. Their measurements might precondition the possible uses of those spaces by people.

> I- The transversal viewpoints (from streets or alleys) are also a positive criteria that can express the aspects of externality (from the street, on the side of the block / light green) or internality (from an alley inside the block/ orange) from a given viewpoint in a block. Transversal views suppose for example that a walker in the street can perceive another walker within the alley inside a block. It shows an additional capacity to visually connect with someone else. Such visual experience is less expected than meeting someone walking in the same street. It can indicate a higher level of visual connection for a place.

 $\succ$  J- By looking at the evolution of the four kinds of views, their modifications can suggest changes in the life and the appropriation of the outdoor spaces. Various interpretations are possible: for example, if a block contains many viewpoints (transversal or blocked) from the alleys, it can

<sup>&</sup>lt;sup>1</sup> Visual interactions with humans can determine the encounter capacity of the place, and hypothetically, its social dimension status.

<sup>&</sup>lt;sup>2</sup> By buildings, houses or topographical elements.
indicate that the visual connections of the neighbours living there is pretty rich. It suggests strong internal visual<sup>1</sup> relationships for the inhabitants. We can correlate this property with a higher level of visual connectivity from such an encounter place<sup>2</sup>. Such a level could decrease proportionally to decreasing numbers and types of views. If there is a predominance of external views from the main street, it also makes the elements of the urban frame more accessible publicly. In return, we could imagine that the residents might possibly express less appropriation or less exposure of intimacy on the considered outdoors (plots, along alleys or street).

➤ K- The view lines regarding the related academic contributions

It is important for this part to situate the dimension of the visual field I am considering, regarding the spectrum of possible lines in isovist viewsheds and the axial lines from space syntax analysis, (see parts 1.5.1 and 2.5.2). The red spot on the *infinite set of all possible lines of sight* in figure 43, is the most likely to define them. The axial map (the least number of longest straight lines and its interconnections) encompasses already embedded visual characteristics of a spatial configuration, as defined beforehand<sup>3</sup>. Hence my viewpoint lines can be considered as sub-categories of the axial lines, as it aims at emphasizing the structural approach of a given local site. However, we can mention four important points of difference:

1- The criteria for selecting the four types of views already belonged to the local interpretation of my visual practice in the neighbourhood. It is a result from a strolling process, which is more likely to approach the viewshed and that I reduced to the isovist point of view. Thus, it is a selective process<sup>4</sup> made on the field, but different to Lynch.

2- A major difference is that my definition of path also takes into consideration visual inaccessible paths (excluding the dual notions of movement and visual, from Lynch and space syntax). Both types of visual paths are considered, accessible for movement and only accessible for the eyes, especially because the experience of the Wakaba dense frame emphasized the importance of such type of paths, often only accessible to cats in the few dozens of centimetres between houses.

3- No space syntax types of calculations are used in this research, such as for selecting the four view lines and for the interpretations of the resulted maps.

<sup>&</sup>lt;sup>1</sup> Not exclusively, as it supposes certain proximity. Although not the focus of this research, other senses are requested. The inhabitants can hear, talk to each other and touch the houses and the elements displayed outside. <sup>2</sup> As a hypothesis, a positive outcome can be the growing possibilities for the neighbours to interact. Negative ones could be the decrease in the privacy domain, as everyone can see the actions of their neighbours from their

own houses. However this study is not considering the social aspect that such visual behaviours could bring. It is focused on the only implications that a visual field can bring to the study of morphologies from dense outdoors. <sup>3</sup> referring again to chapter 1.5.1, "the difference between the axial line map and an isovist is more than the one between spatial and visual, but one that allows mapping of a local to global structure (but a serious attenuation of local characteristics), while the other (isovist) preserves much more of a local spatial information (but does not allow a natural global extension)"(Conroy and Bafna, 2003).

<sup>&</sup>lt;sup>4</sup> the Lynch approach is already a selective process. Differently, axial lines in space syntax analysis rather define a non-selective process on the global scale of the city, by defining hierarchical structures (from a district to the whole city), depending on the different allocated values of the axial lines. Such value is calculated on the percentage of the so-called integration value. Moreover, the isovist field connects some Lynchian elements to space syntax definitions and an axial map can define the structural part, encompassed in Lynchian approach.

4- Even though they might be apparented to axial lines, my viewpoint lines, drawn at a given time (similar to axial map) are interpreted in terms of layers of time, closed to the skeleton map from Kuipers et al. (2003), as a "phenomenon emerging over time from the cumulative experience of navigating an environment", and "structural features of their own." However differently, such features will be locally defined, with a selected axial line, emanating from an individual practice, positively apprehended.

- Those are the main nuances and the interest of my methodology, locally adapted to urban dense features in Tokyo, and which tend to grasp the issues from another angle, by proposing a contribution to academic visual topological studies. I also want to emphasize that chapter 5, approaching the skins of the view lines on the field analysis can only use an isovist approach, as it is human functional observations of the case study. Hence the interpretation of both approaches (the overlaying of structural maps and field observation) can only be unique.

#### 4.4.2. Outcomes: viewpoints analysis maps

Let's describe more precisely the different situations and the outcomes from the resulting viewing maps in the figure 44:

> As précised with the built evolution maps, notable differences can be observed from the years 1967 to 1976 and may be attributed to some errors in the reading process of the first Zenrin map<sup>1</sup>.

> The viewings resulting maps underline the morphological land patterns of the place. Viewpoint lines follow the delineations of alleys or the borders of the plot of land, in between 2 constructions. The small lanes and alleys patterns, comb-shaped along the main street, are bumping into the topographical wall and provide a rich environment for long views (dark green).

 $\triangleright$  Extra information appeared: There are numerous views. Their number is important and it actually covers many outdoors that were not considered in the primary morphological approaches<sup>2</sup>. Such a number made the density of the resulting patterns of view lines more accurate, and as a tool to describe the small density of the area, was composed of numerous objects in the landscape.

> An introverted and densely built-up neighbourhood but with very long viewpoint perspectives: surprisingly, for such a dense neighbourhood (among the most dense if not the densest one, listed in Shinjuku ward and in Tokyo), where constructions can reach a minimum of 6 to 10 m2, and the access lanes can narrow down to as much as one meter wide, you can easily observe numerous long views (all four types included), with an over 50m perspective ahead. Many long views can be observed

<sup>&</sup>lt;sup>1</sup>where the measurements are not at all precise and the positions of plots and houses are sometimes random <sup>2</sup> Or by any usual morphological approach. The review of the different morphological approaches (see chapter 2) underlined the important part played by the identification and the separation of public and private spaces. The delineation of the land and plot patterns rather than considering a mixed, undifferentiated landscape of outdoors, determines the type of morphological analysis. Here, the visual approach to analyze the morphologies is free from this public-private border and one can read further decisive information on site.

across the block, cutting the alleys and reaching 100m for some (samples 5 and 4 count many transversal views- orange ranging over 100m that a stroller can possibly discover, within the block but not from the main street).

If we describe the main changes by block-samples and periods:

▶ 1-5-6: the blocks display four main visual characteristics:

- A network of transversal views from the main street (light green) going in the same direction: the pattern lost some views, especially with the construction of the condominium in block 1, however it remains more stable than the other patterns.

- A pattern in comb morphologies along the inner alley (sample 6) with dense and short parallel viewpoint lines of inner-blocked views (brown): the comb lost some teeth over the different periods. From a dense frame of parallel views, it loosened up as of 1999.

- A 3<sup>rd</sup> network of transversal inner views (orange) with more or less the same direction: from 1989, it tends to disappear progressively and had almost vanished from 1999 to 2008 (only four lines remain and most are shortened, compared to the 12 in 1976)

- A network of short view lines in different directions with a majority of blocked inner views (brown): very dense and complex in its arrangement in 1976, it diminished from 1999 to 2008, and was demolished with the construction of the condominium

➢ 3-4: Two main visual morphological characteristics

- A pattern of long blocked views (dark green) following the main street (more or less parallel): pretty much preserved since 1967. Each line follows an alley or a lane and carries a lasting value, as they might express a land field from Edo delineation (see historical maps in chapter 3).

- A surprising network of transversal inner views (orange) with more or less the same direction, perpendicular to the 1<sup>st</sup> pattern, which is perceptible within the block: this visual network has also been preserved.

> 7-8: Two patterns of visual morphological characteristics, following the main specificities of the two blocks. Neither changed much from 1967 to 2008, in terms of viewpoint types and number (high number of views).

- The sample-block 8 has a dense network in comb, with short blocked views (dark green) bumping toward the wall of the valley. Two blocked views, from inside (brown) are along the wall.

- The sample-block 7 welcomes all types of viewpoints lines in the two directions of the perpendicular grid that defines its first morphology. All types, lengths (short, long and medium) are represented. The longest views follow the main alleys of the block and the direction adjoining the valley wall.

> 2: a visual pattern of the block is divided into two parts; the northern part is almost empty in number of views and the southern part presented (in 1967) a very rich network of viewpoints following a perpendicular grid and is deeply rooted by the blocked views (dark green) from the street. This rich visual landscape (which used to be in the northern part of the block, supposedly), vanished as

well in the southern part. It started with a slow shortening of the views, toward the brutal disappearance from 1999 to 2008, when the new mansion was erected.

> 9: the views are not very numerous in that block. The notable particularity is the disappearing of two important transversal viewpoints (orange) within the block.

 $\succ$  10: numerous views and three important visual characteristics. To some extent, they decreased but are still structuring the visual landscape of the block, through a dense viewpoints composition:

- The blocked views from the street (dark green) are arranged in parallel lines from the main street. They decreased more subsequently on the southern part of the block.

- A network of very short blocked inner views (brown) is disseminated through the block.

- A network of transversal inner views (orange) increased over the years. They all follow the same direction and can be found on the back of the block.

Here are some outcomes:

> A- A linkage between the human practice of the space and an analysis of the maps: a line is practically linking the eyes of the walker to a target in the landscape. The maps are showing the theoretical visual field that a walker could have in Wakaba, from the alleys and the street. It does not represent all the different types of views in the different outdoors of the area, but shows that the visual landscape for a stroller can follow a shape or pattern. The hidden outdoors, not accessible and not directly<sup>1</sup> visible, play a role for this visual landscape and participate in the morphological description of local patterns. However the presented maps are drawing visual morphologies of the place, where not all the types of outdoors are expressed.

> B- The viewpoints method developed tools to observe the small changes in the visual landscape over the years. It put into evidence the importance of visual patterns for the stroller that are also evolving according to the local transformations, affecting the stroller's way of experiencing a place. Such tools are good indicators on a small neighbourhood-level scale.

 $\succ$  C- The viewpoints methodology permitted the extraction of rich patterns of long visual perspectives within the block. It is a rich visual testimony of the inner landscapes of blocks that require leaving the main street in order to be discovered by the potential stroller. It represents a 2<sup>nd</sup> added value, in terms of stimulating the strolling behaviour and proposing two kinds of landscapes. The first one is perceived from the main street and the second is to be found in some blocks.

➢ D- There are persisting and numerous view lines at different times. Their directions and types might underline the elements that matter in the perception of the landscape. They represent a neighbourhood's visual landmark and draw a visual morphological pattern. Similarly to any spatial morphology, such a visual motherboard can be affected by the transformations of the place, giving

<sup>&</sup>lt;sup>1</sup> An outdoors area can be hidden from direct view, however the shade and light of such outdoors is perceptible. Moreover, they stimulate the curiosity of the stroller. Hence, such outdoors will play a role in the visual morphology of the landscape.

birth to new visual patterns. Nevertheless, some characteristics of the visual patterns have been preserved over time and can still be read.

 $\succ$  E- The systematic overlapping of different periods of visual practices within the blocks, in order to compare their morphological evolutions and to draw a visual schema of the area permitted the underlining of specificities for the place: a sort of visual matrix of the place. Such a method displays a model that binds the historical layers of viewing practices<sup>1</sup> with their morphologies<sup>2</sup>.

#### 4.4.3. Data processing and results

I have done a wide range of calculations on those four types of viewpoints and their evolutions from 1967 to 2008 nowadays (see figures 45-46). The results concerned the ten samples (1-5-6, 7-8, 2, 3-4, 9 and 10) and are not exhaustive: - Tables by blocks for the different types of views and their data - Graphics from the cumulated length and the number of viewpoints, by types of view (with colour correspondences); their total, by block-sample and for the whole area.

Comments by looking at the graphics (Figure 46) from the views (length and numbers):

> For each graphic:

- A (brown, blocked inner views in the block): the total length increased from 2km to 2.3km in 1989 and then decreased to 1.7 km in 2008. The total number decreased (159 in 1967 to 132 in 2008). The block sample 1-5-6 is responsible for the main changes in terms of length of viewpoints.

- B (orange, transversal inner views within the block): the total length from 1967 to 2008 stays around 1.35 km but in 1989 there is a slight decrease to 1.25 km. The total number of views slightly increased as well from 39 to 41 viewpoints. We can say that the variations within the block are not that significant in comparison to the changes which occurred for the blocked viewpoints (brown).

- C (dark green, blocked views from the main street, externality): They decreased from 3.05 km to 2.85 km. Again, 1989 represents a year of exception with the increase of blocked viewpoints, mainly following the trend from the sample 1-5-6 (which saw massive demolitions at that time). The total number follows a regular course from 110 to 104.

- D (light green, transversal views from the main street): the total length changed from 0.83 km to 0.8 km. It is a gentle move; however the year 1989 is also a year of important change (compared to the course trend, by reaching 0.74 km). The total number followed a smooth course from 21 to 19.

- E: the total number of viewpoints decreased from 329 to 296.

<sup>&</sup>lt;sup>1</sup> As they involve an individual walking in the area.

<sup>&</sup>lt;sup>2</sup> As such analysis is based on strict observation and comparison of historical maps of the area.

➤ Among the four main views proposed, there is a predominance (in terms of number and length) of blocked views from the street (dark green), which is partly explained by the topography of the valley; and then blocked views within the block (brown), emanating from the arrangement of the small dense network of houses. Inside the block, the transversal views (orange) are superior to the transversal views from the streets (light green). This last fact suggests that the inner side of the block is richer in visual and connecting elements than the exterior side (street level). The large amount of inside blocked viewpoints also suggests that the blocks contain many different houses. Hence, the decrease of those inner blocked viewpoints (graph-A), especially after 1989, can be associated with the decrease of the number of houses. Two other explanations could be the increase of the average size of buildings and houses in each sample and the larger facades for the buildings on the streets.

The transversal views (graphs B and D) have little differences in their variations compared to the decreasing blocked views (graphs A and C). They are not responsible for the loss in the total numbers of views; however they slightly increased, and this is especially true for the transversal inner views (orange-B) mainly in the block sample 10. Various explanations are possible to explain this:

- The massive increase in parking lots opened the viewpoints unilaterally and permitted more transparency from an alley to another, between houses, but with poorer visual interactions combined to less intersection with diverse elements (except cars).

- POPS (Privately owned public spaces from condominiums) also produced the same direct transparency on a wide simple outdoor space, which is less adventurous for the eyes and thus poorer, but permitted crossing the space without surprises.

- From D- graph, the decrease of the transversal viewpoints from the street, especially after 1999 can be explained by the larger-sized constructions<sup>1</sup> enlarging facades from the streets and reducing the number of possibilities for the viewpoints. Although the transversal views from the alley (inside blocks) slightly increased from 1967, as we mentioned, they decreased strongly after 1999, probably for the same reasons. Those mansions took wider proportions than before, engaging a stronger difference in scale between the local buildings and the outdoors.

> Another important fact is that the number of views has less fluctuation than their lengths. Some views disappeared but most of the viewpoints are shorter. This supposes that there are more obstacles, which offer fewer possibilities for the eyes of the walker to interact (in meters and numbers) and to encounter the variety of the landscape. The possibility to see in the inner part of the block is globally reduced. A strong supposition would be that the viewpoints lost qualitative attributes. The most spectacular decrease lies in the length of blocked views from the alleys, after 1989. It suggests less walking and viewing paths along the outdoors, and more visual obstacles and constructions. The favour is given to the dimensions of the plot against the interests of the viewpoints.

<sup>&</sup>lt;sup>1</sup> Encouraged by the government, through strong incentives for redevelopments.



#### Figure 44: Evolution of viewpoints from 1967 to 2008

Source: Author work with Autocad software



nb.v total: number of views from street in-between bld

nb.v.tr:nb of transversal views, crossing the whole block from the street

nb.v.b: nb of blocked views by a bldg, from the street

nb.v.tr.r: nb views from roji, transversal

nb.v.b.r: nb views from roji blocked

tr.lengh: total lengh from transversal views (roji+streets)/ m

b.lengh: total lengh of blocked views (roji+streets)/ m

nbx total         64         68         69         63         64           nbx vtr         0         2         1         2         1           nbx vtr         0         2         1         2         1           nbx vtr         0         2         1         20         21           nbx vtr         13         19         21         20         21           nbx vtr         26         26         21         21         21           nb.vtr         13         19         21         84         51           b.lengh         938         852         852         774         826           tr.lengh         412         623         576         724         711           total.b.lengh         1302         1309         1209         1009         1058           mby vtra         1967         1976         1989         1999         2008	nb.v nb. nb. nb. nb. nb. tr.lu	total 64 v.tr 0 v.b 25 v.tr.r 13	1 5	68 2 21	69 1	63 2	64 1
nb.v.tr         0         2         1         2         1           nb.v.b         25         21         21         20         21           nb.v.tr.         13         19         21         20         21           nb.v.tr.         13         19         21         20         21           nb.v.b.r         26         26         26         21         21           nb.v.b.r         26         26         21         21         21           nb.v.b.r         26         26         21         21         21           nb.v.b.r         26         26         21         84         51           b.lengh         938         852         852         774         826           tr.lengh         412         533         555         640         660           b.lengh         364         357         357         235         232           total.lengh         1302         1309         1209         1009         1058           mark         if         if         if         if         if         if         if           in         if         if         if         if </td <td>nb. nb. nb. tr.lo</td> <td>v.tr 0 v.b 25 v.tr.r 13</td> <td><b>X</b></td> <td>2 21</td> <td>1</td> <td>2</td> <td>1</td>	nb. nb. nb. tr.lo	v.tr 0 v.b 25 v.tr.r 13	<b>X</b>	2 21	1	2	1
nb.v.b         25         21         21         20         21           nb.v.tr.r         13         19         21         20         21           nb.v.tr.r         13         19         21         20         21           nb.v.br.         26         26         26         21         21           nb.v.br.         26         26         21         21         21           nb.v.br.         26         26         21         21         21           nb.v.br.         26         26         21         21         21           b.lengh         938         852         852         774         826           tr.lengh         412         583         555         640         660           b.lengh         364         357         357         235         232           total.lengh         1302         1309         1209         1009         1058           ample         ample         ample         ample         ample         ample         ample         ample         ample           ample         ample         ample         ample         ample         ample         ample         ample	nb. nb. tr.lu	v.b 25 v.tr.r 13	5	21			
nb.v.tr.         13         19         21         20         21           nb.v.b.         26         26         26         21         21           nb.v.b.         26         26         26         21         21           tr.lengh         0         40         21         84         51           b.lengh         938         852         852         774         826           tr.lengh         412         583         555         640         660           b.lengh         364         357         357         235         232           total.lengh         412         623         576         724         711           total.b.lengh         1302         1309         1209         1009         1058           4         13         1         1         0         15         1         1         0           1         1         32         39         32         34         22         1         1         0           nb.v.total         32         39         32         34         22         1         1         0         1           nb.v.total         32         3	nb. nb. tr.le	v.tr.r 13	0		21	20	21
$ \begin{array}{ c c c c c c c c } \hline nb.v.br & 26 & 26 & 26 & 21 & 21 \\ \hline r.lengh & 0 & 40 & 21 & 84 & 51 \\ \hline b.lengh & 938 & 852 & 852 & 774 & 826 \\ \hline r.lengh & 412 & 583 & 555 & 640 & 660 \\ \hline b.lengh & 364 & 357 & 357 & 235 & 232 \\ \hline total.lengh & 142 & 623 & 576 & 724 & 711 \\ \hline total.lengh & 1302 & 1309 & 1209 & 1009 & 1058 \\ \hline \end{array} $	nb.	vbr 26	17	19	21	20	21
tr.lengh       0       40       21       84       51         b.lengh       938       852       852       774       826         tr.lengh       412       583       555       640       660         b.lengh       364       357       357       235       232         total.lengh       412       623       576       724       711         total.lengh       1302       1309       1209       1009       1058         d $\frac{10}{2}$	tr.le	1.0.1	5	26	26	21	21
b.lengh       938       852       852       774       826         tr.lengh       412       583       555       640       660         b.lengh       364       357       357       235       232         total.lengh       412       623       576       724       711         total.lengh       412       623       576       724       711         total.b.lengh       1302       1309       1209       1009       1058         4 $\frac{10}{2}$ <	b.le	engh 0		40	21	84	51
tr.lengh       412       583       555       640       660         b.lengh       364       357       357       235       232         total.lengh       412       623       576       724       711         total.lengh       1302       1309       1209       1009       1058         4 $\frac{10}{2}$ $10$	0110	ngh 93	38	852	852	774	826
b.lengh       364       357       357       235       232         3 $total.lengh$ 412       623       576       724       711 $total.bengh$ 1302       1309       1209       1009       1058         4 $\frac{19}{2}$ $\frac{10}{2}$	tr.le	engh 41	12	583	555	640	660
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	b.le	engh 36	54	357	357	235	232
3       total.b.lengh 1302       1309       1209       1009       1058         4       10       100       100       100       1058         10       100       100       100       100       100         100       100       100       100       100       100         100       100       100       100       100       100       100         100       100       100       100       100       100       100       100         100       100       100       100       100       100       100       100       100	total	lengh 41	12	623	576	724	711
A       10       1	3 total.	b.lengh13	302	1309	1209	1009	1058
ample         elements         1967         1976         1989         1999         2008           nb.v total         32         39         32         34         22           nb.v.tr         3         3         1         0         0           nb.v.b         14         16         16         16         15           nb.v.tr.r         5         5         3         3         1           nb.v.br         10         15         12         14         6	5		##*			#	#
nb.v total         32         39         32         34         22           nb.v.tr         3         3         1         0           nb.v.b         14         16         16         15           nb.v.tr.r         5         5         3         3         1           nb.v.br         10         15         12         14         6	ample elem	ents 1	.967	1976	1989	1999	2008
nb.v.tr         3         3         1         1         0           nb.v.b         14         16         16         16         15           nb.v.tr,r         5         5         3         3         1           nb.v.b,r         10         15         12         14         6	nb.v	total 32	2	39	32	34	22
nb.v.b         14         16         16         16         15           nb.v.tr.r         5         5         3         3         1           nb.v.b.r         10         15         12         14         6	nb.	v.tr 3		3	1	1	0
nb.v.tr.r 5 5 3 3 1 nb.v.b.r 10 15 12 14 6	nb.	v.b 14	F	16	16	16	15
nb.v.b.r 10 15 12 14 6	nb.	v.tr.r 5		5	3	3	1
	nb.	v.b.r 10	1	15	12	14	6
tr.lengh 62 62 22 22 0	tr.le	engh 62	1	62	22	22	0
b.lengh 422 424 414 414 348	b.le	engh 42	12	424	414	414	348
	tr.le	engh 13	19	94	74	74	21
tr.lengh 139 94 74 74 21	b.le	engh 17	′5	210	177	203	67
tr.lengh         139         94         74         74         21           b.lengh         175         210         177         203         67	total	lengh 20	11	156	96	96	21
tr.lengh         139         94         74         74         21           b.lengh         175         210         177         203         67           total.lengh         201         156         96         96         21	L total.	b.lengh 57	'9	634	591	617	415
tr.lengh         62         62         22         22         0           b.lengh         422         424         414         414         348	nb. nb. nb. tr.lu	v.tr 3 v.b 14 v.tr.r 5 v.b.r 10 engh 62 engh 42 engh 13	2 2 22 39	3 16 5 15 62 424 94	1 16 3 12 22 414 74	1 16 3 14 22 414 74	0 15 1 6 0 348 21
	tr.le	engh 13	19	94	74	74	21
tr.lengh 139 94 74 74 21	b.le	engh 17	′5	210	177	203	67
tr.lengh 139 94 74 74 21	b.le	engh 17	'5	210	177	203	67
tr.lengh 139 94 74 74 21	total	lengh 20	01	156	96	96	21
tr.lengh         139         94         74         74         21           b.lengh         175         210         177         203         67	total	lengh 20	11	156	96	96	21
b.lengh 422 424 414 414 348	b.lee tr.le b.lee total.	engh 42 engh 13 engh 17 .lengh 20	22 19 75 01	424 94 210 156	414 74 177 96	414 74 203 96	348 21 67 21

nb.v total: number of views from street in-between bld

nb.v.tr:nb of transversal views, crossing the whole block from the street

nb.v.b: nb of blocked views by a bldg, from the street

nb.v.tr.r: nb views from roji, transversal

nb.v.b.r: nb views from roji blocked

tr.lengh: total lengh from transversal views (roji+streets)/ m

b.lengh: total lengh of blocked views (roji+streets)/ m

ample	elements	1967	1976	1989	1999	2008
	nb.v total	23	23	21	22	21
	nb.v.tr	2	2	2	2	1
-	nb.v.b	8	8	8	8	10
	nb.v.tr.r	2	4	1	1	0
	nb.v.b.r	11	9	10	11	10
	tr.lengh	81	81	81	84	52
	b.lengh	233	233	248	248	291
	tr.lengh	78	119	12	12	0
-	b.lengh	142	105	163	192	179
0	total.lengh	159	200	93	96	52
9	total.b.leng	h 375	338	411	440	470
7 <sup>8</sup> 1 5	10 2 3 5 4		「サーサー		たます	
lock ample	elements	1967	1976	1989	1999	2008
	nb.v total	61	64	55	51	48
_	nb.v.tr	1	1	1	2	2
-	nb.v.b	19	16	16	15	15
-	nb.v.tr.r	5	5	6	11	11
-	nb.v.b.r	36	32	32	23	20
-	tr.lengh	47	47	47	95	95
	b.lengh	606	587	579	522	506
-	tr.lengh	126	132	133	319	324
-	b.lengh	352	368	352	270	228
	total.lengh	173	179	180	414	419
0.	total.b.leng	h 958	955	931	792	734
a 7 6	9 2 3 5 4	AND REAL PROPERTY OF AND REAL	WHEN THE	AND		AN ALLE
v total: v.tr:nb o v.b: nb v.tr.r: n v.tr.r: n engh: to	number of v of transversa of blocked v b views from b views from tal lengh fro	iews from street in-bet al views, crossing the w iews by a bldg, from th n roji, transversal n roji blocked om transversal views (ro	ween bld whole block from the stree e street oji+streets)/ m	t		

**Figure 45: 6 panels for evaluation and calculation by sample-block of view's evolution** Source: Author work on Autocad software with Zenrin map support



Figure 46: graphs on evolutions (1967-2008) of views' length and numbers by types for each sample and their total number Source: Author work with Autocad software

#### 4.4.4. Conclusion and discussion: the visual landmark

50

100m

0



author work on zenrin support maps

 Visual landmark of Wakaba-2-3 chome

The viewpoint method developed in this chapter consists in drawing maps of the whole neighbourhood at different periods (1967 to 2008), by using four types of viewpoint lines, that represent the longest path until bumping into an obstacle (construction, fences, etc). The view lines emanate from an imaginary stroller walking in the area along the streets and alleys. The method introduces rather precise tools to fit the high density of the place and permit the observation of the small changes in the visual landscape over the years. Such small incremental changes are fundamental at the neighborhood scale.



Figure 47: 2008 vs 1976 viewpoints Source: Author work on Autocad

The outcomes of the viewing analysis are (figure 47, 1st map):

- The presented maps are drawing visual morphologies of the place, visible from the street and following the comb morphology of the area. It binds the readability of the space and the possible walker visual behaviour.

- The number and the length of views decreased. However, additionally to, features of long visual perspectives are representative of an unexpected visual field inside the block.

- Numerous persisting view lines, their directions and types show the elements that matter over time in the landscape. They represent the **visual landmark of the area.** It has a fragile status and can be affected by the ongoing mechanism of the transformation of the neighbourhood, with new massive

buildings and parkings constructions, etc. The overlapping of the viewpoints within the blocks at different periods, and the comparison of their evolutions, allowed the drawing of **a morphological model for the historical layers of visual practices.** 

#### Visual inner-qualities of the blocks: comparing visual and pedestrian accesses

In the case of Wakaba, the networks of street and alleys to access the blocks are rather limited and dicreased over the last 50 years and more. The blocks have a notable depth, emphasized by the minimal pedestrian accesses to its most innerparts (figure 47, 2nd document).

- The analysis revealed very rich and complex visual networks, within the blocks, from the limited pedestrian accesses (street and alleys). The visual richness also dicreased, however by superimposing pedestrian and visual accesses, the visual specificity of the place appeared to be a landscape's mark. The viewpoints, as visual accesses to the blocks are a characteristic of the place, the only one media to understand the depth of the block and its structure. Thus, they play a major role in the readability and shape the perception of the block's depth, which is unaccessible physically speaking.

- The blocks of Wakaba-2-3-chome, are visually opened although rather closed in pedestrian way (pedestrian closed accesses/ visual opened accesses of the depth from the block); the visual landscape of the neighborhood is structurally lively and stimulating. The danger is to loose such visual vitality and the depth, through unwelcomed block's transformations.

#### $\blacktriangleright$ Further interpretation: the space of *oku/ma* in the visual depth

The singularity of the roji networks and the resulting atmosphere have intensively described and acknowledged by all, but until now, remain very difficult to grasp. Maki (1979) evoked the complexity of the narrow network of small lanes that he compared with a stroll in the deep forest, where the centre (oku) is invisible, unreachable but also the object of a deep structuring of the space. "Ma is the first articulation between real/imaginary, past/future, emptiness/ fullness; oku leads to a sort of subjective depth within space, where the principle of centre itself is denied. Such principles permit the organisation of territory on different scales up to the living cell, not around a fix centre but around something not determined, which will be embraced and enveloped."<sup>1</sup> Such an invisible and attractive dimension of the narrow lanes of Shitamachi, is nowadays dreamed in the alleys of neighbourhoods such as Kagurazaka, Tsukishima, Nippori or Wakaba. When I described the selection process of the area of Wakaba, through my extensive strolls in Tokyo, I underlined that non visible elements from the outdoors (the emptiness and a part of the invisible) stimulated my curiosity to further discover the lanes ahead, until reaching places where I could not physically walk (small lane in between houses and the private places of cats and vegetation), but that I could visually appropriate. This visual appropriation of the depth is fundamentally delimitating singular spatial configuration, inherited, shaped over the times, and fully part of the atmosphere in narrow alleys. The viewpoint analysis emphasized a visual landmark, which participate in the quest of the invisible heart of the forest.

<sup>&</sup>lt;sup>1</sup> Quoted in chapter 3, part 3.3.3

# **4.5.** Accurate approach on the viewpoints analysis: toward structural visual connectivity 4.5.1. Purpose and description for additional viewpoints tools, as visual connectivity tools

The previous viewpoints analysis showed an important amount of information contained in the maps. It permitted the drawing of a morphological visual pattern and landmark; however it hardly set a hierarchy between the elements, which have equal value, apart from each viewline specificity. Such numerous amounts of lines could be distilled in order to reveal more fundamental properties and a hierarchy, binding the visual pattern and the possible human practices by reading the resulting matrix. We can recall some facts around the notion of connectivity, as described in the chapters 1&2.

- The connectivity notion/measurement is used as a tool/way to deal with complexity by selecting the elements among the numerous information data, according to specified analytical process (the *urban web theory*) or through programmed algorithms (*space syntax* and ecological landscape fields). It aims at finding an order and reveal the potencial of a given network, by identifying spinal nodes and paths for the whole network. In the landscape studies, the methods, the selection of the components and the specificities of the "connectivity" are various and attached to each object studied (chapter 1).

- In the walking process, signals of the landscape often orientate the path, consciously or not. Those signals can be morphological features, arrangements of the space, the possibility of interacting with humans or vegetation, or any wellbeing feeling perceived in the space (See chapter 2.3). On the contrary some visual signals of the landscape can block the flow and lead the individual toward other paths (obstacles), and generate feelings of insecurity. In the *urban web theory* (see chapter 1.3) and for biophilic spaces (see chapter 2.4), Salingaros associated the place with wellbeing with a high connectivity value, against anxiogenic spaces as the result of poor complexity, no scaling rules or hierachical order and consequently poor connectivity capacity. In that sense, he attached notions related to environmental psychology into the notion of connectivity for urban environement. Similarly but at the scale of the natural landscape, the ecological landscape field distinguishes the structural connectivity obtained by calculations on the potential of the milieu (matrix of nodes and paths), and its behavioral responses through the functional connectivity (various kind of field's measurements and analysis of the plants and animals species' behaviour in their milieu) (see chapter 1.4).

- Recalling the Lynch nodes<sup>1</sup>, his sketch map can be useful but not sensitive enough to distinguish normal crossings from key ones, however in *space syntax*, the axial map highlights such nodes very efficiently, according to Conroy&Bafna (2003). Hence, the *connectivity graph* could precise more efficiently the hierarchy between urban nodes from Lynch sensitive field's analysis. Another interesting point underlined the isovist mapping of the nodes, which might help characterise further the significant nodes, with strong visual character. Such nodes would need to have highly concave shapes (visually penetrating star-shapes), strong visual asymmetry, and proximity to highly integrated

<sup>&</sup>lt;sup>1</sup> Lynchian nodes: major intersections and those characterized by a concentration with a thematic activity

axial lines, as represented by the connectivity/integration map, with the parameters chosen for each analysis in *space syntax* (see chapter 1.5).

- My definition of *visual connectivity*, exempt of any calculations is more trivial and the result of the viewpoint analysis. The new connectivity tools are inspired from the basic geometrical interpretation of a crossing, imprinted from isovist concave shapes (geometrical necessity for connectivity), and a simple way to find a hierarchical order in the amount of the selected four types of viewlines. Hence, I will follow the previous method, by relying on the exclusive mapping approach. I introduce the new indicator tools, as being *visual connectivity* tools, and compare them in the five different periods. The aim is to identify among the previous view-lines, those which contain added value, given their position with other viewpoints. The interaction of multiple viewpoints is considered as a positive value, especially in a densely built-up place. The results are proposed through a matrix of nodes and paths, as the *structural visual connectivity*. In this logic, an outdoor that cumulates various viewlines is enriched by the multiple faces of the visual landscape offered to the stroller. Such an area can hypothetically welcome a potential of visual signage, where a visual encounter or curiosity can be stimulated. It proposes different directions, types, a high number of accidents and visual interactions. The next step of the analysis, in the chapter 5, would proceed to the field's observations of the visual landscape and its complexity, in order to propose a functional response to the structural matrix.

- The new viewpoint/connectivity tools (Figure 48, right graphs in 2008 and 1976 extracts of maps):

- "view-axe": axe cumulating a minimum of six view lines of three different kinds or more
- "view-crossings": the place of intersection for three view lines or more

- The numbers of view lines have been chosen in order to restrict the information on the map support, establish a visual hierarchy and more easily evaluate the evolution of the tools. In parallel, the results need to be coherent, with suffisant information but not too few or too many information. Hence I settled and tried different parameters of view-axes and view-crossings, in order to find the appropriate and critical values for each tools<sup>1</sup>. Such tools fit the analysis of Wakaba, but we can imagine different parameters for other place. Figure 48-a shows the two principles for selecting the number of view-crossings and view-axes:

• The topography of Wakaba, within the hollow of a valley shaped the arrangement of the constructions, following a comb-morphology around the spinal main street toward the wall of the valley. As a consequence, many views from the street go to this wall and the houses face the alley. The street-wall distance provides a 1<sup>st</sup> long view, characteristic of the comb-morphology. Between houses, the perpendicular viewpoints can be numerous, as observed and specify the scale and the arrangement

<sup>&</sup>lt;sup>1</sup> A view-crossing with two view lines and a view-axe cumulating less than six view lines, would propose a map with too much abundant information, just as difficult to read as the viewpoints maps from the last part (4.4). On the contrary, a view-crossing of four view lines and more than six view-lines to shape a view-axe, would display too few information to be elaborated. Hence, I choose three view lines to form a view-crossing and six view-lines for a view-axe. The three different kinds of viewpoints (among the four types defined: green, dark green, orange, brown) also help to the optimization of the resulting maps.

of the houses in the place. To settle more selective criteria, **the number 6** (for total perpendicular views along a given street-wall view-axe) was established (figure 48-b upper drawing). Mostly two types of viewpoints from the main axe of the view were observed on the viewing maps. On the contrary **three or more types of viewpoints**, crossing the same view-axe will be considered as an added value (figure 48-b bottom drawing).

• From a geometrical aspect, the intersection of three lines or more creates a space of visual encounter (figure 48-c). The intersections of two view lines or the lack of any intersection are mostly observed. It's not sufficient enough to be selected.



**Figure 48: Principles for selecting the viewpoints and defining the 2 connectivity tools (ex. sample 1)** Source: Author work

#### 4.5.2. Resulting maps analysis

> A- General notices on the evolutions maps from figure 49 and 50:

For all the periods, the 3<sup>rd</sup> district of Wakaba contains far more view-crossings (crossing point) and view-axes than the 2<sup>nd</sup> district. It's an interesting result. Despite redevelopments, this district has preserved until nowadays more dense frames of small houses along lanes and alleys with an important depth in the block. As a general observation, many views-axes and crossing points have disappeared, but over the different periods, new ones were also created. The two visual tools draw morphological patterns for a visual signage in comb (parallel view-axes) with scattered spots. The block samples 10, 3-4, 1-5-6 are the most representative of the kind and kept their shapes over time and transformations.

- 1967 to 1976: general increase of the number of both tools, especially in the 3<sup>rd</sup> district
- 1976 to 1989: decline from their number
- 1989 to 1999: sharp change with a very important decrease in their numbers
- 1999 to 2008: little decay for a few view-axes, but also new axes and crossing spots appeared
  - ➢ B- Let's detail by block-samples:

- In sample 2 (figure 51, pattern with circles), the four types of views created an elaborate visual network in all directions, but were more represented in the southern part in 1967. Three crossing points (encounter possibility) and three view-axes existed. Through their progressive transformations, this network was tapered (north and south parts) and no specific views on the outdoors were proposed any more<sup>1</sup>. The impact and size of destructions within the block-sample represent more than 50% of the block (2008 viewpoints map), and the remaining few lines of views are not composing a coherent ensemble but a disaggregating feature with only one view-axe and no view-crossing. Further destructions and reshapes would not affect the conditions of the viewpoints anymore, as the richness of their network disappeared consequently in the whole block. It might be a place where any redevelopments would have less impact on the quality of the visual field, than in other blocks.

- For sample 1-5-6 (figure 51, patterns with circle), despite the significant decrease of the viewpoints types and numbers, view-axes and crossing spots (from 1967 and 2008), it does not represent an important percentage of the surface of the blocks. Some of the main networks of viewpoints were preserved. The new mansion in sample 5 is located in the heart of the past viewpoints encounters, but residual outdoors in the organic fabric preserved the main network of visual interactions up to nowadays (a rather important surface area). Those remaining possibilities of visual encounters (crossing points and view-axes) appear to be valuable elements for the visual landscape. The patterns of view-spots in that sample (they are scattered elsewhere) are densely attached like a chain.

- Sample 3-4 lost view-crossing spots on the northern part but some remained on the southern part<sup>2</sup>.
- Sample 7-8 also lost a significant number of view-spots and view lines.
- For sample 9, neither view-axes, nor view spots are visible anymore.
- Sample 10 could keep many of its view-axes (organized into parallel) and view spots.

<sup>&</sup>lt;sup>1</sup> Except the continuous view on the building façade along the main street (not the purpose of this research study)

<sup>&</sup>lt;sup>2</sup> Northern alleys have been enlarged to fit the 4m wide regulations, loosing consequent visual qualities.





**Figure 49: View axes and crossing point's evolutions from 1967 to 2008** Source: Author work with Autocad software

Figure 50: Table by sample from view-crossing points and view-axes by year of study Source: Author work



Figure 51: Extracts from data made for each samples analyzed from 1967 to 2008, samples 1-5-6, and 2 Source: Author work



Figure 52: Graph for numbers of view-crossings and view-axes evolution from 1967 to 2008 Source: Author work

In the graph from figure 52, the numbers of view-crossings and view-axes decreased significantly, (especially after 1989 for all the blocks). The number of disappeared view-axes (42 in 1976 compared to 24 in 2008) is higher than view-spots (37 in 1967 opposed to 27 in 2008).

> The richness of the inner visual landscape that counterbalances the streetscape

The additional view tools can show the possibilities of visual encounters shaped over the years. Many visual interactions provide a composition of diverse shapes of small inner landscapes (according to the status of their interaction and their multiplicity and positions). They can offer additional qualities in the different block-samples: the inner landscapes of outdoors offer singular daily visual practices that are as important as the external landscape of the streetscape, and also embedded in time.

➤ Visual density and a signage function to highlight the embedded visual practices, over time? For instance, let's consider again both samples (2 and 1-5-6); not only had the numbers of viewpoints in the outdoors decreased, but also the varieties of accidents and signage on the view direction. The two new visual tools funnel the variety of elements provided by view lines and complete the four types of visual tools introduced previously (see 4.3). They provided information on the evolution of the visual signage and the visual encounter possibilities. The elements composing the viewpoint are also rich indicators<sup>1</sup> of the evolution of the landscape of a neighbourhood. They are configurational, have a direct impact on human behaviour and act on the human selection process of places that are meaningful for the community. Such places in the landscape of outdoors might stimulate social contacts and linkage by specific morphology and attributes. The analysis highlighted 23 view-axes and 27 view-crossing spots. Such outdoor places contain a higher visual density and a stronger capacity for signage. They carry embedded visual practices of the neighbourhood during the past 50 years, underlining a sort of visual memory by their persistence over time despite the transformations.

 $\succ$  Loss of visual marks, new visual practices and thinking of the possibilities of redevelopment On the other side, the observation of the deteriorated visual patterns, through the same method, can lead to the reconsideration of the land's future, with the hypothesis of its eventual redevelopment. To some extent, the accurate visual tools show the visual limits of deterioration, when nothing or only a few visual habits have been transmitted over periods. Such limits permit the re-exanimation of blocks toward their redevelopment, with the possibility of introducing new visual schemas and visual morphologies. Samples 2 and 9 were good examples. They proposed few view-axes and view-crossing spots that vanished over the years and evolved into a non-coherent local visual structure. The visual approach of the place is no longer related to what it used to be<sup>2</sup>.

#### 4.5.3. Further interpretations and the four viewpoints features ABCD

With the same tools, further interpretations can emerge. Figure 53 (table and maps) is an attempt to measure the different view-crossing spots, with the same basis of the selected historical periods. Four

<sup>&</sup>lt;sup>1</sup> Houses, plots, alleys arrangements and their different entrance areas, the variety of greeneries representing the personalities of their owners etc...are common indicators used to describe the specificities of the landscape.

<sup>&</sup>lt;sup>2</sup> very few of the four viewpoint types are remaining and new types of visual behaviour appeared, by looking at the large facades of the mansion along the street (short blocked viewpoints)

categories of diameters of visual encounter have been drawn: from 0.7- 1.5m/ 1.5-3m/ 3-6m/ over 6m. I estimated that the visual space of encounter determined with physical dimensions, can provide information on the physical capacity of a social gathering. Two individuals or more can meet (not only visually), or only two cats can meet, depending on the considered place.

- a-type/ 0.7- 1.5m: very private sphere of interaction, intimate relationships from the individuals toward the outdoor, and also the privileged place for cats or kids. In 1967, two visual crossing-spots out of 36 were concerned. It is a small proportion: around 5% of the different spots. In 2008, none of them remained.

- b-type/ 1.5-3m: private sphere of interaction with the possibility of two individuals gathering, or predestined outdoors for closed neighbours. From 1967 to 1976, they increased from 10% to 20% and afterward they decreased until 2008 (20% in 1976, 13% in 1989, 10% in 1999 and 10% in 2008).

- c-type/ 3-6m: social sphere of interaction on the scale of a group of neighbours along a lane or an alley. They are the most common size of view-crossing spots, over the years, but they also followed a relative decrease over the periods. Their share among the other categories of spot-diameters increased from 66% in 1967, 64% in 1976, 70% in 1989, 69% in 1999 and 75% in 2008.

- d-type/ Over 6m: a gathering of neighbours can be envisaged or the space for an outdoor concerning the whole neighbourhood can be drawn (garden, small local park, empty plot). Their proportion among the different types of crossing spots evolved from 16% in 1967, 15% in 1976, 14% in 1989, 21% in 1999 and 15% in 2008.Except for the year 1999, the average stays around 14%.

> The physical spaces from the view-crossing spots massively favoured the encounter outdoors of 3-6m, and its share tends to increase over the periods against the smaller types of encounter spaces. It reached 75% in 2008. The share of space over 6m is rather stable with 14% in 2008.

> In samples 10, 3-4 and 1, the visual crossing spots draw a succession of visual outdoors that can be bound physically, resulting in singular places, within the dense arrangements of houses. Such spaces cumulate various visual and physical encounters, transmitted over different periods.

➢ Figure 54- left map shows the main view-axes and view-crossings, which were preserved from about 50 years ago until nowadays (black lines and red spots) and those who disappeared (orange line and spots) in a consequent number (close to 50% of view axes and 50% spots). We can observe: - 23 preserved view- axes/ 27 spots- 21 disappeared view-axes/ 22 spots - 3 new view-axes/ 0 new spots. It is important to notice that few new view-axes and no view-crossing spots were brought by redevelopments projects in the area. Hence, new mansions brought poor visual capacity in terms of spaces of encounter, according to our analysis. The network of viewpoint lines and view-axes, their variety and their evolution through time can identify vital structures of outdoors for the neighbourhood, their design and size, their status, and also their state of degradation. Their numbers and singularities disappeared. Sample 156 used to have rich view-axes toward the wall of the valley, which presupposed a visual morphology. Of the eight strong networks of view-axes, only two are remaining. Sample 10 also has this organization of view-axes toward the wall and could still preserve them.



Figure 53: Diameters from view-crossing points and evolutions from 1967 to 2008 Source: Author work with Autocad software using Zenrin map support



Figure 54: Preserved and disappeared view-axes and view-crossing spots between 1976- 2008 / selection singular outdoors from the viewing analysis Source: Author work

Consequently, the outdoors under those specific preserved viewpoints from the main view-axes and view-spots, have been drawn, following the process described below (figure 54 middle and right illustrations): I looked at the persisting viewpoint tools and the physical outdoors they cover. Thus I could differentiate the visual status of outdoors (figure 55) or the potential value they might carry as being a visual encounter. Along the view-axe, the entire outdoors limited by a construction are considered: private space from the plot, small space in between construction and alley, and any undifferentiated spaces. For the view-crossing spot, the outdoors from the intersection are considered. Edges start at the border of constructions toward the public space (street or alley) from which the viewpoint takes its source. Since the view-crossing spot is the result of three or more crossing view lines, the outdoors from richer (in number, directions, varieties of view lines etc...) and preserved viewpoints, over the considered periods. With such outdoors characterization, types of "viewpoints morphologies" are drawn. They represent the vital visual features for each block, which persisted over times, and gather vivid specificities with a rich landscape of inner-viewpoints. Such visual features are observed mainly in block-samples 10, 1-5-6, 3-4 and also in 7-8 to a lesser extent.



In the figures, the vital visual features are represented in orange among the non-specified outdoors (in light green). They were travelled for more than 50 years by the residents, whether by walking paths (alleys or small paths used by a child or an adult) or by visual paths. Those viewpoints were identified by overlapping Zenrin maps since 1967 and by making the hypothesis that the urban frames were more or less similar after the 1945 reconstruction (as the 1944 aerial photo could attest, see figure 30, part 3.6). More importantly, many deep-alleys on the chosen outdoors were already there before the bombings. There is strong probability that such paths were already installed in the pre-war context, up to Meiji and late Edo, where many borders of farmlands evolved into the present alleys (see 1848 Meiji map and Edo map, part 3.6). I could demonstrate the importance of a strong visual **lineage** in some outdoors of the neighbourhood.

Figure 55: Outdoor spaces with high visual connectivity value since more than 50 years Source: Author work

#### 4.5.4. Conclusion- Discussion on visual structural connectivity and its interpretations

The 1<sup>st</sup> visual approach viewpoint patterns permitted to describe the inner-qualities of each blocks, as being visually open or closed or visually monotonous or lively, through the multiplicity of viewlines, in number and types. Hence, the blocks can be visually accessible when not especially accessible from the street and the alleys. It draws fields for the possible reading of the fabric in the landscape of outdoors, as visual landmark of the neighborhood. The 2<sup>nd</sup> visual approach introduces accurate view tools (view-crossing and view-axe) that represent visual connectivity, as a measure within the block of concentrated flows of diverse viewpoints and their evolution (through the overlapping of viewpoints maps from different periods). Such accurate approach obtained complementary information. By distilling the viewpoint lines with connectivity tools, it permitted to measure the visual capacity of the outdoors. Some outdoors generate higher visual potencial correlated to high connectivity, and possibly (but not automatically) a role visual signage<sup>1</sup>. Two further observations can be discussed:

#### I- Structural visual connectivity

The accurate viewpoints analysis underlined the relevance of visual corridors/path and visual spots of interaction, where encounters (visual and sometimes physical) are possible. The connectivity visual tools (view-axe and view-spots) have a value of signage. Accordingly to the definition of connectivity, they permit to measure and highlight higher visual potencial places. As developped in the first chapter, the space syntax approach, by using calculations, underlines places of the system with highest integration/connectivity value, which are also the most intelligible places (see chapter 1-figure 4). It proposes the *connectivity/integration map*, as a graphic matrix of the spatial representation of such places in urban networks. Similarly, the ecological landscape field developped the structural connectivity<sup>2</sup>, which is also a spatial configurational matrix resulting from diverse calculations. It highlights corridors<sup>3</sup> and points of the landscape where the connectivity is the highest, and the relationships between species and their habitat is optimized. The visual connectivity tools and its resulting matrix (figure 49) also draw visual interaction paths and nodes, which have been correlated to outdoors with high visual connecitivity value cumulated over an estimated 50 years time (figure 55). Similarly, this matrix represent the structural visual connectivity of the place, obtained by introducing a range of measurement tools, and without confronting with the reality of the landscape. It is a very precious notion, as it reveals the configurational qualities of the dense and small grained fabric, by layers of evolution. Such observation would be rather difficult to grasp with other methods.

<sup>&</sup>lt;sup>1</sup> It can be assessed through the field's observation. The viewpoint analysis can only propose the hypothesis of binding visual signage quality with high connectivity outdoors.

<sup>&</sup>lt;sup>2</sup> Describes the physical relationships among habitat patches while ignoring the behavioural response of organisms to landscape structure (Kadoya, 2009); a product of habitat amount, spatial configuration and conditions across multiple scales (Anderson and Bodin, 2009).

<sup>&</sup>lt;sup>3</sup> Regions of landscape that facilitate the flow or movement of any individual, gene or ecological processes (Chetkiewicz et al.2006)./ Narrow, continuous strip of habitat that structurally connects two otherwise non-continuous habitats patches (Tischendorf and Fahring, 2000).



**Figure 56: Broad characterization of the outdour spaces** Source: Author work

#### 2- Further interpretation: Charaterization of the outdoors

Accordingly to the method, a broad characterization of the different outdoors can be drawn (figure 56) with additional information provided by ZENRIN maps. Not all of the outdoors have an equal value and functions and the potential of carrying persisting visual structural qualities over a very long time, can become a criteria for the undifferentiated outdoors in private plots. Hence, the singular visual patterns can be detached among other types of outdoors<sup>1</sup>. They correspond to the outdoors with a longer time visual lineage and which gather a higher density of potencial visual interactions over times by their connectivity value. There are more specific areas of the outdoors where visual connections give the possibility of connecting: - two or more individuals from different positions; - two or more viewpoints toward the same outdoor spot. Furthermore, if a visual connection from a point of the outdoor space, can link an individual or a space to another, I could demonstrate that the viewpoints are drawing very elaborated spatial configurations that are the result of physical relationships, as being shaped by the owners<sup>2</sup>, but also possibbly experienced by any stroller. Hypothetically, the visual connectivity criteria could assume to participate in the walker's perception of the landscape. However, the viewpoint analysis, based on a rigorous mapping approach, is deliberately skipping out on the social aspect and on any behavioural responses or interpretations regarding the stroller. Thus, the resulting visual outdoors configurations (figures 56, 55), underline spaces where the highest visual connections are physically possible and where social interactions or any types of encounters can be produced, referring to the relationship between connectivity and intelligibility. In conclusion, I would say that the accurate approach put into evidence the notion of visual structural connectivity of a place, as an persisting and at the same time evolving matrix, which reveal potential and visual qualities of outdoors, as a product of configurational effects.

# 4.6. Conclusion: viewpoint tools, visual spatial configurations and structural visual connectivity in the outdoors of Wakaba

The viewpoint analysis developed in this chapter is an attempt to better grasp the specificity of the fine-grained fabric and its atmosphere as perceived by the walker from narrow alleys and outdoors. The methodology approaches the morphology of outdoors by overlapping maps from different periods and by introducing new viewpoint tools in order to determine a visual spatial spine attached to the place. From the hypothesis encompassed by the notion of connectivity, such visual spatial configurations possibly bind the outdoors' morphology itself with the visual behaviour. The area of Wakaba was narrowed to the exclusive fabric of living areas of Wakaba 2-3 *chome*, divided into ten

<sup>&</sup>lt;sup>1</sup> The public spaces, cemeteries, the outdoors around the temples and shrine, POPS from condominium and massive construction, private paying parking lands.

 $<sup>^{2}</sup>$  The way each owner is appropriating the built and non-built dimension, through enlargements or not from their houses, decisions to have bigger garden or thresholds etc...

sample-blocks. I considered all the types of outdoors and their evolutions (1st step: basic morphological approach). Then, I introduced the viewpoint analysis, as a finer approach: through the eyes of a hypothetical walker above maps of the area, successively at different periods, I selected the types of viewlines from the public space. The six viewpoint tools allowed me to define the viewpoint landmark (2nd step) and afterwards, the visual spatial configurations/matrix as the structural visual connectivity (3rd step).

> The 1<sup>st</sup> step: basic approach, was to look at all the historical and present data, maps and aerial photos displayed by Shinjuku ward and archives and to proceed to a basic analysis of the evolution of the public outdoor spaces and the buildings. The support of Zenrin maps has been chosen for their reliability and precision, starting in 1967. However a huge work of redrawing the older maps, with the support of recent maps, has been done. This basic approach emphasized:

- the specific comb-arrangement of alleys with thin and long teeth lines, characterizing the place (before the war) and the progressive disappearance of the alleys and their depth from 1967 to 2008,
- the consequent loss of walking capacity in the inner side of the block<sup>1</sup>

However the analysis could approach the public space of the drawn alleys and the main streets, but did not cover the whole landscape of outdoors. By looking at the density of the outdoor spaces and its evolution by block-sample, with the same material as the Zenrin map, I could underline the necessity to consider the average lower surface allocated for outdoors, as a specificity of the area, compared to other parts of Wakaba or the ward:

• outdoors<sup>2</sup> are representing 45.6%, as an average for Wakaba 2-3 chome; 38.6% is the minimum in blocks where old morphologies and their alleys could be preserved ; and 50.1% is the maximum in reconfigured blocks allocating wider space for parking and outdoors around the condominium.

Such approach needs additional measures and morphological considerations to become an efficient incentive for maintaining the singularities of the fine-grained structure and its outdoors. Furthermore, it does not mention the role of outdoors in shaping the atmosphere perceived by the walker and the.

#### > The 2<sup>nd</sup> step: the viewpoint analysis, 4 viewpoints tools

- Introduction of four viewpoint tools<sup>3</sup>: two blocked and two transversal viewpoint lines, from the main street and from an alley. Transversal viewpoint (either from the street or an alley within the block) means that from a public space (street or official alleys), a walker can see another object or human standing in another public outdoor space. Blocked viewpoint (either from the street or an alley within the block) signifies that the visual field of the walker encounters an obstacle (constructions, fences ...). All types of viewpoints in outdoors, on a straight eye level toward the block, were considered, particularly viewpoints in between houses.

<sup>&</sup>lt;sup>1</sup> Some alleys have been enlarged but it rather permitted to fragmentate the block than really give access.

<sup>&</sup>lt;sup>2</sup> Not considering streets and officially drawn alleys

<sup>&</sup>lt;sup>3</sup> faithful to my point of attraction while strolling in the area

- A wide range of information (view's lengths, numbers and resulting outdoors surfaces) were obtained from the viewpoints and their evolution from 1967 to 2008. There are several consequences of the block transformations on the viewlines:

- A decrease in the viewlines' numbers and lengths, leading to a decrease from the visual richness of the inner block; a progressive externality of the blocks; less multiplicity and irregularities of the viewpoints.
- Nevertheless numerous viewpoints and their directions have been persisting for the past 50 years analysed or more. Additionaly to a viewpoint pattern in comb following the street and alleys, there is an unexpected strong network of transversal viewpoints inside the block. Such persistance of specific visual patterns, supposedly attached to visual practice, over layers of time and transformations, put into evidence the visual landmark as part of the local landscape.
- There are visual qualities displayed in Wakaba-2-3-chome: The blocks propose a network of visual opened accesses to their depth, when pedestrian accesses are closed. By looking at the viewlines, the visual landscape of the neighborhood appears structurally lively and stimulating.
- The visual appropriation of the depth is fundamentally delimitating singular spatial configuration, inherited, shaped over the times, and fully part of the atmosphere in narrow alleys. The viewpoint analysis emphasized a visual landmark, which participate in the quest of the invisible heart of the forest.

#### > The 3<sup>rd</sup> step: The viewpoints analysis, two accurate tools expressing the connectivity

- The accurate tools view-axe<sup>1</sup> and view-crossing spots<sup>2</sup> are connectivity tools. They reduce the numbers of viewpoint lines, filter the outcomes and eventually reveal other aspects. The connectivity tools use the structural notions of nodes and paths to deal with complexity and multiplicity, by selecting/grouping some aspects that are rather dominating a given networks matrix. However I singularly superposed layers of viewlines' evolution for more than 50 years, as in the 2nd step. Hence I could screen places with a higher level and variety of views over time. The result is a visual spatial configuration/matrix: the structural visual connectivity (or visual connectivity graph/matrix), which isolated important visual structural elements.

- The tools emphasize the combs patterns. Many view-axes and view-crossing disappeared over time, and a more significant amount concerned the view-axes (23 preserved view-axes and 27 view-crossings/ 21 disappeared view-axes/ 22 view-crossings).
- Some block's redevelopments contributed to empoverished the matrix but some also permitted to the structural visual connectivity to continue. The visual diagnostic by block-sample on the persisting structural visual components of the matrix: the block-samples 1-5-6 / 3-4 /10 significantly and 7-8 to a lesser importance, could preserve some parts of the structural visual connectivity.
- A few new ones were created (3 view-axes and no view-crossings): the numerous redevelopments though condominiums brought very few view-axes and view-crossing compared to the visual loss in number and singularities of the connecitivity tools.
- Further interpretations on the view-axes and view-crossings and their related outdoors:

<sup>&</sup>lt;sup>1</sup> Axe of viewpoints cumulating six or more viewpoint lines of three different kinds

<sup>&</sup>lt;sup>2</sup> Intersection for three or more viewpoint lines

I introduced metrics to evaluate the outdoors' sizes<sup>1</sup> according to the diameters attached to the viewcrossing. Such places were considered richer, as they encourage the visual encounters (possibly physical) and their visual irregularities might be more stimulating. They can already suggest the different possible types of encounters. Moreover they contain the capacity of being a signage, as some outdoors have a higher level of visual concentration/or connectivity than others for a long time. Hence, it might have interplayed in the behavioural decisions or possibly reflect the position of relevant local outdoor places, for the community<sup>2</sup> (checked through the field's observations in the chapter 5).

- encounter's types of outdoors: a majority of increasing c-type (75% in 2008)>decreasing b-type (10% in 2008)>average stable d-type (15% in 2008)>minority of a-type which disappeared in 2008.
- However we can already tell that the structural visual connectivity highlights visual behaviours on the outdoors with highest intelligibility and readability. It corresponds to ABCD outdoors on the real map.
- The general loss from the visual structural connectivity indicates also a loss in the visual lineage (as the viewpoints overlaps layers of historical transformations), its related visual practices/capacity of the neighborhood, and the possibilities for spaces of encounter.

- Finally, I characterized the different types of outdoors by adding a category to the non-specified outdoors mentionned in the ZENRIN maps, with outdoors from the structural visual connectivity, also as carrying a strong visual capacity of encounter and potential intelligibility/readability.

Why structural visual connectivity is important (for Wakaba and for the academic debate)?

- The time-layered observations of changes in the visual configurations can be a landscape indicator.

- The viewpoint tools are adapted to the fine-grained fabric of Wakaba and its morphological irregularities. It helped apprehending the outdoors undergoing a mechanism of small transformations and extinctions due to their characteristic of higher vulnerability and that normal analysis on public space or density approximations would not be able to do at that level. Such very small outdoors often appear insignificant and might not be physically accessible but only visually (and often partially).

- Moreover, it is a unique characterization of Wakaba and its block's changes (depth). However it could be usefull for other dense patterns, recognized as historical cultural landscape entity from earlier popular structures, but lacking of visual considerations in their morphological analysis. Hence, the visual tools would need to be locally implemented to the visual environments, which would add richness and precision to the analysis. The viewpoint analysis is relevant particularly in Tokyo cultural landscape, where the notion of depth of blocks is a vital component of the spatiality<sup>3</sup>, facing the growing importance of its exteriority against its inwardness.

<sup>&</sup>lt;sup>1</sup> Outdoors diameters/ types of encounter: a-type: 0.7-1.5m/very private sphere of interaction; b-type: 1.5m-3m/ private sphere where 2 individuals or neighbors can meet; c-type: 3-6m/ social sphere interaction for neighbors at the scale of the alley or lane; d-type: >6m/neighbors gathering space for the block or the neighborhood

 $<sup>^{2}</sup>$  We can imagine that such outdoors could be wells, *idonokamisama* (small autel dedicated to the well's god divinity), small garden, etc...

<sup>&</sup>lt;sup>3</sup> Structurally, cosmologically, as evoked by Maki's strolling memories in quest of the heart from the deep forest.

- Structurally, viewpoints can be a short or long perspective, blocked by walls or houses or transversal to another point of the public space. In terms of composition, some viewlines can cumulate different kinds of view-types or create space for encounters through their organization. Such viewpoints are organized in a visual spatial configuration, a physical and invisible frame shaped by the possibilities of visual and potentially physical encounters, practiced for a long period: a sort of spatio-temporal visual skeleton of possible encounters and maximised capacity of visual stimulations. Hence, the decline of the numbers of transversal and blocked views are not anodyne information for the block's frames, but rather relevant for the survival and the vitality of the entity (visual accesses to the block's understanding against the few physical accesses, blocks visually monotonous or lively, and visually opened or closed etc.)<sup>1</sup>: Shortening the views and reducing their possibilities and numbers in the dense patterns of Wakaba caused the decline of cumulated connective inner- richness, turning the block toward the street (development of externality). As a consequence, it broke the (visual) singularity of such fragile places, which might evolve into another system of visual relationships, induced by the redevelopments and the shortening of the viewpoints. The sharp failing of view-axes and crossing spots, as connectivity capacity tools, is also an interesting indicator for the local life's assessement. They encompass the notions related to the readability of the space and the intelligibility of the system, evaluated here over layers of times. Hence, less intelligibility of the visual patterns permit to determine the possibility or not for massive redevelopments by block-samples and the visual conditions for finer regeneration processes in places with "preserved" high visual connectivity.

The viewpoints analysis could put into evidence: the benefice in using historical layers of viewpoint patterns within outdoors and the notion of structural visual connectivity (which encompass the notions of intelligibility, readability and adapted behavioral answers) through the specified places ABCD. To strengthen the viewpoint analysis, the chapter 5 will confront the matrix of visual structural connectivity and the resulting ABCD outdoors with the reality observed in Wakaba neighbourhood. It is a qualitative appreciation of the skin related to the viewpoint patterns, the composition and the appropriation of the outdoors by their residents.

<sup>&</sup>lt;sup>1</sup> The quality of life is different for the residents facing a small daily landscape of walls (mansion's walls on the plots' borders are increasing), with shorter blocked viewpoints; and for residents walking and seeing small multiple interconnected outdoors, long/transversal viewpoints perspective, despite the dense scale of the network of lanes.



## 5. FIELD'S OBSERVATIONS ON WAKABA'S OUTDOORS, STRENGTHENING THE VIEWPOINTS ANALYSIS

### **INTRODUCTION**

### PART I: literature review approaching the question



CONCLUSION
# 5. Field's observations on Wakaba's outdoors, strengthening the viewpoints analysis

## 5.1. Introduction

The viewpoint's analysis sorted out a visual matrix of Wakaba, named the structural visual connectivity, as a result from a configurational analysis through visual tools over different periods of Zenrin maps. In this chapter, I will be looking at the elements that compose the visual skins of the outdoors in Wakaba. For this purpose, I will introduce the notion of functional visual connectivity, in complement to the structural visual connectivity. From the academical fields, various methods of analysing the field can permit multiple interpretations of the observable landscape, (through drawings, maps, etc.) that would all be part of the Wakaba identity. Moreover, a social survey could highlight the rules established by the groups of neighbours for their outdoors. They reflect harmonious or contentious appropriations and relationships, which strongly participate in the singularity of the atmosphere. However this research focus on the morphological aspects. The social angle can help to understand such aspects but won't be scientifically relevant for this study. Hence, I propose to draw:

- The image of Wakaba place through the words from their resident (the results from a survey);
- The map of the functions (activities) I observed in the area, which might play a role in the perceived atmosphere of the place;
- The map of the different types of outdoors' uses, which are also observable while strolling;
- A table of descriptive visual criteria<sup>1</sup>, which are attached to perceived feelings, as evoked in numerous literature reviews (see chapter 2); and thus a map on the feelings perceived in different places of Wakaba, focusing on the 4 selected patterns ABCD.
- Finally to confront the structural visual connectivity with the field's reality. This confrontation highlights the functional aspect of the visual connectivity and the threats affecting such matrix;

This chapter's results confirm the viewpoint analysis and emphasizes that there are no predefined designs for such singular outdoors. They are rather nurtured and requisitioned perpetually by the multiple individual experiences, shaping a unique evolving pattern, from which a visual order can be determined, in the shape of the structural visual connectivity and its resulting visual patterns. Furthermore, I discuss the singularity of the visual connectivity, as a landmark for the vernacular landscape of outdoors, specific to a dense urban entity. It encompasses the significance of scales and the quest for beauty, at the heart of the visual attraction and appropriation. Finally, I will question the role of professionals (planners, real estate companies, loca authorities, designers, etc...) and inhabitants into shaping and regenerating such places and the contribution of the Wakaba viewpoints analysis.

<sup>&</sup>lt;sup>1</sup> Some physical elements degrade the possibility of a rich visual experience and others enhance that ability. Those elements follow the aesthetic of little patterns of complexity and multiplicity in the visual field from a dense neighborhood.

## 5.2. General observations on the outdoors in the neighborhood

# 5.2.1. Words from the residents of Wakaba 2<sup>nd</sup> and 3<sup>rd</sup> districts: mapping their place's image

In May 2011, soon after the great Tohoku earthquake, I could survey about twenty residents from Wakaba's 2<sup>nd</sup> and 3rd districts, mostly elderly people who have lived in Wakaba for more than 50 years and since before the Second World War. I questioned them on diverse issues related to the use and the perception of their different outdoors, the transformations, the memory and identity of the area and their opinion on the neighbourhood's linkage (see detail in appendix T&U). The information on qualitative aspects regarding their outdoors space, were as precious as the area is mainly occupied by elders, witness of the important social and physical changes, which occurred in their places.



Figure 57: Photo from Wakaba 3 chome in 1956 and in 2011, at the crossing of two main streets<sup>1</sup> Source: Historical Photo Book of Shinjuku municipality, and photo by Mireille Tchapi

Here are some of the main points recorded from the different interviews:

 $\succ$  Wakaba used to be a very lively neighbourhood, called the "little Asakusa" to evoke the old image of a village. Many mansions and a new big supermarket replaced the small local shops and beverage places<sup>2</sup>. The elders remain very nostalgic of the time where "little Asakusa" was lively until very late at night, where many children were playing in between the houses, through the narrow alleys & lanes and where neighbours were gathering around community spots (wells, water pumps, small shrines, small piece of outdoors). The vocation of Wakaba evolved toward service, and small manufacturing ateliers of production. The residents insisted on the rare persisting arrangements of space with high built density and little size of plot, inherited from the *nagaya* system of the alley. The question of memory, identity got mitigated answers, expressing the doubts they nurture on their neighbourhood values. Although they seem proud of Wakaba and enjoy the present qualities of their place, many of them do not relate historical remains such as the famous graveyards and temples. To

<sup>&</sup>lt;sup>1</sup> This photo was taken in 1956 in Wakaba-3 chome crossing. Nowadays the wood houses are replaced by a mansion (front left side of the photo) and the convenient store Sunkus (on the front right side). It depicts well the liveliness mentioned by elder residents.

<sup>&</sup>lt;sup>2</sup> tofu ya, sakana ya, kome ya, pan ya, izakaya, bars etc...

some extent, the memory and identity of the place lies on non-physical elements, as the majority of the residents associate them with the community linkage (*kizuna*), the name of the neighbourhood, the disappeared strong solidarity and joyful atmosphere found in the *nagaya* from pre and post-WWII<sup>1</sup>. Keeping the strong linkage is the most important value for the inhabitants<sup>2</sup>. In that regard, some expressed the urge to bring younger people together with safer attractive mansions and shops. To maintain greeneries and alleys were also a great concern, but systematically imbued by bitter sustained impressions of non-security in the area. Wakaba has been classified at the highest level 5<sup>3</sup>, in terms of danger if a disaster happens. Local authorities provide a renewal plans incentive for mansions and the enlargement of the Main Street and alleys. It convinced some residents but not completely.

"If there were a safer possibility to keep the houses' structure that way, it would be the most desirable solution...the balance between old and new houses is very good here. There is the danger of losing this balance but at that stage, TMG and authorities are promoting mansion houses." (Words from the president Wakaba 3-chome association, May 2011)

All residents mentioned that the main changes occurred in the replacement of the dense fabric by mansions, and global POPS<sup>4</sup>, but only a few people associated the loss of identity of their place with those new constructions, mostly because many families and elders have been relocated in the new mansions and the strong linkage could be maintained to some extent. Many of them expressed that "the neighbourhood has to follow its time". For a significant part of the people  $(1/5^{th})$  the well established balance between the old fabric and new mansions designs and their respective style of designs for the outdoors, guaranties the existence of the neighbourhood and the coexistence between young and elder. It provides a feeling of security. As a consequence, the attachment to the vernacular treatment of outdoors and the greeneries in the alley has not reached the full agreement (less than half of them). Half of the surveyed residents like POPS design against 1/5<sup>th</sup>, who prefer greeneries from alleys and almost 3/4<sup>th</sup> of them think they do have sufficient outdoors, as they are surrounded by many parks. However some of the residents (less than 2/5<sup>th</sup>) would appreciate having a small plot dedicated to the function of local-park so that neighbours may meet and enjoy the weather. Most of the popular walking places for the residents are situated within the surrounding parks, outside of Wakaba, whereas  $1/5^{\text{th}}$  of them really enjoy a daily walk in the outdoors of Wakaba, especially in the  $3^{\text{rd}}$  district, which kept an important part of its local old structure.

An interesting contradiction appeared while asking the residents their preferred types of outdoors, represented by the elected designed POPS for the majority  $(2/3^{rd})$  of the residents preference), whereas

<sup>&</sup>lt;sup>1</sup> The nostalgic elders expressed the difficulty to live in *nagaya* densely built-up system, but also mostly the solidarity and the joyful atmosphere despite hard times.

<sup>&</sup>lt;sup>2</sup> About 3/5<sup>th</sup> of the interrogated residents emphasized this value.

<sup>&</sup>lt;sup>3</sup> Wakaba is the most dangerous neighbourhood of Tokyo, due to its density of built arrangement.

<sup>&</sup>lt;sup>4</sup> POPS: Privately Owned Public Space; Global POPS (or designed POPS) refers to the urban design and furniture proposed by many projects of mansions and condominiums for their open spaces. It is opposed to the vernacular landscape resulting from the assembly of each owner's plot. I decided to call vernacular POPS, the resulting part of a plot, implemented by the owner and a part of the neighbourhood landscape, in opposition of global POPS.

the vernacular POPS attract the view and play a major function in shaping the daily perceived landscape of the inhabitants. All types of outdoors confounded, they predominantly<sup>1</sup> referred to elements or activity displayed in vernacular outdoors, positively or negatively<sup>2</sup>. What contributes to their ordinary daily life is directly related to the elements attracting their view (visible or invisible) within those perpetuated vernacular POPS in inner blocks. They are a subtle composition of greenery and object disposal, arranged by each owner, as the local "designers" of the community, everyday for years and generations.  $3/4^{th}$  of the images which build their visual field are taken from those vernacular outdoor spaces,  $2/3^{rd}$  offering a positive feeling. This perception of outdoor spaces goes far beyond the simple wishes for a better and safer neighbourhood through the promoted prototype of POPS & mansions. Following the opinion on safety, more than half of the answers were in favour of keeping the specific neighbourhood's frame, its houses and outdoor spaces (through repairing old houses, or providing some form of evacuation or any other system) against  $1/3^{rd}$  of the surveyed residents, who were looking for safety elements such as mansions, their provided open space or any safer reconfigurations (enlarging streets and alleys, "ordering" houses,...).

The identity of Wakaba and its atmosphere mutated partly, according to their inhabitants. However, the most valuable element, which represents the identity of their neighbourhood, relies in preserving the linkage to the community. This characteristic expresses itself through different common activities, or through various modes and rules, for enhancing their alleys and appropriating their outdoors. Such specificities show us a sort of system, a social pattern, a common language of appropriation of their place, or a model for community linkage<sup>3</sup>, locally defined by the residents and singular to Wakaba.

> Other interesting outcomes from the survey can be the basement of further investigations:

- The community associations for each district have regular gatherings to address issues related to festivities and responsibilities on the security of the area. However they do not address issues related to the landscape and its shapes. I could feel a certain fate more or less accepted by the residents toward the out scaled physical transformations of the area.

- Linkage is reinforced by the common sharing of memories and tales<sup>4</sup> about the area, but also the social and vocational change of this very poor area toward the present higher social status. *Sokka gakkai* is very active in the neighbourhood, especially among residents from the 3<sup>rd</sup> districts, who developed a strong sense of solidarity and regularly participate in shared activities.

<sup>&</sup>lt;sup>1</sup> More than 2/3rd of the residents are looking on a daily base, consciously or not to vernacular POPS, against 1/6<sup>th</sup> of them for global POPS from condominiums and the main street, which turned to be far less lively as it was before, according to the elder residents opinion.

<sup>&</sup>lt;sup>2</sup> Positive perception of the vernacular outdoors represented around 2/3<sup>rd</sup> of the opinion on the visual assessment of their place by the residents. It can be activities such as "enjoying the daily seasonal change of plants", or "observing the movements of the cats", or "communicating and chatting on those outdoors between neighbours", etc, as mentioned by the residents. Negative perceptions on the vernacular outdoors (1/4<sup>th</sup> of the answers) are mostly related to items not properly ordered, such as bicycles or outside furniture and objects, which could affect the evacuation process or become dangerous during an earthquake or a fire.

<sup>&</sup>lt;sup>3</sup> In reference to the models defined by Alexander, with the study field of Oregon

<sup>&</sup>lt;sup>4</sup> famous personalities from the Edo history and their graveyard, the stories behind the numerous temples and shrines; the name of "Tanimachi", testified from the lively "little Ginza" place it used to be, etc..( Appendix U)



Figure 58: Wakaba 2-3 chome image from resident's words Source: Author work with Zenrin row map support and by listing the recurrent words on audiotapes recorded during the survey

- Approval among all the members for new comers to integrate the life of the community through participation in the community association and obligation of participation for any new developers.

- The neighbours groups, as a local unit of residents, are organizing themselves to take care of their places, looking after garbage, object disposal and all concerns regarding the outdoors spaces but also toward any facts related to living together, with established solidarity in case of problems<sup>1</sup>.

- The linkage has to be pursued by younger generations and there is a need for more children (they decreased gradually for decades), according to the residents (mostly elder). One option, defended by many of the  $2^{nd}$  district, would be to keep a strong commercial main street, enlarge the pedestrian way, build more condominium with their underground parking system and their open space "attractive design", in order to attract younger families and provide more security toward the cars traffic.

- I will not develop further the social aspect, which could be the object of researches in the future, as a necessary step to globally understanding the keys of a sustainable regeneration for such a singular and dense neighbourhood. To define the representation of Wakaba through their eyes, can help to deeply understand the image they consciously or not shape for their place, their spatial perception, but also the structure of the neighbourhood community.

> The image of Wakaba for their residents: Places-habits-stories they mentioned (figure 58).

The map shows all the places mentioned by residents during the survey regardless of the questions. It concerns the walking places, the places with positive or negative<sup>2</sup> descriptions, the historic places or the places cumulating local memories. Notably, the condominiums were mentioned positively, from the building to the design of their open space, or in terms of security. The main roji of Wakaba-3*chome* is strongly representative of the inhabitants' linkage and image of their place, despite the area's risk of disaster level. The situation of Wakaba was expressed many times: an alcove topographically and "historically" landlocked in Shinjuku ward, near the "very noisy and active" pole of Shinjuku station. For the inhabitants, it is pretty rare and rather precious that the "little Asakusa" of Wakaba could maintain such a high built density in a central ward, which received among the highest transformations with tremendously speculative high prices. Consequently Wakaba has an exceptional situation, like "a paradise in the jungle of Tokyo", as evoked by a resident. Wakaba was also described as being very conveniently served by many transportation medias and surrounded by many parks and amenities. The residents enjoy such conditions and mostly evoked external places instead of Wakaba itself. Nonetheless, they seem to appreciate very well the life in Wakaba and are proud to describe the popularity of their place among walkers living in other areas. (see appendix U for more details on the residents' memories of their place)

<sup>&</sup>lt;sup>1</sup> As mentioned by some residents of Wakaba 3<sup>rd</sup> district! An elder lady explained her experience during the shake of the 11<sup>th</sup> of March: "You could hear everyone and also people would ask and shout to everyone from their house to check if there were any troubles, while holding their furniture inside or hiding under the table. We used to laugh about that after, because the alley became noisy, with everyone asking if everything was alright".

<sup>&</sup>lt;sup>2</sup> Especially, some places generated fear and anxiety for the residents given the recent earthquake.

# 5.2.2. Mapping the different uses of the outdoors in the neighbourhood

## > Personal observations and remarks from the residents

I broadly observed the following aspects regarding the uses made of the outdoors by their residents. Fewer people were seen during the different days<sup>1</sup> within the outdoors, except on the street, when people went shopping or returned home from their work. Wakaba used to be a very lively neighbourhood, especially along the main street facing block-samples 5 and 2, and also, 3-4, now replaced by major mansions. Many little proximity shops disappeared, as evoked by nostalgic residents. The establishment of a supermarket also mainly contributed to eradicate the remaining food and beverage shops. As a matter of fact, the present shops deal mainly with services (laundry and dry cleaner, hair salon, flower shop...) and various small manufacturing firms (paper binding, plastic...) or other services, which are relatively closed to the street's enhancement atmosphere. While walking in the main street, the neighbourhood appeared very quiet. Shinjuku became the main shopping and entertainment place. The previous bars and restaurants also massively disappeared, according to the elders<sup>2</sup>. The functional identity of Wakaba transformed and mutated partly. The functions observed:

- Kids playgrounds: park (in the past, it used to be alleys as noticed by old residents.)

- Neighbour's meeting spot: ambulant market in street corner of sample 7-8, in front of Sunkus and in the parking of Marusho for transportation security communication campaigns, in front of the Chinese and sushi restaurants from sample 3. Many elder residents were evoking some previous meeting points such as wells between two houses. There used to be many of them but I noticed that only three remain. The small shrine from sample 10 along the valley wall, also used to be a place for neighbourhood residents to meet, chat and laugh. The alleys were calm<sup>3</sup>. I observed no recreational space; a resident mentioned that she would enjoy having a plot devoted to meet while watching the kids play.

- A neighbourhood's small gathering spaces: In the shrine, in a coffee place nearby Marusho supermarket, in the alley (sample 3) where the president of the  $3^{rd}$  district association is living, which is also a shop for different beverages and daily-use objects.

- Festivities (omatsuri, or other): stairs from the shrine toward the main street of Wakaba.

- Relaxing place: none observed, except one resident who settled a chair for sunbathing outside. However, there were some small terraces along some houses, which might be used for that purpose.

- Parking: outdoor spaces allocated for cars in front of houses within the owner's plot or beyond, on the shared alley; separated construction; boxes or the 1<sup>st</sup> level of a construction (some of them were open to the outdoors); bicycle parking (specific bike-parking for mansions, space between two houses, along alleys, in front of houses near thresholds);

<sup>&</sup>lt;sup>1</sup> Including each day of the week, in the morning and late evening

<sup>&</sup>lt;sup>2</sup> It used to be a very lively after work place until very late at night in the street. Salary men were enjoying drinks and foods, but not anymore.

<sup>&</sup>lt;sup>3</sup> In pre-war time, the alleys made of *nagaya* style houses were always lively, as the residents gathered outside.



**Figure 59: Functions and outdoor's perception in Wakaba 2-3- chome** SOURCE: FROM SURVEY DATA, AUTHOR WORK



 Table 5 : Recurrences of different physical uses of the outdoor spaces in Wakaba 2-3- chome, as observed at a given time.

Source: from author's field survey and author's photos taken in 2010 and 2011

## Schema for functions observed in the outdoor spaces, from my observations

- This schema (figure 59 and table 5), from the present situation does not especially follow all the spectrum of uses, but just recalls very broadly the main uses of the outdoors and their recurrences in the area. During the surveys, various remarks were done on the outdoors' appropriation. Numerous times, the disturbance and risks of the numerous cars were underlined, and some also mentioned the need for more parking places. The 2<sup>nd</sup> district president was hoping for more mansions, also in order to get underground parking, to let the pedestrian enjoy the outdoors as much as possible in security. Other residents mentioned that they were satisfied with the general care made by residents in the outdoors and that there were very few spaces in disorder or not nicely arranged. The submitted table 5, takes into account what a walker, stranger would notice at a given time, while crossing the area. However a wider field's survey, with all the possibilities on the residents' uses, according to the different seasons or moments of the year, can be the object of further social research work. I observed: - a majority of outdoor spaces allocated for cars and bicycle parking, for greenery, entrances, and POPS (courtyard and spaces open to the main street).

- outdoors being used for exterior storage, terraces & sunbathing spots, vegetable gardens, or with no specific uses<sup>1</sup> (in an average proportion). In a relatively smaller proportion, some wastelands, garbage disposals, outdoors as a private access (not registered as official alleys), cemeteries, and meeting spots.

#### > Functions on the outdoors from the selected types ABCD:

On the field, they illustrate a high level of appropriation, with outdoors mainly decorated with various greeneries and a great attention for each entrance space or access space. They could also welcome different activities, such as cultivating vegetables, enjoying sunbathing, resting or contemplating the last testimonies of past life (small shrines pavilion, canal, wells). If some outdoors are used as exterior storage, parking for bicycles (in between houses) or even garbage disposals, they are more organized and found to have not such a bad impact on the visual field<sup>2</sup> of the walker, unlike in some other alleys from the area. They are merged in the main vernacular landscape. The typologies do not welcome (or insignificantly) outdoors as POPS, excessive or wild outdoors storages, waste lands, parking for cars or space allocated for cars in the outdoors<sup>3</sup>. There are numerous welcoming meeting spots within the private and public open spaces of the typologies C and A); The type D welcomes the Chinese restaurant, the 3<sup>rd</sup> district association gathering spot (the president of the Wakaba 3<sup>rd</sup> district's shop), a neighbours' meeting spot in front of the *kura* house; Type B cumulates successive meeting spots, as

<sup>&</sup>lt;sup>1</sup> No green observed, nor object displayed, non-practicable outdoors between two houses, and spaces which look meaningless such as some courtyard from POPS.

<sup>&</sup>lt;sup>22</sup> In the typologies ABCD, the exterior storages and the garbage disposals are well organized and one can see that the neighbors tried to minimize the view impact of their belongings and hide or arrange them properly.

<sup>&</sup>lt;sup>3</sup> Except for type A, where one alley provides spaces in the entrance space of some houses, unused paved spaces or open spaces not filled with greeneries and only paved with concrete.

multiple features of small entrances and accesses in the outdoors (against large entrance hall of condominiums) and a small shrine pavilion. In comparison to the other outdoors of Wakaba, the general landscape from the viewpoint typologies ABCD offer a predominance of small outdoors, nicely appropriated, filled with green and well organized: wild range of greenery (pots, trees, small planting garden, climbing plants on the borders or the walls, wild green in between houses, along the canal's way or occupying a peace of plot), many accesses and entrance outdoors decorated with pots, small terraces. From this observation, I can make the hypothesis of a pattern of functions, associated with the outdoors' appropriation rules and established naturally or most probably the result of the commitment in between inhabitants, over times. Some physical qualities of the selected ABCD morphologies will be described in the next part.

#### 5.3. The elements of the visual field and the outdoors' appropriation

## 5.3.1. Selection of three main criteria for describing the visual skins in small Wakaba

- In the first part of the analysis (chapter 4), I detailed the types and lengths of views (transversal or blocked) that a walker would have from a street or an alley. Further ahead, I considered multiple view axes<sup>1</sup> crossing zones<sup>2</sup>, as supplementary criteria for the evaluation of the transformation from the viewpoints' richness, from 1967 up to nowadays. In this chapter, attached to the field's description, I questionned the residents' representation of their place and made general observations on the functions of the outdoors. For the evaluation of the richness of a place, the cultural landscapes division maps retained (visual) criteria, such as: the presence in a view of cultural or historical assets; topographical features (the valley's wall); natural features (plants or trees' specificities such as cherry or plum trees), singular architectural constructions or material for a given construction; other urban significative signals encountered in the landscape, etc.

- Additional criteria of the field can be developed for an accurate qualitative description and evaluation of the smaller scale patterns, the inner landscape of outdoors within each block (where each owner's personality is represented), in order to confront better the viewpoints' maps, the typologies ABCD from the structural connectivity with the viewpoints on the field: the criteria from the outdoors' appropriation through local objects and their arrangements. In parallel, a given viewpoint can be damaged by the presence of numerous cars as an example, or by unordered storages, etc (see part 5.3.2). The phenomenon of smallness in Tokyo, the size of the open spaces (especially in Tokyo, where it can range from a couple of square meters to hectares) the micro-cities, the beauty and cultural

<sup>&</sup>lt;sup>1</sup> For this research, a rich view axe is an axe of view that encounters at least three different kinds of views (transversal and blocked, from the street or the alley) and a total number of six and more.

<sup>&</sup>lt;sup>2</sup> Multiple crossing zones define spots where three or more different kinds of views meet together and thus generate a space of possible visual interactions.

concepts and spatial approaches<sup>1</sup> to deal with smallness are extensively discussed in urban and architectural studies<sup>2</sup>. Among them, the *shakkei*, as a "metaphysical extension of a site by blurring boundaries and visually "incorporating distant scenery as part of its design" (Itoh, 1976, p 11)<sup>3</sup>. The numerous litterature review give me the basis for choosing criteria able to describe the perceived visual field, in such specific environment of smallness and high-density. Hence, my task resulted in choosing and using some of them to roughtly evaluate and confort on the field, the visual connectivity patterns detected through the viewpoint's method.

- Following the criteria established for the spatial readability of a place (see chapter 2.4), I focused on three of the main criteria around the notion of connectivity (see chapter 1.3), developped by Salingaros (2006), as fundaments for his *theory of architecture*, and later on the *urban web theory* (2010). Together with Alexander *et al.* (1977, 2001-2005), they explored the relationship between connectivity and the dimensions of readability in a space. I found those criteria, as well, relevant to the smallness of the place and its high density: the multiplicity of a view's covering; the organized complexity of objects displayed in the outdoors (green, thresholds, materials, fences, pavements, object...); the scaling factors structuring the perception of outdoors from the very small scale of objects' displays, alleys and houses to the larger urban scale of the streets and buildings. The three main criteria encompass other sub-criteria from the urban design qualities, such as enclosure-complexity- human scale- imageability- coherence- linkage- legibility- transparency according to Ewing and Handy (2009). They interplay in the atmosphere perceived and the feeling processes of the walker, ackowledging the beauty of smallness (see parts 5.3.3 and 5.5.1) and appreciating its spatial practice (see part 5.4.2 on functional connectivity). To illustrate those aspects on the 3 criteria I selected, I will take the most numerous and representative examples of outdoors in Wakaba.

## > A- Multiplicity of view's covering :

In figure 60, I presented the visual fields offered to a walker, while getting in an alley (sample block 9, three photos from left), from the street and within the block. In parallel I address the view language offered from the street toward recent transformations (block sample 10, two photos from right). The figure represents roughly different facades materials (purple), ground materials (pink), types of vegetation (green), and colours (yellow). More elements could have underlined our purpose such as a variety of geometrical lines, a variety of their angles and direction in the 3D space, a variety and density of shapes, etc.., but for illustrating our idea, those are speechful enough. Hence, the Wakaba

<sup>&</sup>lt;sup>1</sup> As for example, the concepts of *kai-haku-tan-sho* (light in weight, slim, short, small) for artisan to create the products as small as possible, the *saiku* ("small is cute" syndroma) for *bonsai* art, are reactions to dense spatial conditions.

<sup>&</sup>lt;sup>2</sup> See Jinnai, 1999, Hein, 2000, Ashihara, 1986, Kurokawa, 1989, Talbot, 1988, Tsukamoto architectural lab& atelier bow-wow, 2001, Tsukamoto& Kaijima, 2006, Itoh, 1973, Radovic& Boontharrn, 2012.

<sup>&</sup>lt;sup>3</sup> From Rahmann H., quoted in Radovic& Boontharrn, 2012, p76.

area proposes two kinds of outdoor spaces: a rich and intense<sup>1</sup> multiplicity of objects for one side but also outdoors which are poor in objects (number and variety) on the other side. From the street toward the alley, the visual field is constantly stimulated by shapes, colours, materials (facades and ground), the types, shapes and colours or greeneries, grossly estimated at more than ten elements in a viewpoint.



etals different ground materials different facades materials

Figure 60: Left, three examples for the rich multiplicity of objects at a glance/ Right, two examples of poor multiplicity in a visual field.

Source: Author work, from author's photos in Wakaba samples 9 and 10, taken in May 2010.

These multiple elements never stop and even increase tenfold while progressing in the alleys and small lanes, while looking around, given the small sizes of each entity. On the contrary, the view on new buildings and parkings proposed a large size flat tint and very poor variety. On the considered elements, the numbers never exceed six and an average of four different types of materials, colours, and greenery types are observed. There are two major impacts on these types of impoverished visual fields. First of all they do not naturally catch and stimulate curiosity for the walker, as those elements are rather common in the whole of Tokyo and their arrangement as well. On the contrary, from their large scale and their regularities (as standardized frames arrangement), the walker can quickly imagine the whole frame and even the hidden parts. It naturally decreases his curiosity. Another contradictory visual effect is that those large scale and size buildings or parkings confront the walker with elements he cannot grasp, nor touch, in complete opposition to multiple small scale objects directly displayed to the view within alleys. Hence, the walker has the feeling of being detached from the edifications. The 2<sup>nd</sup> major impact is visible on the 1<sup>st</sup> photo from the right, where a large parking plot is side by side with an old dense fragment of houses. The contrast is major with the multiplicity displayed on alleys. The resulting disturbing feeling emanating from the poor visual languages of patterns offered by a parking, can contaminate the houses' arrangements by impoverishing their language of multiplicity. Six types of colours against twelve and no objects nor any variety of materials on the side of the parking (against the side of the alley). This effect has been observed in the whole Wakaba area (and other parts of Tokyo as well). When the multiplicity is reduced, the separations private- public or pivate- private are more obvious, which can restrict the freedom of possible appropriation and the feeling of curiosity. Although many transformations occurred with numerous new mansions and bigger

<sup>&</sup>lt;sup>1</sup> Understood as Density + diversity = intensity (Radovic& Boontharm, 2012).

buildings with poor facade languages, but hopefully, the Wakaba area can still offer more outdoors filled with multiple objects, visible at a glance by any walker, as in the typologies ABCD.

## **B-** Organized complexity (greenery, thresholds, materials, fences, pavements, objects):

Following the criteria of multiplicity, which appears first in a visual field, we can also emphasize that those elements and diverse materials are not displayed in a chaotic mode, but make sense in the outdoors. A kind of subtle order<sup>1</sup> is shaped, that I define as organized complexity. It encompasses the creative sense for outdoors' enhancement and the different organized elements of this creativity, as the greeneries, materials, fences, pavements, objects. Let's describe some elements of such organization.

- Patterns of greeneries: plants owned by the residents and declined according to their own taste and which can be delimitated within the space are usually in pots, along a house's facades. But grasses wildly displayed on the ground of the alleys belong to the block, representing a linkage- pigment from the painting of the outdoors landscape, offered to the walker's view. Each individual can clearly distinguish and understand the plant installation of each owner and separately the greeneries from the neighbours' community.

- Patterns of thresholds follow a similar organization to greenery. Each threshold and entrance space is different from one house to another, and their delineations are clear enough to understand, without visible fences or clear public-private delineation, which entrance belongs to which owner.

- Patterns for fences in Wakaba: there are various types of fences, in concrete blocks or metallic fences, such as a mark line made by a piece of wood laid in the ground, at 0cm, 50 cm or 2 m high, depending on the cases, or made by planted hedges from various heights; from an alley or a block to another, the language of fences changes. It supposes that neighbours have possibly agreed the aesthetic they wish for their fences. For such dense places, the variety of fences displayed by block or alley does also reflect the sense of community of neighbours. Hypothetically, it can be the local expression<sup>2</sup> of various agreements on the elements of outdoors. This characteristic was also observed for a block's pavements as well. At first glance, the observer can notice the multiplicity of objects (fences, pavements) but a 2<sup>nd</sup> reading can make him understand the way the community of people might have agreed.

- Patterns of community through the different neighbours' block-pavements<sup>3</sup> (figure 61): They represent private outdoor spaces within their plots (in many cases not delimited), owned by the different residents in the considered block, but used by all neighbours as an access way to their houses. Different sorts of pavements are used according to the decision of the neighbours' group: gravels, stone, concrete panels, or soil. Most of the cases, coal tar is used when the part of the outdoors or alley

<sup>&</sup>lt;sup>1</sup> In reference to organic order, a natural complex organization.

 $<sup>^{2}</sup>$  It is a different level of agreements than elements negotiated by the whole area or by the district, as underlined by the associations' presidents. They clearly expressed that urban design elements and aesthetics were not the object of discussion in their assembly.

<sup>&</sup>lt;sup>3</sup> Patterns for pavement, as for fences and other elements are also representing the pattern of community.

is recognised as public space and extension of the public street<sup>1</sup>. In every neighbours group a common pavement patterns was identified. Some exceptions appeared, if a specific owner used a different material from the decided one. However each neighbour's space was clearly readable on the pavement.



Figure 61: multiplicity of pavement patterns in private outdoor spaces by a group of neighbours (on the top, five types for the neighbours' group, stones, gravels, tar, soil and concrete/ down left, two separate private pavement/ down right, coal tar used for public space of street and alleys)

Source: author work from survey data and observations, author photos in the Wakaba's samples 3,4 (typology D)

- Basically, the aesthetical printing produced by mansions and their outdoors design is more neutral, for the reason that they develop global drawings observable in the whole of Tokyo, but also because they represent the only designer project instead of each apartment owner's individual wishes. There is no complexity in the actors shaping the outdoors and the building itself. Only one material language, design and scale is proposed. Moreover, the fundamental frame for neighbours' agreement within a condominium is already established and delimitated to the apartment space, giving less freedom of shaping a concert that would be reflected in the aesthetic and visible to any walker.

- The photos (figure 62) present on the left side (above and below) complexity found in Wakaba with an arrangement of pots in front of thresholds and multiple languages produced by the building facades, the objects (hanged clothes and kitchen items visible from outside, green arrangement etc...). On the contrary, the right side's photos offer poor, non-complex patterns (photo above) or empty meaning (photo below). The regular rhythm of the openings from the pre-eminent mansion (photo right-above) offers poor complexity to the walker. The information is also confusing, as those openings do not represent a spatial inner functional division of space and by consequent do not provide more to the understanding of the landscape composed by the building. This structure is not readable and has poor composition. Comparatively, on the same photo, more complex and understandable information is

<sup>&</sup>lt;sup>1</sup> On the Zenrin map, it is clearly identified, unless there are other types of access ways within the blocks.

offered by the composition of the adjacent small houses, with irregular openings and various objects on the facades. The same comparison appears between pure concrete walls, used as fences (photo right-below) that are "empty" structures against the back facades of houses.

- As we developed, the multiplicity, contrasting pavements and skin of the outdoors in dense Wakaba, show different variations of the richness from the spatial appropriation by their inhabitants. Following Salingaros (2006), those multiple series of objects-patterns respond to complex organized features. All those elements participate in the understanding of the constructions, the possible function of delineation inside and on the outdoor spaces. The organized complexity of multiple objects of the outdoors proceeds by each owner's aesthetic language, neighbours' agreement on patterns, but also inner structural order in which scaling factors need to be considered.



Figure 62: Complex and non-complex patterns Source: images from Salingaros (2006)/author photos in Wakaba, samples 9, 3 and 4 (typology D) (May. 2011)

# C- Scaling factors of views on outdoors:

- The scaling factors are declined into two ways. First, while walking from Wakaba Street toward alleys and then by looking at the spaces in-between buildings, there is a hierarchy in the outdoors, in terms of their proportion. An order instantly emerges for the brain's understanding, built from external outdoors with a strong public status to internal outdoors with more private characteristics. A typical walk and view paths follow the wide street, to an alley (smaller proportion) and then to the exclusive pedestrian access ways (1m width for example) to smaller spaces in between two houses that the walker directly identifies as the two plots interstice. Thus, this scaling factor is structural, emphasizes the readability for the public-private aspect of outdoors and also plays the role of guiding the view from external objects with larger scale compositions toward internal small scale objects, most of the time full of multiplicity and organized complexity in the objects displayed, as evoked. Figure 63

illustrates this aspect of the visual understanding, from the scale of the street to the small scale of inner paths within a block.

- Another major effect of the scaling factors of the objects (elements, material and houses) appears along the main street (wider scale entities) compared to the objects within the block, along alleys, access paths and other inner outdoors (small scales object), according to the organized complexity model toward small-large scales and external-internal dialectics.



Figure 63: Following visual scaling paths in Wakaba sample 7 (from left to right) - starting on the main street (1<sup>st</sup> photo) - an access to an old wheel small piazza (2<sup>nd</sup> to 4<sup>th</sup>) - inner-block house's access (5<sup>th</sup> photo) - inner block alleys and private paths (6<sup>th</sup> to 8<sup>th</sup>) -back to the main street (9<sup>th</sup> photo). Source: author photos in Wakaba- sample 7 and 8 (typology C) (May 2011)

- The inhabitants recalled how much their places are appreciated by walkers that cross Wakaba, as I did. Why do humans react so positively emotionally, being in traditional places? In that issue, the scaling factor could appear to be part of an answer, among others: "If a large building is connected to the range of human scales through a natural scaling hierarchy, it will be perceived in psychologically positive terms" (Sitte, 1889, p. 55), and vice versa. The traditional spaces are correlated to the *contact's spaces*<sup>1</sup> as "the only one which holds Beauty" (Choay, cited in Berque, 1994, p. 221). The scale of the Shinjuku station would not be perceived so spectacularly if not juxtaposed to the small scales of its surrounding neighbourhoods. Those adjoining scales are not only physical but also functional and vocational (global-local). Starting with Vitruvius, "the necessity for architectural forms to have features on a scale to which human beings can relate" (Licklider, 1966), touchable in defining "designs that have the complete range of internal subdivisions, regardless of the viewer's distance" (Salingaros, 2006, p. 54), following scaling coherence. The study of Wakaka established the coherence for the viewer of a scaling order as element that is part of the Beauty of the place.

<sup>&</sup>lt;sup>1</sup> Developed countries proceeded to successive changes in scale. The history of the city can be described in terms of changes in scale related to urban spaces. The medieval period developed *contact's space*, the Renaissance was characterised by *"spectacle" space*, the industrial age, through the new word by Cerda of *"urbanism"*, developed the *space for circulation*. Ruskin and later Morris in the 19th century (Choay, 1994, p. 221- 227), condemned the change of scale in the city and advocated a return to traditional spaces, and the scale of contact's spaces.

- The different criteria of the visual field described in this chapter permit the readability of small outdoors and the understanding of space's appropriation for the walker in Wakaba densely built-up frame. They are intertwined and participate in shaping the modalities to visually access the outdoors' landscape. Hence, they take part to the "functional visual connectivity" in resonance to the structural visual connectivity established by the analysis in chapter 4. It will be developed in the part 5.4.

## 5.3.2. The elements of visual disconnection threatening the local visual scene

I observed various elements in the neighbourhoods in Tokyo, which can produce a visual disconnection leading to intrinsic structural disconnection, as well as fragmentation of the primary spatial arrangement with behavioural consequences in terms of spatial understanding and visual functional connectivity. It is worse for urban dense areas such as in Wakaba, more vulnerable to outstanding changes and easily disabled. Such elements of disconnection happen at various levels: over-sized scale, urban patterns of outdoors, building designs and arrangements, elements of architectural and urban design furniture.

# ➢ A-"Wall- building", "wall- allotments" <sup>1</sup> and their POPS, as disconnective constructions:

Let's take again the example of Wakaba -3-chome (see figure 64). Sample 3 presents a long depth perspective alley but also long transversal crossing views, as demonstrated in typology D. The 1<sup>st</sup> and 5<sup>th</sup> photos show a house and a building which are visual disconnective patterns, by blocking previous long lasting transversal views. It is also the case in figure 71, (see part 5.3.3). "Wall- constructions" act as fences and provoke opacity right in the visual connective field.



Figure 64: Wall-constructions injected in old frame and destroying visual paths, Wakaba-3-chome (from left to right, 1<sup>st</sup>-sample 3, an office building, 2<sup>nd</sup> sample 2, a large condominium, 3<sup>rd</sup> to 5<sup>th</sup>, path in an alley, from the street to a blocking house, not respecting long depth perspective morphology from sample 3) Source: Author's photos, 10<sup>th</sup> July 2011,

Global shapes brought lots of "wall-buildings"<sup>1</sup>, which release fewer openings on the facades and very poor material languages. They contribute to a strong impoverishment of aesthetical qualities of a place

<sup>&</sup>lt;sup>1</sup> I introduced those expressions.

that advertisements try to hide with few successes. They replaced the rich dialog that architectural compositions and materials brought in the past. Moreover, visual dialog has been suppressed with a "no-windows" aesthetic. Only a few new buildings are integrated, respecting the subtle relationship with the surroundings' spatial organization, however the visual communication is not emphasized enough.

"Present architectural works, with bigger dimensions are unfortunately built for their own accomplishment. Because of their size, they have a tendency to overload and to stifle their environment instead of respecting it... the architecture of these last few years conceive buildings being open to the public, such as confined places within their walls, without a visual communication with the outdoors"<sup>2</sup>. (Takashi, 1995)

Many new urban operations<sup>3</sup> contribute to the closure of a vernacular outdoors landscape. Their dimension and implantation can distort the local feature but also the whole neighbourhood's connective language, especially visually. Many old urban entities become meaningless in a neighbourhood (see 3rd photo on the cover of part II). The new allotments damaged, diluted and replaced by a new language, the first spirit of the place. Compared to vernacular POPS, the physical language of POPS develops an outdoors separation, non-topic related but rather a standard style garden, an open space design for large-size cars. It highlights visual and physical languages of exclusion in neighbourhoods where the linkage physically expresses itself through specific models following a subtle order of visual connectivity as I described. The increasing number of new-allotments dispersed in Wakaba<sup>4</sup>, are breaking the dense scale and working as autonomous wall-entities.

## **B**- High-fences:

High fences around plots from a condominium or a little house are disconnective elements and overly developed in urban patterns of Tokyo. They contribute in decreasing the visual and walking accessibility, bringing shade and creating alcoves of unused outdoor spaces. Fences built on the boundaries of plots to delimitate private property, are mostly high or opaque, depending on the case.

Traditionally in Japan, the high city where the lords lived, was enclosed by walls; however the lower city received a typology of juxtaposed constructions for each lot. The only considered wall was the neighbourhood gate. After the war and during the reconstruction process, individualisation brought a

<sup>&</sup>lt;sup>1</sup> Covered or not by advertisements, especially in urban cores of the capital, through department stores and carparking building.

<sup>&</sup>lt;sup>2</sup> Translation from French text: « les œuvres architecturales actuelles, de grandes dimensions, sont malheureusement le plus souvent conçues pour leur propre accomplissement. De part leur taille, elles ont tendance à surcharger et à étouffer leurs environnement plutôt qu'à le respecter … l'architecture de ces dernières années, qui conçoit les bâtiments ouverts au public, comme des lieux souvent fermés dans leurs murs, sans communication visuelle avec l'extérieur... ».

<sup>&</sup>lt;sup>3</sup> As new grouped massive concrete buildings along an enlarged alley after plot grouping.

<sup>&</sup>lt;sup>4</sup> Although respecting the general height and volumes requirements of the ward, which plebiscites massive condominium construction for "safety" reasons! The position taken by the local master plan, under guidelines for dense pattern requirement has to be re-questioned.

plot demarcation and the quest for a home with its garden following the American trend during the economical boom of the 60's and its decentralization process; However there are other strong stimuli to the land delineation in a neighbourhood. The 80's recentralization movement and the soaring prices of land within central Tokyo, led many owners to divide their properties into two or more plots in order to be able to afford land and inheritance taxes. More importantly, this period was also a very insecure time for owners who refused to sell their plot, when coveted by stronger stakeholders. *Jiageya* conducted a reign of terror over the residents, especially in dense urban neighbourhoods. Psychologically weakened citizens were threatened unlawfully, and there might be conscientiously or not, a relationship with the erection of those fences (although not dissuasive enough) and their insecure inner feelings. When packed urban features exist, linkage is reinforced, as the voice itself represents a very efficient alarm system and people can directly see and help. But enclosing a plot with a wall, on the contrary, accentuated the feeling of isolation and insecurity. No one can see what is happening behind a wall. As underlined by one of Wakaba residents, the strongest defence against any kind of crime is the neighbourhood itself and its linkage. The spatial disposition of fences within a dense urban area can become agents of destabilization of the visual connectivity, and the social linkage.

"When the urban web is threatened, it reacts organically by building fences to protect itself, in analogy to a biological wound growing scar tissue. This single act reorganizes a neighbourhood spatially, severing connections with what is perceived to be the source of crime. If that source is not localized, each node or group of nodes will isolate itself with a fence, thus tearing the urban web. A neighbourhood can recover from some petty crime, but the web can never recover once connections are blocked". (Salingaros, 2006)

The use of a wall should be conditioned, not in blocking connections but for reinforcing paths and roads in some precise configurations, as the misuses of walls can generate visual disconnective patterns in a neighbourhood instead of being a constructive element of the urban web<sup>1</sup>.

## > C- Outdoors of car parking lots and the question of the dimension of the car:

Tragically, a private parking's expansion for the gathering of plots, and a street's enlargement for traffic optimization, radically modify the patterns of neighbourhoods which contribute to their slow demolition. Large sized cars are leading to enlarged alleys and large open spaces on the ground floor are required for parking purposes. It affects architectural morphologies and the aesthetics of houses. The visual impact is very strong for the walker, who in extreme cases can walk along a succession of spaces exclusively dedicated to parking. It shapes a language of the city made by images of cars for the walker, as an additional danger and feeling of insecurity, especially in a densely built-up neighbourhood. Many residents mentioned that they were paying attention to the car while walking on

<sup>&</sup>lt;sup>1</sup> In Wakaba, fences come in multiple shapes and colours, following models of an organized complexity. I observed a correlation between every different group of neighbours, with possible common agreements on types and heights of fences (concrete blocks or metallic fences, ground mark line, at 50 cm high or 2 metres, depending on the case).

the main street, for security reasons. The positive feeling of strolling in their appreciated neighbourhood is partly demolished by a visual field, shaped by cars and their language patterns within houses or through parkings. There might possibly be an unconscious motivation of protection in enclosing with higher plain fences, in places where cars dominate.



**Figure 65: parkings & car oriented construction of space in the enlarged alleys of Wakaba-sample 3** Source: Author's photos, 10th July 2011,

Figure 65 in Wakaba-sample 3 is a good example. The alley has been enlarged and compared to other alleys of Wakaba; the architectural language around cars is more developed. Additionally the new construction of a house with parking outdoors for big-size cars, coexists with the built high concrete fences around the plot (3<sup>rd</sup> photo). All around this alley, I observed a dilution of the intensity of local outdoors and an increasing presence of various types of parking lots (each photos represent a different modality of parking cars for the different owners). On the 1<sup>st</sup> and 4<sup>th</sup> photos, parking occurred on private outdoors in a plot or part of the architectural composition. This new enlargement permitted this car's morphological language to fully and massively develop its expression until almost building a "car-identity" for this alley and close surroundings in Wakaba. In other parts, with smaller cars and alleys, fences are smaller or absent, and other local models of shaping outdoors can be expressed.

# 5.3.3. Emotional criteria on the perception of the outdoors in the four visual typologies ABCD

# > Binding subjectivity with objective criteria:

- The criteria related to the viewpoints on the outdoors, defined in the part 5.3.1 (multiplicity of the view's covering, organized complexity of diverse elements on the outdoors, scaling factors of views), were considered as positive and representative of the small landscape of Wakaba. In the part 5.3.2, I noticed criteria and elements of the outdoors, which work against the local small order (wall-buildings and allotments, parking's size, high fences, etc...), perceived as negative landscape assessment. Both categories of criteria are rather objective and were explored by various scolars<sup>1</sup>. However the individual or group subjectivity of the behaviors toward the small outdoors are as well elements, which interplay in the evaluation of outdoors, their perception, approprations and uses by the

<sup>&</sup>lt;sup>1</sup> See chapter 2.3 on the readability and perception of space; Antrop (2000), table of Positive and negative landscape assessment accepted by people (see chapter 2.4.2); and Gehl *et al.* (2006) in appendix F.

inhabitants. Such spatial subjectivity has also been the object of numerous studies<sup>1</sup> in attemps to understand behavioral mechanism of strolling, or the livability of open spaces for residents. Hence, we can borrow as well some scholars' criteria to build a subjective map on the perception/feelings on the small outdoors in Wakaba, which would represent nonetheless a meaningful interpretation, while correlated to the objective criteria.

- As stated previously, the four visual typologies of structural connectivity ABCD represent a timelayered space of viewpoints' interactions within outdoors, appropriated with more care than elsewhere in the neighbourhood. Comparatively to other outdoors, the unique landscape of smallness enhances feelings such as wellbeing, curiosity, attractiveness, security or any kinds of positive feelings, produced by the harmonious spatial organization, the multiple langages at different scales and the complexity of the elements displayed, the beauty of the different types of greenery, etc. Considering the whole neighbourhood's outdoors, some of them appeared very neutral or insignificant with low or no specific attraction capacity. Some other places were not accessible by the view<sup>2</sup> and left a feeling of unknown or suspicion to the walker I played. Lastly, some of them were repulsive, "ugly", carrying a negative and unsecured feeling of human desertion or danger, welcoming un-ordered storages, garbage, deteriorated constructions, too many cars or by their over-scaled size of concrete flooring.

# > Perception of the four types ABCD, 4 distinct atmosphere of smallness:

- For the typologies ABCD, I tried to categorize the diverse feelings from the perceived atmospheres with eight qualitative criteria (4\*2), by referring to the method of Ozsov et al. (1996) and using pairappreciation-adjectives<sup>3</sup>: Bright or dark/ Clean (ordered) or dirty (disordered)/ Secure or insecure/ Appealing (which stimulates the discovery of the place) or repulsive/ Calm or noisy/ Beautiful or ugly/ Spacious or narrow. Each pair-adjective interplays with the hidden rules of spatial organization given to the sight that generate the walker's emotions. Beyond their subjectivity, they express the functionning or not-functionning aspects of the outdoors' patterns and the results of spatial appropriation. The figure 66 illustrates some examples of places where the criteria are the most expressed for each frame A, B, C or D, with the general degree of evaluation: positive [clean-ordered, secure, appealing, calm, beautiful attached to the criteria of multiplicity of the view's covering/ organized complexity of diverse elements on the outdoors/ scaling factors of views] and negative [dirty-disordered, insecure, repulsive, noisy, ugly attached to disconnecting criteria working against the local small order]. The criteria [bright/dark and spacious/narrow] should be regarded by facing the peculiar character of the place, where the identity is expressed through the narrowness of the outdoors and alleys, when the spacious POPS are working against such local landscape of smallness. However a small outdoor can be perceived as spacious for an individual, if harmoniously scaled with the

<sup>&</sup>lt;sup>1</sup> In the fields of environmental psychology or urban phenomenology, starting by the Situationists, etc.

 $<sup>^{2}</sup>$  The height of some fences is too much high or the fences itselves are opaque (see part 5.3.2).

<sup>&</sup>lt;sup>3</sup> See the qualitative assessment model for the evaluation of open spaces in resident areas, in appendix E.

surroundings constructions and open spaces. Similarly, [brightness and darkness] can be attached to spacious/narrow, in technical terms of direct opening to the sunlight and livability/comfort of the place, but also in cultural terms, if darkness is more praised than lightness or represent the block's identity (The positive narrowness of spaces in densely built-up blocks tend to be darker in theory, however they can also received sunbeam in diverse spots). As a consequence, all the criteria interplay together for a general positive or negative perception. Moreover for sociologic relevance, surveys on the inhabitants' feelings toward their places could be the object of further studies, in order to assess more precesily the qualitative criteria of their outdoors through a larger public subjectivity.



**Figure 66: Outdoor spaces' evaluation, by using pair adjectives for selected ABCD typologies** Source: survey data and author observations/ author's photos from the wole neighborhood area (2010, 2011)

The figures 66, 67, 68 express the positive-negative description of the typologies ABCD, regarding the 8 pair-adjectives. Let's bind them with spatial "objective" determinants of the perceived atmosphere: Typology A:

+ An understandable perpendicular grid pattern for transversal views is notable. Some views on the outdoors are enhanced by their configurations (twisting alleys managing surprises and pushing the walker to the exploration of the place as an example), order and care, cleanliness of the place, greeneries and transversal light issued from in-between building spaces.

Views are disrupted by excessive storage (back alley in 2010 and 2011 but disappeared at the beginning of 2012, as the plot has been cleaned from any construction awaiting new construction). Some walls (from the brand new concrete- shrine) at the end of the perspective from an alley and the outscaled dispersion brought by the huge parking plot are negative aspects, which decrease the



intensity of the positive feeling in that sample. Figure 68 proposes a walk on the alleys of sample A, looking at the different outdoors and detailing the most positive aspects I encountered.

**Figure 67: Outdoors evaluation and functions for the selected ABCD typologies** Source: from author's observations and photos taken in 2010, author work on zenrin map













2















**Figure 68: Photos from selected positive-negative viewpoints in the typology A of the sample 10.** Source: Author work and photos taken in 2010 and 2011



**Figure 69: General perception and feelings on Wakaba 2-3 chome's outdoors spaces** Source: from author observations, author work

## Typology B:

+ Differently from type- A, the positive qualities of views lie in their multi-directional property (not following a perpendicular grid). Many angles are exploited from the short views, leading to nice greeneries, twinkling sides of lights within greeneries and geographical or historical elements. They contrast with the two long views following the long alleys. In between houses, outdoors propose different features (triangle, polygons etc...) bumping toward the stone wall of the valley. Another aspect is the lack of sun in many outdoors, but compensated by the high amount and density of greenery. Such aspect stimulated an imaginary aptitude. We can easily imagine ourselves in the shadow heart of the secret forest of Wakaba<sup>1</sup>. It's an unexpected hidden place, somehow isolated from the main street.

• Negative places or feelings were inexistent in that frame, which is the most interesting part of the heart of the community, however negative elements were noticed. They were situated on the boundaries of sample B (in red) but can sharply affect the qualities: POPS from the condominiums towers and blocks, a small private car parking and higher wall.

## Typology C:

+ The relevant quality of its atmosphere lies in the clear and ordered visibility of the outdoors (in opposition to type- B and differently from type- A, with its transversal grid of view's pattern). They are all well preserved, clean and organized (even the pot's arrangement seems to be planned by the inhabitants). The views in between buildings manage surprises attesting from past histories as an old well, nicely stone-paved ground, and stone wall views. It is also the area where the ambulant market displays its fruits and vegetables.

Some parts juxtaposed to the topographical valley stone-wall, in sample 8 were perceived as "unstable, disorganized, in transition process", and unoccupied<sup>2</sup> (accumulations of wood panels).

# Typology D:

+ The opposite of the type- C, the type- D proposes the wildest greeneries, offered to the view of the observer. Such a wild aspect is enhanced by the corresponding observation of the long transversal views isolated in the viewpoint analysis. Longer alleys with smaller depths (compared to other types) and longer transversal views with thicker vegetation. If the type- B represented the configurational forest, the type- D shows the physical green representation of the secret forest.

High walls& fences mainly and some new buildings (wrongly positioned) distort those transversal views. The two enlargements at 4m wide represent the strongest danger for the atmosphere, as they changed the atmosphere in the alley with visually disturbing car-oriented ground floors.

<sup>&</sup>lt;sup>1</sup> In reference to Maki F. (2001) feelings during his childhood.

<sup>&</sup>lt;sup>2</sup> I supposed them unoccupied. Such an observation was made in 2010 and 2011. When I went back to the site in 2012, I saw that most of that land and the stone valley wall have been destroyed. Instead a large assembly of land occured for the construction of a massive new condominium. The spectacular and disturbing aspect of this new redevelopment lies in the fact that the valley's topography, a fundamental element (also a cultural landscape signal) that structures Wakaba, has been transformed and replaced by an excavation created for the new condo.

The figure 69 draws the map of Wakaba with the general feelings, positive and negative qualities, following some recommendations from the Antrop's landscape assessment model (see chapter 2.3.2). It appears that the isolated viewpoints typologies ABCD are in real, the most relevant places, where the different atmospheres find a physical signification. This attempt could be generalized to the whole outdoors of both districts more precisely than the map exposed through the residents' survey. I focused on the evaluation of the views' richness, through broad definition of qualitative criteria composing the feeling resulting from the diverse atmospheres in the typologies of structural connectvity ABCD. I connected the feelings with rather objective spatial determinants observed and attached to the smallness of the place (5.3.1). However the approach raises questions. As a walker, a stranger to the place and given my acculturation position, could I represent a good candidate? The expression of feelings are very much personal, but can encompass universal values and the unique places of Wakaba neighborhood is praised by numerous walkers (resident or not, japanese or foreigners). It reflects the environmental psychological aspects of a place, which resonates with the single subjectivity itself. This approach focus on the morphology, however it could be submitted to the residents, in order to evaluate their feelings on their outdoors and obtain sociological relevances on their perceived atmospheres. To conclude, it is fundamental to underline that the visual patterns of structural connectivity ABCD, or the oudoors in orange (figures 67) and blue striped (figure 69), obtained by historical layers of viewpoints through the establised viewpoint analysis, present in the reality of the field observations, positive physical qualitie. They remain the most enhanced and appealing places, comparatively to other areas of Wakaba. The outdoor spaces underlined in yellow (figures 67&69) are complementary positive qualities from the open spaces observed, but not especially detected through the viewpoint analytical method. They could complete the first row viewpoint analysis. Furthermore, the four types ABCD show a very rich inner general composition along with the viewpoint features and four different atmospheres can be clearly read. In the next part, let's confront each viewpoints axes and crossing viewpoints with the field's observations.

# **5.4. Structural visual connectivity and functional visual connectivity in Wakaba** 5.4.1. Confronting the view-crossings and the view-axes with the reality of the field

Let's apply the positive/negative qualitative criteria to each viewpoints of the specific outdoors ABCD. It completes the structural morphological approach on viewpoints, done in chapter 4. The three panels from the table 6 and the figure 70 identify the physical context and outdoors frame from the viewpoint axes and crossing view spots from the structural viewpoint map, as observed on the field in Wakaba. The numbers name the axes and the associated letter + number represent the crossing spots (a, b, c, d respectively associated to the typologies A, B, C, D).

View-	Presence/	breakthrough	Perception	View-	Present	Types of outdoor,	Perception
axes	Absence	Transparency		crossin	/	Object or greenery	
				gs	Absent		
1	Р	Yes	Positive ++	a1	Р	Residual space	Negative
						Technical space	No-access/dark
2	Р	Yes	Negative	a2	Р	Crossing point	Neutral 0
			Wide parking			No special display	
3	р	Yes	Positive +++	a3	Р	Group of plants	Positive ++
5	•	100	Light greenery	us	-	oroup or prains	
4	D	Vec	Positive ++	24	D	Group of plants	Positive ++
4	1	105	Care but shrino	a+	1	Group of plants	
5	D	Vac hut			D	Naighborg goot/	Desitive 11
3	P		Positive ++	as	Р	The late	Positive ++
		End-storage	~			I hreshold-tree	
6	р	Yes	Positive +++	a6	(P)	Building site	Transforming 0
			Dark-greenery				
7	Р	Yes	Negative -	a7	(p)	Building site/ fence	Transforming 0
			Parking, enlarged				
			alley proportion's				
			trouble				
8	Р	Yes	Positive +++	e	Р	4 Neighbours	Positive ++
			Secrecy, green			Spot/ entrance	
9	Р	Yes	Positive +	e1	р	Old well near shrine	Positive +++
			curiosity				
10	Р	Yes	Positive +	b1	Р	House's threshold	Positve +
			Green but wall				Few plants and more
							floor concrete
11	Р	Yes-no	Positive ++	h2	Р	Private small garden	Positive +
		(high green and	Diversity of views	02	-	Tirrate binan garden	Green but juxtaposed
		(ingli green and	toward green, but wall				to condominium
12	D	Voc No (high	Desitive	h2	D	Vagatable and plants	
12	r	res-ino (iligii	Diversity of views/	03	г	vegetable and plants	Diverse views
		green an rences)	Diversity of views/			garden	Diverse views
10			green				
13	Р	Yes	Positive +++	b4	Р	House's threshold,	Positive +++
			Green, old houses,			full of plants	
			small scales, interiority				
14	Р	Yes and no (end	Positive +++	b5	Р	Groups of plants in	Positive +++
		house)	Ibid, positive feelings,			between houses	View on the channel
			small scale interiority			along old channel	(local history element)
15	Р	Yes	Positive +++	b6	Р	Groups of plants in	Positive +++
			ibid			between houses	View on the channel
						along old channel	(local history element)
16	A(in 2012	2012 houses	Negative	b7	Р	Groups of plants	Positive +++
	destroyed)	erased: broader	Change of scale; big				
	• /	outdoors	plot				
17	Р	Yes	Positive +++	b8	Р	Groups of plants-	Positive +++
1,		100		00	-	and trees.	
18	A (in 2012	2012 houses	Nagativa	bQ	D	Groups of plants	Positive +++
10	A(III 2012	2012 nouses	Change of socia Dig	09	1	traces amolt garden	
	destroyed)	erased: broader	Change of scale. Big			trees; small garden	

		outdoors	plot			and shrine	
19	Р	Blocked by high	Positive +	c1	А	Access to houses	Negative ++
		bushes					Dark-bad state
20	Р	Yes	Positive +++	c2	Р	Large threahold	Positive +
21	Р	Yes	Positive +++	c3	Р	Threasholds with	Positive ++
						plants	
22	Р	Yes	Positive +++	c4	Р	Small fence wall	Neutral 0
						/residual spaces	
23	Р	No- obstacle	Positive +	c5	Α	Wall of valley	Negative
24	Р	No- obstacle	Negative -	c6	А	In between houses	Neutral 0
			Houses' walls and few				
			plants				
25	Р	Yes	Negative -	c7	Р	Access to houses,	Positive +
			Valley Wall-few			green thresholds	
			plants				
26	P (shorter)	Yes	Positive ++	d1	А	Stairs from a house	Neutral 0
27	Р	No (High	Positive +	d2	Р	Small wild green	Positive +++
		bushes)	(green/ tree)			garden (bosque)	surprising
28	Р	Yes	Negative	d3	Р	Neighbors spot and	Positive +++
			(repulsive)			bikes parking/	
						Thresholds-tree	
29	Р	Yes	Positive +	d4	Р	Neighbors spot and	Positive +++
			(end perspective on			bikes parking/	
			small house)			Thresholds-tree	
30	Р	Yes/no	Neutral 0	d5	Р	Groups of high	Positive +
						plants	
31	Р	Yes	Negative	d6	Р	Groups of high	Positive +
			(high fences)			plants	
32	Р	Yes	Negative	d7	Р	Groups of high	Positive +
			Empty space and			plants	
			fences)		_		
33	Р	Yes(encumbered	Negative	d8	Р	Neighbors spot and	Positive +++
		-high bushes)	Big parking			bikes parking/	
	-			10		Thresholds-tree	
34	Р	Yes	Negative	d9	Α	parking	Negative
			Supermarket wall/no				no green, boring
25	•	No. compete	green/empty	410	D	high hughes toos	De sitisse de la
33	A	PODS		010	r	night busites, trees,	Wild thick groop
36	D	Vas		f	D	Back house space	Negative
50	1	105		1	1	taken by concrete	Overscaled and empty
						niazza surrounded	outdoors shade
						hy high fences	Sutuoois, silduc
37	Р	Ves	Negative -			oy ingh tenees	
51	1	103	overscaled-				
Disals		C Diada 7.9	A Disclet		D. Dlask	- 2.4 D. D.L.	1 1 5

 Block-samples
 C-Block 7-8
 A- Block 10
 D- Blocks 3-4
 B- Blocks 1-5

 In red, are the elements, which disappeared from the viewpoint's analysis, but from which the outdoor spaces still exist and can be observed on the field.
 B- Blocks 1-5

 Table 6 : table of the identified view-axes and view-crossing through the field reality

 Source: from author's, through photos taken in 2010 and 2011







Figure 70: localisation on site and appearance of the view crossing spots and view axes from viewpoint methodology Source: photos taken in 2012, from author observations, author work

Here are some observations:

- Only few identified crossing spots, which do not physically exist, were noticed: in A, the spot a6; in C, the spot c1 disturbed by the demolitions for the future condominium construction; in D, the spot d1 is blocked by the wall of a house and d3, blocked by the fences from the allotment.

- The panels also show the transformed places, where disappeared axes or spots occurred (represented in light blue spots and axes, written in red on the figure):

• Some disappeared spots (isolated through the viewpoint map analysis) happen to be old community spots (wells as the spots e1 in sample 11 and the c4 in sample 7; outdoors facing a remaining old wooden house in spot f from sample 9). Some disappeared spots are still proposing a cleared space in the shape of a small and often nicely arranged garden as d10 in sample 3, c6 and c7 in sample 7. The rest of disappeared spots are replaced by new constructions or parking (d9).

• It is also notable to observe the disappeared spot f (panel 2) from sample 9. The spot used to be around a nice remaining old wooden house. Unfortunately the massive condominium and the oversized parking lots, erased specificities of such a spot. However the association of such a nice house with an old crossing spot authorizes the hypothesis of important neighbour's community meeting spot (hypothesis to be confirmed with a further possible social survey on the use of such a significant place).

• Regarding the disappeared viewpoint axes, their impoverishment in visual terms is confirmed by their new vocation, as a simple border between large plot assemblies for condominiums and the adjoining "traditional features". A new language of enclosure and separation brought by those new constructions replaced a rich visual perspective of encounters in those axes. They cumulated, as visible in the present viewpoint axes, visual signals but also the largest possibilities to be viewed from different angles, positions and often from different alleys and lanes. The disappeared viewpoint axes 27 to 32, replaced by a simple border, are examples.

• In sample 7, the viewpoint axes 23, 24, 25 disappeared, not because of new plots' assembly for condominium, but because of a wrong position for the construction of new houses, blocking long established visual perspectives. It contributed in restraining the embedded visual space, which might be detrimental to a certain feeling of security. As sample 7 is juxtaposed to the valley wall, offering direct views on the wall, the perspectives are shortened. Having long viewpoint axes might have been qualitative criteria, by representing a breathing open space.

• Some disappeared viewpoint axes from the mapping analysis lost their specificity because of adjoining new constructions (34, 36, and 37) and not especially by outstanding modifications (as in the case for axe 35). It is interesting to notice the case of axes 34 in sample 2, near the supermarket building. In the reality of field observation, the alley is not welcoming at all. There are no greeneries and no other signs of local appropriation of outdoors. It appears directly associated as a domestic space related to the functioning of the supermarket. Similarly, axe 36 lost its visual qualities because of the positioning of new houses with their higher fences.

- Regarding the present crossing spots, some of them appear as real meeting spots for the neighbours, some are small gardens, larger entrance spaces, some have just the particularity of being simple points of visual crossing, and some others are visual crossing spots on historical urban elements.

The crossing point e, is a good example of a neighbour's meeting spot (and the place in front of the house of the neighbour's association president), by their large outdoors arrangement and nicely arranged entrance spaces. So are a3, a5, b7, b8, b9, b2, d3&d4. b3, b4, d2 &d8 (secret neighbour's visual garden). The crossing spots a1, a2, a4, a7, d5, d6, d7 are simple visual crossing, with the particularity to be present for more than 50 years. The spots b5, b6 directly highlight the old channel, an element of the history of the place.

- Although now inaccessible, views toward those invisible points are very important. Nice greeneries and old pavements partially recovering the channel propose a singularity in the visual field that enhances the place. Between 2010, 2011, when the field observations had been done, and the situation in 2012, it is important to say that the viewpoint axes 18 and 16 disappeared, victim of a massive plot assembly. Thus, it is a part of the local visual mark which is again affected.

- Additionally to the fact that the four types ABCD (from the mapping process to the reality of their physical conditions) welcome the most interesting open spaces, qualitatively speaking, more detailed precisions on this coordination can be done: the crossing spots and viewpoint axes revealed mostly the major attracting spaces but also the subtle viewpoint perspectives; Some of them were a larger entrance space, where I could observe neighbours chatting. Some others were nicely arranged plant gardens, or vegetable gardens; Some others pointed to elements attesting from history of the open spaces; some by their arrangement could be well used for gathering or children's activities etc... some disappeared viewpoint axes and spots emphasized old urban elements such as wells, or an old wooden house, permitting the hypothesis of an important place for the community previously. Some other disappeared viewpoint spots and axes endangered the whole frame by highlighting the density effect within the outdoors (by intensifying the feeling of lack of space, loss of breath etc...).

- Now that we made a strong correspondence between the row structural mapping of structural connectivity, the viewpoint method and the different criteria to read the physical appreciation of the viewpoint typologies, it is important to approach the visual connectivity, through the understanding of the field's practice in small dense fabric, to assess anoter aspect of the functional side of the notion.

# 5.4.2. Experiencing the functional visual connectivity

## > 5 elements of the outdoors' experience toward the functional visual connectivity

The notion of connectivity encompasses structural and functional definition (chapter 1). Structural visual connectivity has been established through morphological viewpoint analysis (chapter 4) and acknowledged by experiencing and confronting the resulting outdoors (5.3.3). Different criteria were

presented to understand the composition of the visual field in Wakaba, part of the functionality of the space, specifically in the structural patterns ABCD (5.3.1 and 5.3.2). This part will complete the functional visual connectivity<sup>1</sup> in Wakaba dense frame. At the heart of the organic process is the interaction between a morphological shape and the picturesque effect produced to the walker. Such process also responds to *gold rules* <sup>2</sup>(see part 2.2). A parallel can be established with the five singularities of the visual experience in piazzas and the outdoors of Wakaba. They present many similarities, although different scales are involved<sup>3</sup>. Chetkiewicz *et al.* (2006) define scale as "the spatial or temporal dimension of an object or process characterized by both grain and extent". Hence, the grain and the proportion prevail, as a homothetic ratio. The five criteria of composition, defined by Sitte in a highly organic urban spatial configuration correspond to the functional connectivity. They encompass the diverse criteria of the visual field toward the visual behaviour. A parallel can be drawned with the landscape of small elements, also shaping a functional practice at smaller scale.



**Figure 71: Selected outoor spaces in Wakaba** Source: author drawing from Zenrin 2008 base map

## 1- Following the environment

- The release from the centre to better connect with the built environment, as shown in Verona is a strategy for the walker to enhance surprises produced by a monument and its adjoining piazza. The introduction of a new building and outdoors should follow the built environment and its language, where each house gets assimilated to its neighbourship to create an urban neighbourhood. The question is about the preservation and transmission of a traditional frame and scale upon which contemporary inputs are grafted. Hence, the organic grain of Wakaba aimed at nurturing its spatial organisation and by counterexample, massive changes break this order.

- The new outdoors of a condominium (POPS) emphasizes the building, so that the walker has no other choice given the imposing structure but to look at it and to feel disappointed from the poor and

<sup>&</sup>lt;sup>1</sup> Functional connectivity: "Describes the ease with which individuals can move about within the landscapes as a function of the organism's behavioural response to landscape elements and the spatial configuration of the entire landscape" (Kindlmann and Burel, 2008). "The extent to which a species or population can move among landscapes elements in a mosaic of habitat types" (Hilty et al. 2006). Definition from the ecological landscape field (see appendix A).

<sup>&</sup>lt;sup>2</sup> Underlined by Sitte's analysis of the Italian piazza (see Part I, chapter 2).

<sup>&</sup>lt;sup>3</sup> The alleys, the space in-between buildings or the small green gardens or entrances, are far smaller than Italian piazzas, their streets or church threshold, although, their scale can be comparable in some cases: small lanes in Italian organic centres can be similar in measurements to the small alleys of a dense neighborhood in Tokyo.
huge wall-facade of the condominium (see 2<sup>nd</sup> and 3<sup>rd</sup> photos from left in figure 72). Hence, the L shape of the new POPS offers two main wall-facades to be observed. The integration in the urban framework is not respected with its position and its size, increasing its "monumentality" effect. Yet, a condominium is not a monument. Hence, it is an element of the eye's attraction and distraction in the undesired sense. The aesthetic and artistic elements or a seeking of organized complexity in the facades composition are completely absent in the housing. Instead, the disproportionate wall-facade is very detrimental to the outdoors experience for the walker, producing a feeling of anxiety, which is hopefully compensated by the high complex density of objects (different geometries, rhythms, colours etc....) composing the facades of small adjoining houses. The over-sized building and its POPS, by its contrasting dimension in regards to the local frame of sample 9, play the same role as the San Fermon Maggiore church and adjoining piazza. However the poor aesthetic quality and the function of the condominium introduce a major failure in the imageability of the place, which emphasizes the confusion on the place.



Figure 72: Confusions emanating from the aesthetic role of the housing estate and its POPS, playing the similar role of a piazza with poor artistic qualities and low complexity. The building becomes a monument in front of houses with richer complexity. Source: author photos in Wakaba (December 2010 and 28<sup>th</sup> April 2011)

Source: author photos in Wakaba (December 2010 and 28<sup>th</sup> April 2011)

### 2- Visual enclosure of an outdoor space to instantly capture the place and build an image

Figure 73 shows, from left to right, a walking path access to the "piazza" with a perspective on a shrine, wall and plants for a perfect aesthetic effect (2<sup>nd</sup> photo), other walking paths without perspective but enhancing the surprise effect (3<sup>rd</sup> and 4<sup>th</sup> photos), a viewpoint access path in between two houses (5<sup>th</sup> photo) and the neighbourhood wall. There are also other places in the Wakaba area that encompass all those qualities, as in sample 11, an abandoned plot (figure 74). From the left to right side, the 1<sup>st</sup> photo shows a walking access path from the main street to the outdoor space (2<sup>nd</sup> and 3<sup>rd</sup> photos). 5<sup>th</sup> and 4<sup>th</sup> photos show viewpoints' access paths. The 5<sup>th</sup> photo shows historical elements (basement from the topography and an old hidden channel with old style stones). The facades of the small piazza (2<sup>nd</sup> and 3<sup>rd</sup> photos) offer a proportionate composition of geometrical shapes and different colours, architectural styles that enter in dialogue with each other and tell a story about the outdoors. Closing piazzas, to seek an artistic effect on a given outdoor space, is the art of quickly captivating a consistent image in the mind for the observer and to allowing the enjoyment of a multiple possibility of viewpoints and walking paths from multiple angles, as shown in the example of piazza S. Pietro in

Mantoue. In sample 10, where the morphological pattern A has been isolated, the abandoned plot, easily understood and appropriated by the walker, plays the perfect role of a local "piazza". There is a great picturesque effect while borrowing the different angles of viewpoints and walking paths toward it. It is a perfect breathing, meeting and sunbathing place, where kids could play. Importantly, the small Shinto shrine at the end of the main alley, on the border of this local piazza, enhances the quality of this place, where many neighbours used to gather in previous times, as explained by the elder residents. It plays the role of the Italian church facing the piazza and brings spiritual meaning to the place. Moreover, the area wall, as a testimony from the settlement history, is opened widely to the Wakaba "piazza", overtaken by wild climbing plants, providing a natural significance and the well-being related to it. It has a similar function as the statues and fountains on the edges of a piazza, telling about the history of the place. All the facades bordering the outdoor spaces present an accumulation of elements following organized complexities (with criteria defined in the previous part, as for example details from stone stacking). Hence, each small outdoors is enclosed and constructs entities that the eyes can instantly organize.



**Figure 73: Wakaba sample 10- piazza with a picturesque effect for outdoor space** Source: author photos in Wakaba (March 2010)



**Figure 74: Wakaba sample 11- piazza with a picturesque effect for outdoor space** Source: author photos in Wakaba (February 2011)

### 3- Depth and proportion attributes for perspective and a harmonious effect

The parallel with the piazza in Firenze can be made in terms of a proportion game (see part 2.2). The example of Wakaba- sample 3 focuses on the dimension of two alleys (alleys above and below, circled in red, figure 70, map 3). The 1<sup>st</sup> alley (above, figure 68 and 1<sup>st</sup> photo in figure 75) was enlarged<sup>1</sup> and an attempt to follow an alignment could be observed. The result is confusion between the function of the alley toward the main street, as they both almost have the same width. For the walker they seem identical, but the alley has a dead-end. The 2<sup>nd</sup> alley (below, figure 70 and 2<sup>nd</sup> photo figure 75) kept its

<sup>&</sup>lt;sup>1</sup> According to the 4m rule

width (around 1m), coupled with a long depth<sup>1</sup>. The very long depth counterbalances the short width, enhancing the perspective and the graduation of the intimate atmosphere of the place.



**Figure 75: Wakaba- sample 3, about proportions in alleys** Source: author photos in Wakaba (July and Jan. 2011)

Such an alley is filled with a "secret- pristine and impermanent" spirit enhanced by shadow and sparkling lights. No aspecific alignment is pursued; but the depth accentuates a geometrical alignment. The figure illustrates both types of disproportionate and proportionate outdoors and their levels of appropriation by the inhabitants.

When the old alley is highly vegetalized and filled with many types of objects from their owners, the reconfiguration portrays a more impersonal image, with opacity toward privacy (high fences) and similar to many outdoors in Tokyo.

### 4- Irregularities of outdoors' arrangement

The irregularity of old piazzas plays a natural enhancing effect and refers to the multi-layered construction of the cities through their permanent adjustments in small steps of edification, resulting in various and unique patterns of outdoors<sup>2</sup>. Similarly to Italian irregular piazzas, Wakaba small irregular outdoors and corners appear to be layered patterns, which cumulate testimonies of their history.



Figure 76: Wakaba- sample 1, irregular path/ small shrine in a corner/ irregular outdoors underlining old cannal/ irregularity used as vegetables garden/ storage Source: author photos in Wakaba (20th January 2010)

The residents mentioned that they like to observe the progressive small changes in their outdoors and the seasonal effects on their plants. Those irregularities of outdoor spaces are an element, part of the complex organized patterns of the places<sup>1</sup>, which call back to the biological memory of every human and natural being, as underlined by Alexander and Salingaros. The photos taken in Wakaba 3 chome, sample 1 (figure 76), illustrate the different corners found while following an "irregular" path. It multiplies corners used by the residents for their plants, bicycles, or for the disposal of objects

<sup>&</sup>lt;sup>1</sup> Main characteristics of the alley and outdoors in sample 3 and 4

 $<sup>^{2}</sup>$  The outdoors are not especially following a strict geometrical drawing. In the Italian piazzas the corners were used to display various monuments, public fountains and other ancient types of public furniture.

<sup>&</sup>lt;sup>1</sup> Together with plant features, object disposal patterns, material from facades rhythms and compositions etc...

emphasize the appropriation of the space. The uniqueness of each space is proportionate to the feeling of seeking something also unique for the walkers, such as small changes in the daily landscape (new small fences, more pots, a new small place to grow vegetables, a new added storage in a light material that enlarges the house etc...). This aspect is a qualitative plus, which helps to feel the layered evolution of the space through the perception of the objects in a spatial and temporal benchmark, with a parallel between time-layers and object accumulation. In opposition, to introduce a new patterns in such a dense neighbourhood (mansions and their POPS) has the effect of erasing embedded memories that anyone could experience or feel, with or without knowledge of the area. Following the models requirements, in terms of complexity and scaling factors, the viewpoints on the outdoors produce harmonious perspectives that are well sized and adapted to the various shapes.

#### 5- Groups of scattered but connected small squares

- In the Italian city, the stroller can choose various walking paths leading to new piazzas each time, shaping a network of interconnected piazzas. The irregular grouping effect enhances the view of the walker. While strolling in Wakaba, especially in the fragments ABCD, the visual strolling is similarly stimulated. The selected pattern A (figure 76, red circle in image 5-figure 70) emphasizes the value produced by successive outdoors. Those small "piazzas" are empty plots, larger thresholds in front of house, the enlargement of an alley and the entire irregular outdoors.

- Another strong example of a succession of small piazzas, shaping the visual functional connectivity is expressed by the small outdoors of sample 1 (figure 77). They have been identified from the perspective of structural visual connectivity (chapter 4) as crossing spots. The walking experience emphasizes their singularities, as they cumulate geographical elements, irregularities with diverse angles of perception, multiple features and functions of the outdoors, visual enclosure (figures 78). Each small piazza has edges and invisible borders expressed by the arrangements of the greeneries (b8 and b9), the signals from houses' entrance spaces (b9) and the dispositions of some elements (b7, shrine, open small fence, change of pavements toward b6 etc...). The harmonious effect is expressed by the appropriate scaling factor, despite the very small depth and width of such a place, sagged under the 10m valley wall.

#### > The specificity of Wakaba's outdoors in functional terms: strolling at small-scale

The connective process for outdoors patterns captivates the attention of the walker of the Wakaba area. When the walking paths cannot be used, sight continues along the way. View paths and walking paths have a similar value in shaping a behavioural response and both are effective for expressing the connectivity of a place. The sight become a substitute to the feet in assessing the scenery of smallness through the multiple small-scaled objects.



**Figure 77: A succession of qualitative piazzas along the crossing view spots in sample 1, from b9 to b1** Source: work on photos taken in 2012, from author observations



**Figure 78: Wakaba- sample 10, group of "piazzas" and viewing patterns binding them** Source: author photos in Wakaba-2-chome (July and January 2011)

### > Threats on functional visual connectivity in the selected ABCD patterns of Wakaba

The four typologies welcome elements that represent obstacles (figure 79), affecting the view paths. In those patterns, functional visual connectivity and models of a visual field are stronger than elsewhere.



For each different pattern, some concrete fences with a significant height (over 2 m) and a house's position are sometimes affecting the transversality characterizing the views in the outdoors. In some cases, it contributes to enclose the whole group of plots, which can become vulnerable (C pattern). This mechanism also happens at the end of alleys, where many breakthrough lights and views are absent in the plot.

Figure 79:Wakaba ABCD features, threats on visual connectivity (from left to right, 1<sup>st</sup> row- 1<sup>st</sup> and 2<sup>nd</sup> for A pattern, 3<sup>rd</sup> and 4<sup>th</sup> for C pattern, 2<sup>nd</sup> row for B pattern and 3<sup>rd</sup> row for D pattern) Source: author's photos in 2011

### 5.4.3. Discussion on the outcomes of the functional and structural visual connectivity

### > The different steps of the method:

- The decomposition of the visual behaviour into different viewpoints;

- Its further structural interpretations with the crossing-spots and view-axes (the visual structural connectivity from the viewpoint analysis);

- The confrontation with the reality of the visual skins by defining local visual criteria (scale, multiplicity and complexity of objects) attached to the stimulating feelings on the place;

- Decoding a possible visual behaviour attached to the spatial readability to apprehend functionally the landscape of small outdoors. The visual connectivity (functional and structural) has been established;

### > Observations of the outdoors' displays, the present and disappeared view-axes and spots:

1- I could correlate the view-crossings and view-axes with the most appealing or special elements of the landscape: many view-spots and view-axes, were along the most vivid alleys (sample 1-5-6) or in between houses' outdoors with wild green (in sample 3-4), or emphasizing old neighbordhood spots (viewlines toward the canal, a well and a small shrine). Spots also happen to be very small garden, or signals with a tree and abundant plants on pots, or green outdoors. Such places seem to have a meaning for the residents who take good care of them<sup>1</sup>. The viewpoint method could isolate the appealing visual spots and ways from the neighborhood, shaped by the community members.

**2-** The outdoors following the disappeared visual structural connectivity comparatively, lost the visual characteristic of complexity of smallness and appeal. Many of them turned to more anonymous garden from mansion<sup>2</sup>, after the blocks' transformation, and plot's gathering for new mansions/condominiums. Such large plot enclosed with the concrete wall of the building or high fences. For some lost view-axes, the visual breakthrough remained, however the abundant viewlines disappeared (loss of visual capacity, e.g. loss in the different possibilities of viewpoints for one target) and the outdoors from mansion propose less visual complexity and multiplicity (one designed proposition and not the result of each different residents' ideas). Interestingly, some old meeting points, as two wells (block 7 and 9) were mentioned in the disappeared view-axes<sup>3</sup>.

### > Outcomes:

1- The outdoors do not have the same value although, all the greeneries near houses looks similar. Some of them are structural and positionned in important visual path/spot (visual structural

<sup>&</sup>lt;sup>1</sup> They look very cute and many residents like to have their daily walk in the old alleys, as they told me. I met an elder lady in the old roji (3-chome) when she was just taking care of one view-spot I isolated (spot b8, figure 77). She explained me that this corner in front of her house was important as she loved to take care of all the plants and the young tree, including her neighbor's greenery. It was her corner of joy but it shaped a sort of spatial articulation, with a small garden and its small shrine, enjoyable for every neighbors.

 $<sup>^{2}</sup>$  In the best case, they provide a green design with bushes (view-axes 27,30, figure 70); In the worse one, they offer only a poor viewline toward a repulsive groundfloor made of concrete (figure 70, view-axe 28).

<sup>&</sup>lt;sup>3</sup> One well is hidden in the dark in between two old wood houses and the other is in a visual crossing, however there is no plants or elements suggesting residents' appropriation around.

connectivity), playing the role of signal or the site for the walker. They persisted in their morphologies for more than 50 years. In Wakaba, each block has its own visual specificity. The types ABCD propose different and unique outdoors landscapes, with the associated visual experiences. The viewpoint methodology differentiated determinant outdoors for the block's visual qualities and understanding. They seem to sustain the whole block's visual connectivity capacity and bind the emotional behaviour of the walker, the residents' appropriation with an intelligible spatial configuration (visual structural connectivity). The method understood the hidden value of some network of small outdoors, which might appear irrelevant in the first place.

2- The viewpoint method took into consideration the layers of evolution and transformation of the fabric's structure through finner visual tools, adapted to the high-density of the small-grained fabric. The density of the built-up fabric defines the ground built coverage area from groups of constructions in selected parts of the neighbourhood<sup>1</sup>. However the high-density fabric also refers to the specificity of traditional framework with the previous *nagaya* system, which provided the footprints of alleys with short width and the juxtaposed small houses. The little breathing outdoors shape the smallgrained fabric, previously densely populated. The viewpoint method is a visual morphogenetic approach on such specific outdoors. To some extent, it highlights the organic and participative process for each owner to shape their place. The visual connectivity put into evidence some local visual rules of such process, resulting in vivid and complex visual scene (just by the multiple occurrences of viewlines), which can change with subtle modifications of the fabric (displacement or enlargment of a house/alley) or disappear if the block undergoes strong transformations<sup>2</sup>. A new visual langage can be developed. The value of some outdoors do not lie exclusively in their physical arrangements or embellishments, but also in their capacity to promote a cumulated visual experience<sup>3</sup>, the display of a visual intelligible order as a visual landmark, structuring the blocks and the people's visual encounter, and possibly strengthening the community linkage<sup>4</sup>.

### > Limitations:

1- I cannot say with this method that the outdoors path/spots were nicely and similarly appropriated over the last 50 years and before, and their meaning for the community. Further studies, with sociologic bases, could explore the community visual behaviour and opinions, by surveying the elder residents of the neighborhood.

**2-** The disappeared important paths/spots were highlighted, when the block overcomed a massive or a subtle transformation. It can modify the visual behaviour and the spatial appropriation, as it changed

<sup>&</sup>lt;sup>1</sup> To recall, in this research the density is understood as the built density or the floor space or the built footprint in the plot (in comparison to the remaining area in the plot), or the percentage of surface occupied by the built entities on the groundfloor, compared to the non-built at the scale of the plot or the block. I am not considering the different floors of a building but only the groundfloor footprint. I proceeded by block sample in the case of Wakaba.

<sup>&</sup>lt;sup>2</sup> The blocks 2 and 9 were over-transformed. All the viewlines disappeared.

<sup>&</sup>lt;sup>3</sup> The 4 types of viewlines are part of the visual behaviour, at least for the 50 years analyzed in this present work.

<sup>&</sup>lt;sup>4</sup> as the residents expressed for the last big earthquake of march 11th 2011.

the types of outdoors. However the viewpoint method cannot confirm that nicely arranged outdoors are excusively emanating from the visual connectivity, as spontaneous greeneries were noticed elsewhere. Even with drastic changes, some places could be appropriated by local residents. I observed nice places in and out of the structural visual connectivity but also poor resident's outdoors after a loss of visual connectivity<sup>1</sup>. The interest of outdoors within visual connectivity remains in the fact that: they are not only spontenaous enhancement but they shape and perpetrate a visual order<sup>2</sup> (attached to the high-density fabric singularity and its small-grained arrangement); Moreover they displayed the most appealing and appropriated places, where the community visual linkage is stronger.

# **5.5. Discussion: visual connectivity, as a singular local urban landmark in Wakaba** 5.5.1. Visual connectivity emphasizing the local scenic features in Wakaba

### Highlighting the visual specificities in Wakaba: the contrasting experience of visual and walking paths, the parallel with market places

Functional visual connectivity questions the feasibility of a space for the walker. Shall all the spaces, be practicable for the walker to appropriate the environment physically and emotionally?

- While walking in the small lanes of a market, in between the different stalls of vegetables, fruits, fish and meats, many spots are not accessible on foot but only with the eyes. However, the proximity of the different entities and the fact that the sight can automatically integrate and draw a pattern of the whole market is enough to provide a high emotional state while trying to make your way, walking on the feet of other buyers or bumping accidentally into them. The market has a spatial high readability, as one can easily delimitate each stall. The space in between two stalls cannot be practicable, but remain permeable enough to see other rows of stalls behind and to get a quick mental representation (a sort of structural connectivity mind-map) of the most efficient way to reach the fruit or fish corners, as an example. Actually, within the market, the viewpoints are highly solicitated compared to the walking experience. The intense experience of strolling through market stalls and feeling the specific atmosphere is also a product of the walker's mental ability to draw the place. His imagination and imageability of the place issued through a visual connective process increases the emotions of the five

<sup>&</sup>lt;sup>1</sup> In the block 9, it is very obvious: in front of the huge condos and its poor outdoors' design (empty of green, metallic high fences and paved with concrete), the adjoining small houses errected their small plants in pots, but such greenery is not as rich as in other blocks with strong visual connectivity value, and where the residents planted small trees and have small vegetable garden...not only pots of plants.

 $<sup>^{2}</sup>$  We can make the parallel with line of trees in the avenue. The angle trees are signals in the landscape and most probably, the first, middle and last trees added to the respect of an equal distance between trees can suggest an ordered row-structure of trees; however with less or more trees in between the row, the alignment would still be understood, but if signals trees are suppressed as an example, then the visual order of alignment is suppressed and a different visual structure and behaviour appears.

senses<sup>1</sup>. Markets are a place that cumulates various objects following local orders, which participates in the aesthetical composition detected by the eyes. It puts into an exclusive relationship man-made scale objects, through a highly organized complexity for the arrangements of the multiple objects at various levels (meat, fish, vegetables, stalls, people etc). There is a strong similarity of such high dense patterns in structural terms, with the Wakaba neighbourhood, as markets are also highly "organic" structures. Within a market place, blocked viewpoints<sup>2</sup> determine the contact spaces at a human scale, whereas the transversal character of viewpoints participates in the imageability of the market, guides the movements of the buyers, and permits understanding the high levels of complexity, by accessing the global structure of the place. For such specific configurations ( small-grained dense features), the necessity of having practicable paths is not the only way to enjoy the relationship with the different outdoors. Viewpoints contribute to enhance the strolling feeling for adventurous discoveries in each corner, between each house, while looking at the complex composition of objects and greenery disposition within alleys or just by the intertwined combinations of lights, their reflexions on the leaves or facades, shadows, colour nuances etc.

- The practicability of the outdoors by walking and visual paths follows similar processes. More specifically exclusive visual paths represent a singularity of the outdoors experience in Wakaba. They draw morphological patterns (among which the viewpoint patterns ABCD) and follow structural connectivity processes, as orders for reading the place. The intrinsic spatial arrangements (structural connectivity, detected through the viewpoint analysis), interplay with the place's appropriation and the intertwined visual behaviour (functional visual connectivity), to generate the perception of an atmosphere, which overcomes any boundaries toward a singular visual landscape of small vernacular outdoors perpetrated by each owner's appropriation of the place.

- Similarly to the Italian series of small piazzas or the tiny outdoors of the market place, the characteristics of outdoors play a vital role in the vernacular fabric of Wakaba and its artistic effect: A small street leading to a piazza facing a church is comparable with the space between two houses leading to a forgotten canal. Such outdoors are often non-practicable on foot but visible by the walker, or sustaining the possibility of a visual encounter.

### Visual connectivity reading the *geni locci* of Shitamachi in the "organic/vernacular" atmosphere of Wakaba

- In the sub-conclusion 4.4.4, I precised the Wakaba visual landmark, comparatively to layers of time. It has been working over the 50 years of the mapping analysis, as the figure 47 shows the persisting viewlines (multiple colors), those which disappeared (red) or were newly created (black). The singularity lies in the persistance over the years of the viewlines' features. My analysis started in 1967,

<sup>&</sup>lt;sup>1</sup> Five senses: touching people and objects, smells from products, markets are noisy, tasting some fruits...

 $<sup>^{2}</sup>$  The buyers need to observe very closely the different products on the stalls and buy them (be able to read the prices written on the placard and take the products with their hands to evaluate their quality and shapes).

first Zenrin map, because of the precision of the built data, however some viewpoints existed for longer time (before the WW2, as illustrated by the aerial photography of Wakaba): Especially some view-axes are following the old plot delineation in Wakaba. In the Edo map, we can see such plot's delineation, although we cannot access the built dimension (see parts 3.6, figures 29-30 and 4.3.1 figure 36). Some other massively disappeared with plot's regrouping with new bigger constructions (see figure 41). They overspread and fragmented the traditional densely built-up fabric. The topography did not seem to be an obstacle for the developers<sup>1</sup>. Although silent, in Wakaba the land redevelopment pressure is rather strong<sup>2</sup> and follows the mechanism of transformation of Tokyo's cultural landscape. The part 4.3 demonstrated the important changes, which occurred those last 50 years, not only with plot's gathering but many alleys disappeared and the remaining ones decreased their length/depth (figures 38-40). Hence, the accesses toward the blocks also massively diminished consistently. The blocks' morphologies and inner delineations changed, however many viewpoints persisted in 4 blocks among the 10. Visual structural orders (e.g. visual structural connectivity through the types ABCD) remained over the decades, along with the old fabric structure. In other redevelopped blocks, some fragments with small houses are present, but they do not shape anymore a consistant structural visual order. They have only a few viewlines and the connectivity tools could not be applied there. They developed new types of visual behaviour and features attached to the new redevelopments/ POPS design, their fences and concrete walls (short blocked viewlines, etc), which suggest different feelings and perceptions from the landscape of smallness. This difference highlights the specificity of perception from the atmosphere in densely built-up old Shitamachi.

- Many urban structures of the popular old parts were elaborated by non-architects, following common models <sup>3</sup> from the participative process. It created the rich and diversified order of organized complexity, the hierarchical displays of scales, the irregularities behind the spontaneity of the vernacular patterns. According to Salingaros (2010), it resonates with the instinctive human perception skills and anchors human attachment to its environment, physically, spiritually (a cosmological order, a cultural reference) and biologically (emotions, the inner feeling of beauty and well being)<sup>4</sup> (see 2.4 and 5.3.1). In Wakaba, the "organic" dense fabric associates various levels that stimulate the visual interaction in a process that is very much organized, starting with the little flower and piece of grass between two pavements, to the pots along the houses' facades and then the declination of materials from pavements to facades (see 5.3). Hence, it becomes easy to identify the hierarchy of status of the outdoor spaces, from the large public street to the tiny private door's threshold, and the small visual

<sup>&</sup>lt;sup>1</sup> The new condominium, under construction in 2012, on the block 8, modified the hill and the old stone valley wall (a strong aspect of the local landscape identity).

 $<sup>^{2}</sup>$  The municipality is thinking of enlarging the main street to ease the circulation toward Shinjuku road. There are often traffic problem in Wakaba main street. The level of fire disaster risk is at the highest rank (level 5), which pushes as well the municipality to consolidate more the place with concrete.

<sup>&</sup>lt;sup>3</sup> "Models play the role played by tradition in traditional cultures" (Alexander, 1975).

<sup>&</sup>lt;sup>4</sup> It calls back to the biological memory and the natural search for diversity expressed by the brain, and which automatically generated a feeling of well being (Salingaros, 2010).

breakthrough in between houses, as the ultimate scale of private outdoor. Some places or objects with less multiplicity can be less attractive and even unpleasant. The viewpoints are relevant to the walker (outsider or resident)<sup>1</sup>, whose artistic experience emanates from the picturesque<sup>2</sup> outdoors arrangements and the visual relationship they pledge with them. The enhancement or deterioration of the outdoors treatment, felt by the walker, can reflect a community linkage or on the contrary, a lack of common shared values, poor social links and fragmentation<sup>3</sup>. The richness of this atmosphere that Maki explained as the dialectic of ma and oku, and Jinnai, as the floating Shitamachi, is also the reflect of the fundamental spatio-temporal landmark of Edo-Tokyo. Although perceived by any walker, such an atmosphere from an old dense *Shitamachi*, is however very difficult to apprehend, with common morphological analysis, partly explaining its fragility in front of redevelopments. Such a visual "landmark" is constantly endangered, as it is hard to defend. The atmosphere is jointly undergoing a transformation process with displays clarifying the strict boundaries. Here the conflict of interest appears, and more precisely by evoking the vital component of depth within a block. Some outdoors used to be approached by the imagination, protecting the strong inwardness quality of the block<sup>4</sup>. With the enlargement of the alleys or the over-scaled redevelopments, the relation to the open space is externalised and the atmosphere is dissipated.

# > The visual connectivity, more than a landmark in Wakaba, but a spinal notion underlining an intangible singularity of the Japanese spatiality?

- The structural visual connectivity is a morphogenetic characteristic of the site, based on the persistant veiwpoints' information over decades, emanating from the old fabric's specificity. The viewpoint method observed the changes in the morphologies of viewpoints/ nodes/ axes. The tools, resulting maps and the visual connectivity are locally implemented, and attached to the singular small-grained and high built-up density fabric. However, the visual connectivity appears to be another determinant of such urban fabric, as it suggested the organic/vernacular aspect, attached to the local practices of spatial appropriation, which emanated from the community linkage and organization, also perceiptible through the harmonious outdoors' displays. Such vernacular aspects of the neighborhood's visual scene was underlined by the viewpoint method. So the question can erase, on the terminology of landmark? Further enquetes, sociologically relevant, on the elder residents' visual behaviour, now and before, could establish the hypothesis of a visual memory of their place along with the visual connectivity space.

<sup>&</sup>lt;sup>1</sup> Many residents like to stroll in the third district of Wakaba and observe other walkers in their place.

<sup>&</sup>lt;sup>2</sup> It is a parallel with the criteria of the vernacular outdoors and their picturesque effect, as defined by Sitte.

<sup>&</sup>lt;sup>3</sup> Although this study did not approached the question directly, it is a believable hypothesis.

<sup>&</sup>lt;sup>4</sup> Poetically assimilated with the hidden heart of the mysterious forest.

- Architectures and urban features<sup>1</sup> often display the highest connective capacity through physical experience. Connective spaces and their physical practice fundamentaly anchor human appropriation of its environment. "This physical connection gives us the materialization of sacred experience" (Salingaros, 2010). The experience, which starts with the visual field and the hidden but perceived visual connectivity, encompasses wider dimension of the atmosphere within outdoors. In Shitamachi, such atmosphere is part of the local visual identity. Which socio-spatio-temporal dimension, the visual connectivity is representing for the case of old Shitamachi, as the remaining small-grained dense patterns? Which spatial capacity of the place is underlined? The visual connectivity encompasses the place of the highest possibilities and capacities of visual encounter, layered over times: a space of spatio-temporal encounter, a *convergence*<sup>2</sup> containing the weaved memories of the inhabitants' spatial practices through the seasonal changes, a singularity of the Japanse spatiality to be debated.

### 5.5.2. The contribution of Wakaba's viewpoints analysis for designers and the community

The viewpoint method can be an important tool for any designers or developers who wish to step in a specific dense urban fabric without compromising the existing framework and the appropriations attached to the promotion of the vernacular landscape of small outdoors. Moreover, the residents of the neighbourhood should also define any urban furniture, fences, etc. according to such visual criteria and the visual matrix (functional and structural).

### Designing with visual connectivity

- The viewpoint analysis completed by the visual field observation can play a role as a complementary approach in the attempts of regenerating the densely built-up and small-grained features.

1- Composing with the adapted viewpoint tools to be defined for each framework

- Defining the visual connectivity (functional and structural) and its potential to increase the quality of outdoor spaces for each dense neighbourhood, before any projects.

- Determining the visual connectivity as an element part of the local visual identity: In dense urban neighbourhoods, the local small patterns shape unique scenic viewpoints (visual patterns) on the vernacular landscape and can express the *geni locci* of the place, by revealing to the walker the singularities of the spatial arrangements and suggesting present or ancient local practices of the spaces (visual encounter or spatial encounter within outdoors).

<sup>&</sup>lt;sup>1</sup> For Salingaros (2010), while seeking "God" through beauty, high emotions reached tremendous high level of connection to the universe from the greatest artists to the anonymous architects of everyday, in any civilizations. They all express specific mathematical qualities as geometrical patterns, regularity, nesting, hierarchy, scaling, fractal and temporal structures and as proved by many scientists.

<sup>&</sup>lt;sup>2</sup> Convergence: terminology suggested by Professor Ota, during our discussions.

- Each visual tools would have to be implemented according to the given fabric, in terms of their capacity (number of visual elements to consider for the view-axe and view-crossing), but also by adding or removing viewpoints' types of lines, or any elements attached to the singularity of the site.

2- Composing with the layers of outdoor spaces over the time transformations

- Before any project, learning from the successive outdoors' arrangements and specificities (appropriation practices, status...), as another way to understand the viewpoint practices in the vernacular landscape, over decades.

3- Composing with the multiple skins of view:

- Considering the multiple scales and the complexities of patterns/elements (objects, threshold, greeneries, facades lines, pavements etc..), offered to the view in some peculiar outdoors, as visual indicators of a potential structural order, not to be fragilized accidently. They also benefit in being considered for any projects to avoid impoverishment of the visual scene and can suggest supplementary visual tools.

4- <u>Elements of the visual disconnection</u> should benefit from a special attention in any new projects, from a small house extension to a large-size redevelopment. Noticing threats and good spatial design, for preserving the visual connectivity, can participate in sustaining the vitality of the urban web.

### > Hypothesis on broad consequences when threatening the visual connectivity

- For millennia people have very well known how to take advantage of a site and the languages of this specific environment<sup>1</sup>. Such level of integrating and connecting with the surroundings enhance the emotional relationship in their places<sup>2</sup>. Various factors from the global economy and social mutations contributed in changing the vocation of many traditional/vernacular neighbourhoods, as in Wakaba. The morphologic transformations with the progressive introduction of disconnective entities also played a significant role. Such disconnective patterns are expressed through diverse physical elements and constructions, which can innocently break the local orders/arrangement of outdoors, the visual connectivity and become a vivid threat for the whole entity, compromising physical and social interacting linkages<sup>3</sup>. It affected the meaning of the place, erasing the singularities attached to the smallness of the vernacular fabric, leading to a homogenized and standardized landscape with new

<sup>&</sup>lt;sup>1</sup> Shrine and forest, desert and temples, cathedral churches built along electromagnetic fields etc...

<sup>&</sup>lt;sup>2</sup> Salingaros (2010) underlined the example of a warehouse or garage, which are rehabilitated into churches. It supposes that faith could be exempted from its environment, or that environment had no role in stimulating or inspiring spiritual atmospheres to anyone. For him, this new typology for a spiritual place is an anxiety – inducing element that unconsciously assimilates power and transgression as a transfer for the church toward the cult of power. This example encompasses one of the most disconnected dimensions, where spiritual functions are being the subject of another logic or under "contemporary" architectural fashion and where the essence of the place and the sense of integrating (connecting) an environment for specific functions is being completely denied. <sup>3</sup> Following the definition from Hector *et al.* (2007)

visual behaviours, following the new real-estate designs<sup>1</sup>. Only the main street, some selected enlarged alleys, and the outstanding elements of the cultural landscape are remaining (temples, cemeteries, topographical aspects), although threatened. It massively reduces the urban legagy of the block and changes the visual relationship (more blocked and shorter viewpoints, etc). With many massive changes, new visual behaviours, viewpoints and patterns, radically different from the older ones are developped and replace the original (and organic) visual connectivity. The legitimacy is questionned if the organic dimension is slowly vanished. Does it pledge for the readability of the fragmented metropolis? In political terms, it is the people's power to shape their small places above the borders, which is questionned through the disappearance of such organic dimension.

- The edges of the visual connectivity: Threatening the persisting visual network has consequences on its viability and capacity to overcome the neighborhood's transformations. It is diretly related to the question of capacity of a network to maintain/highlight a spatial configuration and the critical moment/stage where the network does not make sense anymore or is not viable. It is part of the connectivity notion. It supposes as well, the changes in the atmosphere of the place, as we establised. The abundant viewlines information permitted me to define the visual connectivity tools (nodes and paths) and to objectively test the different capacity (see chapter 4.5.1). So it means that the level of capacity I defined while doing the connectivity tools are already critical to have coherent visual configurations<sup>2</sup>. As a result, the typologies ABCD in some sample-blocks are notable, but not all the blocks of Wakaba. Some of them lost "visual" intelligibility and the remaining viewlines are not suffisant enough to represent a structural order<sup>3</sup>. When few viewlines from the previous fabric are remaning, they do have less meaning comparing to the new visual relationship established with new typologies from redevelopment's operations. So the extent of viewline's variety and the visual connectivity is related to the capacity to continue being a structural visual entity (intelligible/readable network). Over such capacity, the system starts to be affected, eventually brings a new langage<sup>4</sup> and can be lost as a visual landmark attached to a specific atmosphere of smallness.

- Another main consequence is to dismantle a subtle urban legacy of the small Tokyo in old neighborhoods: the depth of blocks and their inner-atmosphere that the visual connectivity highlighted (see chapter 4.4.4). The appealing properties of the old neighbourhood of Wakaba lies also in the capacity to suggest a wider and secret dimension through the quest of the un-identified depth of the

<sup>&</sup>lt;sup>1</sup> The redevelopments changed the urban footprint in terms of the plot's delineation (assemblies of lands, enclosed with fences or walls, larger sizes of the plots), the numerous disappearing of alleys and their shorter length.

<sup>&</sup>lt;sup>2</sup> If the criteria are too high, then, the models have limited information; if the criteria are too loose, then, it keeps too many information and it is closed from the viewlines maps. I did in my autocad work different models, testing the view-axes with 4,5, and 6 cumul of viewlines or the view-crossing with 2,3,4 etc... I came with the reusult of 6 viewlines for the view-axes as an example. In other fields, they can use connectivity algorithm and similarly they will test different value from 1,2,3...,n. (part 4.5.1).

<sup>&</sup>lt;sup>3</sup> As for example, the blocks 2 and 9 received too many transformations and welcomed too massive constructions. <sup>4</sup> Such visual new langage can be to have plenty of new short distance viewlines, or on the contrary very few viewlines (blocked or transversal), or no visual breakthrough through the blocks anymore etc...Such new pattern of the viewpoints are heavily dependents on the new urban morphologies.

place, the "innermost depth" (Maki, 1978), while strolling in the blocks. Dismantling the block, enlarging the streets and alleys, suppressing very small lanes and open spaces in between houses that are significant, blocking fundamental structuring views, or dispersing the view by wider plots, does not only eliminate the time-layered hypothetic visual behaviours but erase the suggestive visual breakthroughs. It removes part of the poetry of the place, working through the stimulation of an imaginary quest of the invisible.

- Spatio-temporal disconnection and health: Daily routine and activities involve a range of movements (physical and visual), conditioned by physical patterns, which define a temporal rythm. Those everyday actions happen to be at various time scales, and the quality of life depends on the ability to experience all the scales in a non-threatening manner, "with a priority placed upon the smaller scales corresponding to the human body. This quality of life can be positive or negative, depending on whether our bodies interact harmoniously with the temporal events caused by a city and permitted by its geometry. The temporal dimension of urbanism (Hall, 1984) is a poorly-explored topic" (Salingaros, 2010). There are positive and negative effects from this dimension that can contribute to disconnect a human body and its space-time practice from its environment. It concretely plays a role on the wellbeing, and the health, as the ability to handle stress in a daily environment (appendix G, H, part 2.4). The impacts of the transformation of Tokyo's old small neighbourhood on the citizen's health was already approached but could be the object of further studies in deepening the importance of small scale in globalized advocated large scale of the fabrics in the metropolis.

# > The meaning of the visual connectivity for the community and the question of participative structure

I restrained sociologic aspects of the community life, as the research focus is morphology and spatial configurational work. However for further studies, questioning the residents on their relationships to the outdoors revealed by the present viewpoint analysis, could bring complementary information on the local visual practices. They can be completed with other fundamental elements structuring a neighbourhood, as social models (vitality, activities, community linkage etc...). Such aspects (visual, vocational, functional etc...) should be attached to the spatial determinants, among which the visual ones and confined in local guidelines, as part of the identity of the place. For instance in Wakaba, such considerations seem not to be enough emphasized among the community members.

1- The singularity of the selected small-scaled vernacular outdoors might possibly be not meaningfull or important for the residents or the community: It is a big issue, because many residents can think their place exclusively in functional terms, excluding landscape cultural elements<sup>1</sup> and the part that poetry should play in their daily outdoors' routine. However being not the community focus does not mean that it has no value for the place. It is also a question of being aware of aspects that shape their

<sup>&</sup>lt;sup>1</sup> The unused wells became a nostalgic reminder of older times and maybe nobody pays attention to them or does not gather around them anymore as explained by a resident, however they belong to the history of the place.

appropriation<sup>1</sup>. I noticed that many residents also did not considered their place as historically valuable or expressed a sort of humble feeling of shame. An explanation can maybe be found in the past history (informal settlement and then a very poor area until the Bubble, with one-day workers lining up in front of the *Kura* house of the 3rd district, to get a loan or a job). Probably nobody told them their place's value with the poor historical reputation. Hence, the popular poor area or informal places were often despised in terms of being part of the urban heritage of a city (YaNeSen). It is complex issue to discuss what is meaningful for the community, as it reflects also various external parameters. There might be a role of awareness for the professionnals in explaining to the community why their vernacular place can be valuable in terms of cultural landscape and spatial configuration.

2- Similarly, many individuals do not pay attention to their 'visual behaviour', which does not mean that it does not influence them, but the contrary. With the Wakaba's fabric specificity, visual characteristics are decisive (the rich viewpoints' pattern avoids monotony and might enlight positive aspect when the living conditions in small places are harder than in condos or mansions). Thus, it is another big debate on what is valuable spatial configuration of a place. In my opinion, most probably a mix between intertwinned aspects, as the cultural landscape elements, the spatial determinants (in which visual singularities are crucial with such frame) and the community needs and vision of their place (since they are among the actors who regenerate it). The most important element to be preserved for the residents is the linkage (*"kizuna"*). One resident interestingly made the relationship between this social linkage of the place and its spatial definition<sup>2</sup>. In such kind of neighbourhood, people are the best alarm system. The residents developed a visual behaviour of vigilance, but also strolling habits attached to the view toward their small nicely made outdoors<sup>3</sup>.

Consciously or not, they develop singular and complex visual behaviours attached to the specificity of the fabric (among other personal criteria), in which the visual connectivity interplays<sup>4</sup>. Researchers have already proved the benefits of greeneries in the vernacular outdoors of Tokyo's traditional neighbourhoods for elder's health (see appendix H), and also more generally the positive contribution of vernacular scale and outfit on people's wellbeing (see chapter 2.4 and appendix G). However analyzing the visual behaviour and its characteristics, which provoke multiple benefits (health,

<sup>&</sup>lt;sup>1</sup> The residents from Wakaba-2-chome for example, have a different opinion on the outdoors than the residents in Wakaba-3-chome. Many transformations occured in 2nd district and they pledge for condo's designs for their outdoors. But in the 3rd district, where most of the old dense fabric could be kept, they want to pursue their vernacular outdoors and repair the tight houses

 $<sup>^{2}</sup>$  A resident, elder woman binded the strong solidarity of the people in the main alley of the block 5 during the earthquake of 2011 March 11th, with the fact that the high density of houses permitted to hear each other from an house to another and to check if everyone was alright just by using the voice and asking. Another resident of the same old lane mentioned that condominiums were more dangerous because everyone is isolated in his flat and no one can hear or see you if you need help and the access would be more difficult than for the small houses in the alley, event if it is a tight arrangement. One more evoked an interesting visual outcomes on the security of their place: he deplored plots with wall-fences or higher fences, because no one can see if there is someone endangered or robbering the house.

<sup>&</sup>lt;sup>3</sup> Some interviewed people strongly mentioned that many elder residents were enjoying daily walks in their place, especially in the small old lanes.

<sup>&</sup>lt;sup>4</sup> The tools used in the viewpoint method are emanating from a rather simple first visual observation of the place.

wellbeing, etc...) and also participate in shaping the relationship of the community (*kizuna*), can be a further step toward such knowledge. In that sense, the visual connectivity is a major contribution and help for the local residents, to defend the value of their neighborhood's atmosphere and its lifestyle, by adding supplementary local criteria. By evoking the linkage (*kizuna*) and their vigilance, the residents exposed a part of their visual behaviour within the outdoors. Such aspect could be the object of a sociologic research, completing the functional visual connectivity and the meaning of the different small outdoors for them. It could raised up their attention on the visual value and the singularity of the local visual scene in old fabrics.

3- Moreover, there is a need in Wakaba 2-3 chome, to get residents involved in shaping a local guideline on their place's specificities. When asking if the community board was discussing architectural or urban projects, I noticed that there was no involvement and/or a certain shyness expressed by the residents regarding the neighbourhood redevelopment projects<sup>1</sup>. Most of them, resignedly or not, rely on the municipality's decisions<sup>2</sup>. However they are attached and proud of their small alleys. People like their homes, sometimes wish to strengthen and repair the structures of houses, without demolishing them. The creative sense emanating from the outdoors' vernacular landscape has been strongly expressed for a long time, along with a strong community linkage. Unlike other neighbourhoods<sup>3</sup>, there is a need for the inhabitants to get involved, to acknowledge the value of their place, and to build their own schema of development<sup>4</sup>, by establishing their diagnostic on present needs and valuable elements of their neighborhood, they want to protect, with the help of specialists.

Using Alexander's words<sup>5</sup>, mansions and their POPS, which proceed by massive unit growth against the fragmented growth from organic urban compositions, in Wakaba, the local communities rebuilt their places, as in many neighbourhoods of Tokyo after the WWII damages. There was a solid system of mutual assistance for daily life issues, for the reconstruction of their houses, with a community management, especially because Wakaba was among the poorest places. They followed a *fragmented* 

<sup>&</sup>lt;sup>1</sup> Only the two presidents of the neighbourhood associations were aware of the ward's project for their sites and proposing their main vision of Wakaba. The main tasks of the two neighbourhood's associations (2nd and 3rd districts) involve the organization of festivals, informing the whole neighbourhood on transportation security with stands in the street (in application to the municipality requirement), managing common outdoors especially for disaster safety and sanitary purposes (garbage, informing new comers about those rules etc...). Secondary objects of discussion are regarding the life of each member of community (noticing new comers and their adequate or inadequate behaviours, the presence of foreigners, the death or birth of people etc). *Sokka Gakkai* organization is very popular in Wakaba and strongly participates in the linkage of the residents through various activities of leisure.

<sup>&</sup>lt;sup>2</sup> The main street enlargement (for circulation optimization and transportation security) and the mansions spread, sold as the only one solution against disasters. I underline than nothing happened during the strong shakes of 2011, March 11<sup>th</sup>, except limited broken tiles.

<sup>&</sup>lt;sup>3</sup> In Kagurazaka and Yanesen, the communities are strongly involved in shaping their environment, recognising the valuable architectural houses and structures as urban heritage, and working together with the help of specialists (urban planners, researchers from Tokyo university, designers and architects etc...) to decide and defend the preservation of patterns and the spatial singulrities of their place.

<sup>&</sup>lt;sup>4</sup> Each president from the 2nd and 3rd districts has a different vision on the development of the area. There might be a lack of coordination. The first is encouraging the ward's master plan; the second would prefer to keep the present traditional features, by repairing.

<sup>&</sup>lt;sup>5</sup> The method on organic organization developed by Alexander in the Oregan experiment (1978).

*growth* (or incremental order) with adjustments to daily and evolving necessities. The residents estimated that for now, a balance is maintained between the introduction of new elements and old ones. However, it is clear that future mansion constructions<sup>1</sup> along with their operating modes of establishment would deeply affect the rhythm of the intrinsic "organic" order that communities preserved despite the vocational change of the area. Designing "*organic*" patterns or enhancing with greeneries are not the only keys. The whole process has to be taken into consideration, with it spatial, visual, social, time and economical dimensions and their adaptations<sup>2</sup>.

### 5.5.3. Opening the debate on the visual connectivity of vernacular small outdoors

## > The implementation of visual tools into the Japanese planning system to better grasp the value of the atmosphere and the spatial specificities for a respectful regeneration process

- The criteria of evaluation for a dense urban fabric précised in the guideline<sup>3</sup>, do not take into consideration the atmospheres created by small alleys and their tiny outdoors, which are easily destroyed when the urban frame is adjusted. The approach encouraged by the urban regulations encompasses a unilateral technical points of view, disfavouring more holistic ones: public space enlargement (4m wide for alleys) for the optimization of car transportation, security, fire fighting, and sanitation. Moreover, given the law procedure, it is a long battle for residents to organize a defence for the preservation of their neighbourhood's specificities (see appendix J). Few successes<sup>4</sup> were registered in the whole of Japan and concerned limited urban areas (see appendix O, P). I will not be looking in detail at each example of dense urban neighbourhoods in Tokyo, which more or less adapted the regulations; however, dense urban guidelines could benefit from the introduction of the viewpoint tools to correctly implement the neighbourhood's physical transformation without attempting the spinal spatial determinants. Despite the strong involvement into the protection of specificities attached to their dense patterns, I observed that Taishidou and Tsukishima (for example) lost many important visual determinants. Fragmentation and important transformations of the plot continue to affect the atmosphere in those places, which are quickly homogenized. Thus, I think that the result is mitigated regarding the preservation of such dense places. For example, Tsukishima is a

<sup>&</sup>lt;sup>1</sup> I noticed in September 2012, the construction of a massive condominium, which demolished an important part of the topographical wall in the block-sample 7. A new one is under construction this year 2014 in sample 2.

<sup>&</sup>lt;sup>2</sup> Community fights had an impact on the preservation of dense patterns and their organic specificities. Hence, Yanesen proceeded through organic order by adopting a strategy based upon neighbourhood consolidation for the recognition of their place. It somehow contributed to preserve the "organic" feature of their outdoors, perpetually renegotiated by neighbour agreements.

<sup>&</sup>lt;sup>3</sup> The guideline for reconstruction in dense urban areas, *misshū shigai chi* underline five modes of urban transformation: 1- machinami guideline (Ginza)/ 2- Special permission for corporation buildings/ 3- sankō dōro (special permission for street frontage)/ 4-rental kenchiku seikei sedo (example of Osaka)/ 5-special permission

<sup>&</sup>lt;sup>4</sup> Tsukishima, Togoshi-ginza and Taishido in Setagaya municipality, some little fabrics of Nakano and Adachi (parks project for evacuation purposes) wards, all of them parts of Tokyo and in Osaka

vocational historical place for monjaya. Such fact provided a side of the identity of the place. The conditions for the maintenance of this activity is fundamental for the urban identity but not sufficient as other strong parameters (spatial morphology etc...) shaped the place but were not completely examined (especially the strong visual connectivity). Kagurazaka has also a rich historical past, and many ryotei, historical houses, or traditional activities are still notable. However the recent massive redevelopments show how difficult it is to implement a sustainable development, respectful of all characteristics of the place.

- Another question was raised by looking at the guidelines. New POPS and plazas have to follow regulations and the dense neighbourhoods have the guideline for reconstruction; However the specificities of the aggregated and vernacular landscape of outdoors made by the different owners is not fully taken into consideration. There might be a need for considering "vernacular POPS" as a type of landscape of outdoors in neighbourhoods by renegotiating criteria and regulations for their maintenance and recognition of their value. In that sense, including the finest visual criteria can become an interesting alternative.

# > The visual connectivity could help in the neighbourhood conservation plan, or could be considered as part of the scenic visual urban heritage at local scale?

1- The urban vernacular neighborhoods of Tokyo look like alcoves of life perpetually regenerated on a local scale by their inhabitants and following with more or less successes the main characteristics of the cultural landscape of Edo and its urban traces. The attention was raised on built testimonies from the old centres or generally speaking the richness of the different cultural landscape. The vernacular small outdoors are difficult to grasp, due to the ephemeral nature of their shapes, evolving by small steps of perpetual reconfigurations for generations (undefined borders, changing irregularities, etc). It does not plead for the respectuous consideration (or preservation in some cases) of their urban landmarks at the 1<sup>st</sup> instance, but we might have to question the tools behind, to define the value of such dynamic frames, shaping the vernacular atmosphere in high-density fabrics. In that sense, the notion of visual connectivity (a dynamic process), locally implemented, turns to be very adequate. While being the subject of conservation<sup>1</sup>, the connectivity also contains an ephemeral value. Hence, there is the idea that the outdoors from the visual connectivity typologies of outdoors can evolve, while preserving their skeletons. The cultural landscape assessments could benefit from the introduction of the viewpoint tools along with the hypothesis of the notion of *visual connectivity* 

<sup>&</sup>lt;sup>1</sup> In the case of the ecological landscapes, the connectivity of biodiversity is to be preserved, but follows moving ecological corridors, establishing networks of plants and animals, functioning on different scales of the whole matrix. This connectivity follows models that have physical prints and produce morphological patterns, according to dynamic models of evolution, rhythms and time specificities. Hence, the functional connectivity can vary according to the species movements, however the structural one is under conservation purposes.

*conservation*<sup>1</sup> in the layered evolution of the built-non-built frames, especially in the context of sharp land turn-over<sup>2</sup>.

2- In the HUL issues, the large-scale historical viewpoints are considered as being part of the cultural landscape heritage. They help to construct a global picture of the city and recall the cosmological order of the city<sup>3</sup>. The visual landmark at the small scale of a dense neighbourhood portray a different picture within the HUL. It works on the much closer scale of the walker's daily visual field on the streets and alleys, or looking in between houses. Such aspect is not as irrelevant as it seems and should be debated. A small street leading to a piazza facing a church is comparable with the space between 2 houses leading to a forgotten unused well. In many cases, those outdoors are non-practicable by feet but visible by the walker (two neighbors can see each others in this in-between space). The local, short scaled viewpoints carry singular morphogenetic and social prints, and most probably an invisible legacy value for the inhabitants. It deserves to my eyes, to be debated/explored at the UNESCO, as part of the visual relationships heritage of the HUL. This work is an introduction and a contribution to such proposition of debate.

### > The applicability of the viewpoint method to other areas in Tokyo or worldwide

The case study area used to be a slum during Edo until beginning of the 20th century. It was the case for some of the most vibrant present neighbourhood in Tokyo, as Nippori. They kept from this past of being a poor area, the density and nostalgy of Shitamachi, transformed toward a densely built-up area with a strong community linkage and lively area where the open space proposed a multiplicity of small-scaled features of outdoors' appropriation. At the globalized age of the metropolis, apprehended with the help of machines, such neighbourhoods represent the last testimonies of human made-scale spatial constructions following an incremental organic order. I noticed various examples in Tokyo (Tsukishima, YaNeSen, Taishidou-1-chome, etc...) and elsewhere in Asia (some old settlements in Bangkok and Jakarta historical cores<sup>4</sup>) of such organic order of smallness and through present informal developments (the slum of Dharavi). This study emphasized the Beauty to be found in the atmospheres coming from those primary spatial arrangements, caught by the eyes of the urban-walker. - Let's have a look in the small-scaled district of Taishidou-1-chome in Setagaya ward (see figure 80). It is a rather small grid-sample of 4 rows of houses. By comparing the outdoors from the maps of 2011 and 1974, some rather important transversal viewpoints can be highlighted. Similarly, the outdoors' proportion decreased, as the size of the houses tends to increase. Alleys have been enlarged as well.

<sup>&</sup>lt;sup>1</sup> The idea of conservation was never approached but refers to the notion already developped in environmental sciences of the ecological landscape connectivity conservation for corridors of wild lifes (see chapter 1).

<sup>&</sup>lt;sup>2</sup> The houses might change every 20-30 years and their modes of arrangement are different (detached instead of attached, different materials, etc), but the memory of a common life in high density and the proximity between inhabitants of such area could overcome the decades of tremendous changes.

<sup>&</sup>lt;sup>3</sup> The example of the view toward a natural element such as mountains, river, the Fuji Mountain, important cultural assets, topographical elements, etc.

<sup>&</sup>lt;sup>4</sup> Similarly to Wakaba, I found there a past of vivid popular life with crafworkers and dense small-grained frames.



**Figure 80:Taishidou-1-chome: small-scaled district** Source: author's photos in 2011 and work on Zenrin maps (1974, 2011) and google-earth extracts.

However the wrong positioning of new houses (drawn in grey in the 2011 map) were the most damageable aspect, as they interrupted long term transversality of the whole site. The size of the cars and the damaging parking plot, can also be questioned, in terms of liveability of such small place. This was a small excercise (urther implementations possible) on a possibility of observing the short network of viewpoints in this district. It underlined that even small operation can damage a network.

- Tsukishima is a relevant candidate for the viewpoint method applicability. The orthogonal grid, the deep depth of the diffferent blocks<sup>1</sup> and the numerous small space in-between houses, are abundantly present in the whole fabric, which is threatened by visible undergoing transformations, changing a perceivable subtle order in the block's depth. Such intangible order shaping the local atmosphere is as important as the main lively *monjaya* street, which seems to foster the main interests. Hence, this small space in-between houses is absent from all the Zenrin maps (see figure 81), but very present when strolling in the place. Further studies could highlight a subtle visual structure and connectivity, through the consideration of the forgotten outdoors.

- In comparison, the recent slum of Dharavi follows a fragmented growth<sup>2</sup>, and offers the similarity of even higher density of small-grained features. It is not only a slum with difficult conditions of living and a place to redevelop by considering only the massive problems of the lack of basic infrastructures, but mostly a vibrant area, where communities' linkage and solidarity brought by poverty and proximity weaved socio-economic networks associated to spatial layouts of small features to be highlighted and valued. To envisage a tabula rasa, a real and present threat, would be a real pity and denying the people's rights of shaping and appropriating a place. Moreover, from the organic network, at the primary human-made scale, a vivid economical lung of small entrepreneurs is reflected at the global scale of Mumbai and the world<sup>3</sup>. Many NGO and architects-urban planners are working along with local associations, in the different slums of this planet and interesting reconversion and regeneration processes already took places. In Wakaba, visual singularities (landmark and connectivity) are fundamental to the place and the viewpoint method, unlike other common morphological anlysis, could emphasize its genius locci. In that sense, Dharavi has a genius locci from which a vibrant atmosphere emanates. It is fundamental to maintain such aspect of the place for a sustainable regeneration process. Along with its higher density<sup>4</sup>, viewing tools can be relevant to catch the subtle morphogenesis of the place and bind it with the special atmospheres, according to the different spatial appropriations made by the inhabitants. Just by observing the different features (see figure 81), the visual tools are already questioned. There might be a need of supplementary types of viewpoints and a large testing process of the connectivity tools involving possibly the settling of matrix, given the size of the fabric and its different patterns (grid, organic curved, T-shape, etc...).

<sup>&</sup>lt;sup>1</sup> Underlined by the transversal inner-viewpoint in orange on the figure 81, which cross almost all the block.

<sup>&</sup>lt;sup>2</sup>To borrow Alexander words.

<sup>&</sup>lt;sup>3</sup> It is said that we all, in the world, have at least one object made by those entrepreneurs of Dharavi. It can be anything, a scarf, toy, kitchen object etc.

<sup>&</sup>lt;sup>4</sup> Compared to nowadays Wakaba, and visible just by observing google maps extracts (see Figure 81).



**Figure 81:Tsukishima (middle right and bottom illustrations), photos from Tsukishima 3-chome, Yanaka and Bangkok historical core (middle left), Dharavi informal city of Mumbai (top illustrations).** Source: author's photos in 2012 June and work on Zenrin maps (1967, 2010) and google-earth extracts.

#### 5.6. Conclusion

The aim of this approach on the field was to confront the results from the viewpoint analysis with the field's reality. Through my own observations and the comments of residents, I analyzed the modalities of the individual perception of the outdoors and their appropriation. It permitted the evaluation of the typologies ABCD from the structural visual connectivity, to implement the notion of visual connectivity in functional terms and to define it as a unique local visual landmark, part of the identity of the urban small-grained fabric of Wakaba.

First observations: the image of Wakaba for the residents and the outdoors' functions

- There is a strong appropriation of the residents, who enjoy life in their place, spontaneously shape creative outdoors and appreciate daily walks in their alleys. However the inhabitants are detached from the global process of transformation affecting the landscape and neighbourhood; and mitigated regarding the historical value of their singular fabric or the idea of small outdoors arrangements as strong identity markers. The vocation of Wakaba-"Little Asakusa" mutated and the lively outdoors of the pre-war *nagaya* evolved in quiet spaces. To their eyes, the community linkage is the strongest and most important element to be preserved, however it has spatial impacts, and lie in the smallness.

- I could draw the image of the neighbourhood, as a cognitive map from words of the residents, with the elements shaping the imageability: surrounding parks, disappeared shops (nostalgic memory) and the old small-grained and dense fabric and alleys of Wakaba-*3-chome*.

- I looked at the general outdoors' functions and focused on the four viewpoint patterns ABCD: mostly car and bicycles' parkings, greenery, entrance space, POPS...

Looking at criteria for describing the outdoors' skins and their emotional aspects

- I defined criteria to understand the richness of the visual field, their participation in the readability within the outdoors and their effects on the perception of the walker: the multiplicity of view's covering, the organized complexity (greenery, thresholds, materials, fences, pavements, objects), the scaling factors of views on outdoors. They interplay in emotional positive/negative reactions to the place (repulsive/ appealing, beautiful/ugly, proportionate or not, ordered or not, secure/unsecure, calm/noisy, bright/dark). I observed that the four typologies of visual connectivity ABCD have physical positive qualities, display four singular atmospheres and the most appealing places with rich greeneries and enhancements, comparatively to other parts of Wakaba: The type A, an "ordered" orthogonal grid of transversal views; the type B, with multi-directional viewlines' pattern, complex and multiple angles exploiting short viewpoints and irregular corners; the type C, clear and ordered visible small outdoors (opposed to B and different from A); the type D with wildest and thickest vegetation and unexpected transversal long viewlines in small depth breakthroughs and alleys, crossing the whole block-sample.

- Moreover, I observed elements of dis-connectivity (wall-building, wall-allotment, the dialectic of car-parks, over-scale edifications, etc), which affect the visual spatial typologies and behaviour.

### Confronting the structural connectivity (view-axes and view-crossing) with the reality

- I observed the crossing view spots and viewing axes notably, which mostly revealed the major attracting outdoors with subtle viewpoint perspectives: larger entrance spaces, where neighbours were chatting; nicely arranged plants and vegetable gardens; some viewpoint spots pointed to historical elements or small shrine, possible meeting spots, etc. Thus, I could correlate the structural connectivity maps with skins criteria and the associated positive feelings in the selected key outdoors spots and paths. They reflect layers of persisting viewpoints (and hypothetically visual interactions) on changing small outdoors for more than 50 years, under the Edo and Meiji footprints. Disappeared view-axes and spots pointed old urban elements as wells and alleys, which transformed and lost vivid singularities.

- The method could differentiate the outdoors (spots and ways): Not all the greeneries have the same significance, although they might look similar, spontaneaous and unpredictable. It also noticed the previous important outdoors (community meeting spots around wells), as disappeared view-crossings and the disappeared view-axe, nowadays replaced by mansion's garden (different from plants on pot). I could distinguish appealing outdoors, which suppose the resident's great appropropriation. On the other hand, the method (as a morphological approach) cannot express if such outdoors are really meaningful for the community and if there were always nicely appropriated during the last 50-60 years and before. Further sociologic research could complete the fied's visual analysis.

- I implemented the visual functional connectivity by looking at the visual behaviour, along with the visual spatial arrangement (structural connectivity) and the five criteria, borrowed to the analysis of the Italian old small piazzas by Sitte: following the environment, the visual enclosure of an outdoor to instantly capture the place, the depth for the perspective and the harmonious effect, the irregularities of features to exalt the artistic effect and the group of scattered but connected small outdoors nicely arranged;

#### The visual connectivity, part of the identity of Wakaba

- Finally, the viewpoint analysis and the notion of visual connectivity (structural and functional) highlighted the visual specificities (skin and structure) partly shaping the perceived atmosphere and helping to apprehend the vernacular small-grained landscape. The method is based on the analysis of layers of historical maps for the last 50 years and before through Edo footprint. To some extent, the visual landmark takes into account the changes of the fabric's features. The visual connectivity underlines the morphology of the small-grained densely built-up fabric and elaborates the local rules (structural and functional), which partly shaped the visual behaviour. In that sense the viewpoint analysis is morphogenic visual approach. The visual landmark proposes a unique local scenic visual pattern, where the viewlines' accesses surpass the limited public space accesses, toward the block's innermost. The visual connectivity, as spinal system, supposes the readability and intelligibility and revealed the "organic" incremental order of Wakaba densely buil-up fabric.

- I highlighted the visual specificity of Wabaka, where the high density of the traditional built-up fabric induced a contrasting experiences of visual paths and the non-feasibility of the walking paths

for the walker. The viewpoint patterns are lively with multiple viewlines' accesses unlike few walking ones. Such vital landmark follows the structural connectivity, permits to apprehend the place and participates in the atmosphere. The numerous visual breakthroughs toward the innermost of the blocks are recalling Maki's words on the legacy of the old and small Tokyo neighbourhoods. They interplay in the block's transparency (readability and intelligibility of the old fabric as a network system).

- Various consequences in threatening the visual connectivity: redevelopments are changing the visual behaviour by introducing new visual patterns, which affect the visual connectivity. It can dismantle the visual breakthroughs, by blocking fundamental structuring viewpoints. There are larger possible impacts, as spatio-temporal disconnection, health of the inhabitants and ecological disconnection from the fabric organic growth.

- The limit of the visual connectivity question the capacity to continue being a structural visual entity along with the urban local landmarks, since the level of the tools were already critical. In Wakaba, the typologies ABCD (in 4 blocks among 10) sustain the atmosphere of the whole neighbourhood and are more vulnerable in front of disconnective elements. They act as established visual orders participating in the local "organic" process and should receive more care, in order to maintain the blocks' viability.

- Professionals and residents could learn from the viewpoint analysis for regenerating the place, by using and implementing the tools to compose with the local visual connectivity as part of the *geni locci* of the place, by integrating time-layered analysis of the outdoors, by finding the criteria and orders behind the multiple skins of the view, by avoiding disconnecting elements.

- This research is an alternative way, not explored, to reveal the visual identity of the urban traditional densely built-up fabric through layered vernacular outdoors.



### CONCLUSION

### **INTRODUCTION**

### PART I: literature review approaching the question



#### CONCLUSION

#### 1. Chapters'summaries

### > <u>Chapter1</u> defined the notion of connectivity used in different fields and for the landscape.

- The notion of connectivity appeared with the Theory of Graph and refers to "the degree to which something has connections". It binds the fields of topology (paths and nodes) and the dynamic networks, exploring the movement, the space, the speed and the complexity. The connectivity reflects a spinal configurational model or capacity, which permits a viable and intelligible/ readable system.

- The three approaches on landscapes used the notion of connectivity differently to highlight the fundamental structural matrix of a network: either through algorithms (*space syntax* defined the axial map e.g. *connectivity graph*) or analysis of the urban network's characteristics (the *urban web theory*).

- In evaluating human decision-making behaviours, *Space syntax* excludes other types of outdoors and the reality of the visual skins. Conversely, *the urban web theory* pledged further for incremental functional conditions of the network's connectivity (scaling hierarchy and rules of the complexity). The landscape ecological connectivity associates both structural and functional connectivity (spatial configurational analysis and field's observations of the biodiversity footprint and behaviour). It introduced the notion of connectivity conservation, to protect the biodiversity corridors<sup>1</sup>.

- If Kuipers *et al.*, (2003) mentionned the role of the historical layers of time in shaping the skeleton map, the layered practice within outdoors is absent from the different analysis. Thus, the single notion connectivity needs further implementations. The notion of visual connectivity and its value as a unique urban landmark was never approached. Accordingly, it would gain to be experimented for the veracular small-grained and densely built-up fabric of the historical urban landscape (HUL) in Tokyo.

# Chapter 2 exposed some spatial approaches on the urban outdoors, their cognition, the impacts on spatial appropriation. It addresses also the issue of local scenic (visual) HUL.

- Conzen shaped the first morphological approach of the built environment, by layers of evolution. Sitte identified properties<sup>2</sup> of the outdoors, favouring the artistic effect of the vernacular space on the walker's experience. Lynch (1960) defined the five key-elements that shape the imageability of a place for the inhabitants. The cognition of a place goes through elements such as imageability, legibility, enclosure, human scale, transparency, linkage, complexity and coherence. In parallel, The biophilic<sup>3</sup> dimension of a place determines the conditions of a positive spatial appropriation (human wellbeing), through an *urban code*, the respect of the original settlement's geometry and complex hierarchical scaling patterns. The researchers binded spatial criteria on the outdoors and their related feelings.

<sup>&</sup>lt;sup>1</sup> The *urban web theory* assesses the notions of complexity, multiplicity, scaling factors and organicity that allow the interactions between the space and the human behaviour. The *space syntax* spatial configurational analysis establishes a correlation between the topological access of the streets and their influences on pedestrian movements or social liveliness: the degree of integration and connectivity graph express the diverse patterns of intelligibility of a place. In ecological landscape analysis, the structural matrix defines the space of potential species' interactions, whereas the physical field's conditions determine their real movements.

 $<sup>^{2}</sup>$  The Italian piazza five properties: The release from the central position, the proportion and depth rather than the metrics, the irregularity, and the arrangement of outdoors in successive groups of piazzas (Sitte, 1889).

<sup>&</sup>lt;sup>3</sup> The biophilia concept from the biologist Edward O. Wilson, led to the hypothesis of biophilic urban design

- Nonetheless some aspects would benefit to be experimented, such as the complex interdependence of visual and walking paths, the visual spatial structure and behaviour shaping the atmosphere of a place, and its advantages for urban design field. The UNESCO underlines the scenic quality of an urban cultural landscape, in terms of spatial arrangement and visual relationships. Mostly, the long distance historic views are concerned, but not the local small-scaled viewpoints. They necessitate further explorations to better grasp the *geni loci* a place, with adapted viewing tools, and by highlighting the cognitive aspects of the vernacular densely built-up fabric, where the organicity or the *fragmented growth* <sup>1</sup> are expressed. Their regeneration relies upon the integration of layers of spatial transformations, interweaving patterns of everyday life, which act partly as a meaningful collective identity, perpetually appropriated and re-defined at very small scale.

# Chapter 3 exposes the cognitive selection process of Wakaba-2-3-chome site and the issues in such Edo urban legacy, as a memory of the past poor informal "Shitamachi".

- The small people of Edo erected a singular "urbanicity", which emerged in the forest of dense alleys, their *nagaya*, *kaishoji*, *Edokko* in the space of *oku*. Such nuclei followed a socio-cosmological and spatial order. A non-palpable legacy of the "floating" Tokyo survived the successive destructions. The abstract space of 'shitamachiness', acknowledged by local memories and festivities, succeeded the physical space of Shitamachi. The systematic privilege awarded to the economic space and a technical approach from the planning authorities to the detriment of life space, had dramatic consequences on the fragmentation of the HUL in Tokyo and the cityscape homogenization. The deteriorations of the vernacular spatial configurations of the densely built-up "traditional" fabric is a continuous mechanism to be assessed with acuteness, as it might cumulate subtle changes in a vulnerable system. The density refers to the high ground built coverage area from groups of constructions in a given neighbourhood. Such entity also refers to the small-grained fabric in Tokyo, with traces of the *roji* and *nagaya*'s footprints, which used to be very densely populated, providing little breathing spaces on the outdoors.

- I selected the hollow of Wakaba's valley, through a holistic process based on my walkings and the visual behaviour, I elaborated: I favoured cognition criteria<sup>2</sup>, looking at contrasting (size, depth...) and appealing small vernacular outdoors (skins, elements...) in high built density network. The place reflects an organized visual behaviour, a coherent entity (sense of enclosure) with visual breakthroughs (transparency and readability of the blocks). Outstanding elements of the cultural landscape and new redevelopments types of outdoors were excluded from the analysis in order to focus on the spatial configurational aspects of the outdoor's fabric itself. The vernacular spatial arrangements in such place offer subtle, complex and multiple physical languages, which interact to shape a singular atmosphere,

<sup>&</sup>lt;sup>1</sup> The organic structure, against the modern destructive dynamic of *growth by massive units* (Alexander C., 1978). We can also refer to incremental order. Organic is understood as a participative structure, local scale intertwined practices and common agreement processes to regenerate the everyday landscape of outdoors in the place. <sup>2</sup> imageability, legibility, enclosure, human scale, transparency, linkage, complexity and coherence

perceptible by the stroller, through wellbeing or a picturesque effect. The view is the core element of this analysis, by detailing the mechanism of perception and its linkage with local 'visual' identities.

### Chapter 4 proposes the elaboration of the viewpoint method, a spatial configurational analysis based on visual tools leading to the notion of visual structural connectivity.

The analysis went through three steps. I superimposed the Zenrin maps from 1967 (1<sup>st</sup> Zenrin map) to 2008 (2010) and divided Wakaba 2-3-chome into ten blocks.

**0-** I looked at the evolution of a public space and the constructions, which suggested the need for a more specific approach addressing all types of outdoors. Then, I calculated the outdoor spaces' density and its evolution for each block, which lacked precision and did not help to grasp the atmosphere.

1- I developped the viewpoint method with tools based on the perception I experienced in Wakaba, from the external main street to the intimate accessible alleys. Views' specificities and their evolutions for more than fifty years were defined: types of viewpoints (tools), length, numbers, composition, etc.

I introduced four combined types of views, blocked and transversal<sup>1</sup> toward any types of outdoors in a block (particularly in between houses), at the eye's straight level from the ground floor. I observed that the viewpoints decreased in numbers and lengths, due to the block transformations, the decreasing numbers of alleys, the enlargement of outdoors and building sizes, and the increase of parking lots.

Outcomes: the richness of the interiority of each block and the multiplicity of visual paths are affected. A progressive externality of blocks goes along with less complexity, multiplicity, irregularities of the visual information and the poor visual composition that follows most of the land redevelopments. However, there is the persistence of numerous viewpoints for about fifty years. They draw the visual landmark (along with the fabric's morphology), which highlights a lively visual scene (by the lines'multiplicity and variety), numerous visual accesses toward the innermost of the block, against monotonous and limited walking accesses.

**2-** I deepened the analysis with accurate tools (e.g. the connectivity tools: viewpoint axe and viewpoint crossing spots<sup>2</sup>), by filtering the numbers of view lines/information. It revealed other aspects: The tools screened places with a higher level and variety of viewpoints, over fifty years. Such places are richer than other outdoors, as they encourage the multiplicity and complexity of the viewpoints data, whereas involving persisting visual potential in the spatial encounter over time. They propose visual spatial configurations (e.g. the four patterns ABCD) that I named the structural visual connectivity (visual matrix), specific to the Wakaba dense outdoors and which permit intelligibility/readability of the place, accordingly. The analysis helped to structurally access the place with the connectivity tools and through a time-layered approach of outdoors, including the historical maps. This is a main contribution and difference with other configurational analysis. Moreover, the viewpoint tools fit the

<sup>&</sup>lt;sup>1</sup> Transversal view (either from the street or an alley within the block): from a public outdoor (street or accessible alleys), a walker can see another object or human standing on other public outdoors/ Blocked view (either from the street or an alley within the block): the walker's view encounters an obstacle (buildings, drawn fences, ...).

<sup>&</sup>lt;sup>2</sup> view-axe: axe of views cumulating six view lines of three different kinds or more from the four kinds described on the first part/ view-crossing: intersection for three or more view lines, acting as a structural encounter space

small-grained outdoors. They are finner and could sort out specificities on the outdoors' transformations, for the Wakaba cityscape that usual analysis would elude in such high density.

### <u>Chapter 5</u> contains the field's analysis, confronting the results from the viewpoint analysis. It implements the notion functional visual connectivity, and discuss the value of visual connectivity as being part of the urban identity/landmark of Wakaba.

0- The residents seem proud of Wakaba and enjoy the present walking qualities in the vernacular small outdoors. They nurture doubts on the value of their fabric, but pledged for the strong community linkage (*kizuna*), as the most valuable element to preserve, despite the transformations of their place. The identity of the "*little Asakusa*" and its regretted lively outdoors' atmosphere mutated partly, toward a silent area devoted to service and small manufacturing ateliers. They showed a detachment toward the external causes of transformations. Some aimed at promoting new redevelopments and other estimated that a balance is reached between new and old patterns. However, their daily visual fields are related to the vernacular tight outdoors for three quarts, and perceived positively.

1- I observed the various functions of the outdoors; described criteria of the visual field, such as the multiplicity of a view's covering, organized complexity, the hierarchical scaling factor of views; noticed the dis-connective<sup>1</sup> and theathening elements for such specific outdoors. The arrangements associate various levels that stimulate visual interaction in a process that is in fact very much organized and encourage a visual behaviour, toward contrasting feelings/perceptions<sup>2</sup>. Wakaba shows organic frames with a strong sense of residents' appropriation, through nicely arranged small outdoors. 2- I confronted the four visual patterns ABCD, emanating from the structural visual connectivity: they are the most appealing places of Wakaba and propose four different atmospheres. From the atmosphere the type A, ordered and harmonious outdoors are readable. The type B recalls the irregular paths and wanderings within Italian piazzas, but at smaller scale (succession of surprises made by the small, multiple and irregular piazza). In the type C, the viewpoints are more regular, as determined by the valley stone-wall, which emphasizes the enclosure conditions in the hollow. The atmosphere in D is very unexepected. There are the longuest transversal viewpoints, located in the most inner part of the block and a variety of 'wild' greenery, stimulating the poetic imaginary of a 'mysterious' forest. The crossing view spots and viewing axes notably revealed the major attracting outdoors with subtle viewpoint perspectives. Hence, not all the greeneries have the same value, although nice and spontaneously displayed. Moreover, disappeared view-axes and view-spots expressed less complex treatment of the outdoors (mansion's garden). The visual functional connectivity implies the visual behaviour on a structural matrix. It follows the similar characteristics of the Italian piazza, on a visual base, since walking paths are limited and decreased over time. I implement the visual connectivity, as a singular landmark, attached to the small-grained dense fabric and its unique atmosphere.

<sup>&</sup>lt;sup>1</sup> Wall-building, wall-allotment, the dialectic of car-parks, over-scale edifications, etc.

<sup>&</sup>lt;sup>2</sup> such as Bright or dark/ Clean (ordered) or dirty (disordered)/ Secure or insecure/ Appealing (which stimulates the discovery of the place) or repulsive/ Calm or noisy/ Beautiful or ugly/ Spacious or narrow

#### 2. Main outcomes of the research



Preserved and disappeared viewpoints





- A method: the viewpoint analysis, a morphogenic visual approach, which is locally implemented and permit to better grasp the specificity of the fine grain structure of Wakaba, through visual processes. It is a spatial configurational analysis overlapping layers of fabric's evolutions for more than 50 years, through visual tools: chosen viewlines and the capacity tools of connectivity. The result is the visual connectivity, which elaborate the local rules (structural and functional) shaping partly the visual behaviour, and emphasizing the visual network's capacity/ viability. The results were correlated with the present time field's observations of the visual skin.

- A visual landmark: The Wakaba small-grained fabric welcomes a rich visual compositions, structured by long transversal viewpoints in the innerblock. The visual landmark is associated to the high densely-built-up fabric of Wakaba and a prevalence. Where walking accesses are blocked, numerous and vivid visual accesses permit to understand the place. The sight surpasses the walkable boundaries. Such *geni loci* of the vernacular fabric manages unique viewpoints at their scale.

- A new notion, the visual connectivity (structural and functional): It shows the time-layered structural order with intrinsic rules, responding to the spatial appropriations, and the readability of such dense fabric. As a spinal element, it supports part of the visual daily practice and the perception of the picturesque local scenic beauty in Wakaba's vernacular outdoors. Hence, the visual landmark and the visual connectivity have a singular value, interplaying in the intelligibility-readability of the place and the perceived atmosphere. They are elements parts of the identity of the place.

- An accent put on the local disconnective elements, threatening the fabric specificity over times of transformations (map analysis) and through observations afterward: Shortening and reducing the number of singular viewpoints, or structural visual elements of the connectivity causes: the decline of cumulated connective inner- richness, the externality of the block toward the street, the extinction of the visual singularity. The viewpoint method could benefit in the local guidelines for the community and professionals regenerating the place, by introducing visual criteria to highlight the different aspects and rules structuring the visual identity in the landscape of outdoors.



The 4 tyopologies of visual patterns depicting different atmospheres and visual behaviours: functional visual connectivity

- Furthermore: The images of a place are meant to evolve and can change dramatically, along with its perception by individuals. The transformation into anonymous outdoors, threatens the identity of the vernacular landscape of outdoors. The historical layers of outdoors shaped and regenerated slowly by each residents follow an organic process resulting in a harmonious atmosphere. The viewpoint analysis permitted to sort out the importance of the time- layered orders of the visual arrangements in Wakaba, for a long period up to Edo landmark, and to implement the visual connectivity. It interplays in the individual visual behaviours and the appropriation of the place and the linkage (socio-spatial). It leads to the question of finding a good balance between the freedom of redevelopping the fabric, which induces brand new visual behaviours attached to the new patterns and/or regenerating while following the unique structural patterns, part of the identity of the place, and which guaranty the readability (intelligibility) of the place. In Wakaba, the visual connectivity typologies ABCD sustain the atmosphere of the whole neighbourhood. They are more vulnerable in front of disconnective elements, which should receive special care as they maintain the structural viability of the blocks. The visual connectivity binds the picturesque visual scene with the spatial intelligibility and the imageability of the place and revealed the specificity of the local "organic" order of Wakaba through the visual landmark prevalence. However, if the research could differentiate the value of key outdoors (spatially maintained over time, nicely appropriated by the residents with greeneries, positioned in the main visual axes or visual crossings) among others, it could not check the meaning of those outdoors for the residents, comparatively and their previous appearances. Moreover, there is a need in Wakaba 2-3 chome, to get residents involved in shaping a local guideline on their landscape specificities in order to maintain the connective processes of the place. Finally, professionals and designers could learn from the viewpoint analysis, the historical layers of outdoors arrangements, their attached viewlines specificities, and implement such tools with the community opinions. The tools permit to compose and highlight the visual identity (unique local scenic landscape of smallgranied fabric), part of the urban landmark and to replace the individual experience in its time-space relationship. This research is an alternative way to highlight the visual value of the vernacular dense patterns gathered in their small network of outdoors. The visual tools, not explored in previous researches, could help to detect efficiently their characteristics.<sup>272</sup>
#### 3. Further questions and possible studies

1- Futher sociologic reseach on the Wakaba community's visual behaviour, their opinion on the outdoors of the visual connectivity and the important outdoors in the neighbourhood's history. It would complete the outcomes from viewpoint method with sociologic relevances of the place.

2- I focused on a traditional densely built-up area of central Tokyo; However, it would be interesting to implement the viewpoint analysis **and to address a visual genealogy of all types of outdoors** from less densely built-up fabric of urban Edo footprint, but also from new redevelopments along with larger scale fabric. How the visual behaviour and structure can be affected by the landscape homogeneization? New visual models, tools and notions could emerge from such analysis.

3- Researches on regulatory tools for the recognition of the vernacular landscape of outdoors in the planning process would be an interesting subject. It can be implemented with specific and locally determined guidelines defining the modalities of intervention in high-density urban fragments for the developers, the designers and the residents. Visual criteria, as the visual connectivity, supplemented with more visual tools, according to the singularity of the place, could benefit to the local guidelines.

4- Wakaba, "Yanesen" and Tsukishima are among the vernacular testimonies of human made-scale through small-grained and highly dense fabrics, where the viewpoint method could help. For the walker, the Beauty of those spatial arrangements at the smallest scale, is also a reaction to the standardized scales of interaction displayed in the metropolis. The readability of the different scales and the necessity to keep small-scaled fabric to apprehend the metropolis, should be further explored.

5- The cultural urban landscape underlines the importance of visual releationships, but the question of outdoors and their morphologies attached to cognitive and behavioural approaches needs further explorations: The consideration of small-scaled visual heritage in the HUL (among which the visual connectivity), the cognitive relationship at different scales, and the role of layered outdoors in transmitting individual practices also partly shaping the HUL. Hence Asian cultural landscapes in metropolises would gain to explore the significance of the non-built, through alternative methods (such as the present work), in order to define its identity, to regenerate sustainably or to protect it.

6- Many historical patterns evolved into overpopulated hazardous development or slums and are the object of clearance, partly due to their strong level of decrepitude and a negative image associated with a social segregation. Those settlements present a language of beauty, intrinsic to their "organicity" and strengthened by the relative high built-density of their fabric. However they are endangered species in Asia undergoing the fast mutations of its urban landscapes. Conversely, recent informal/organic developments, such as the example of Dharavi, would gain to be valued as cultural urban landscape. They consolidated (socially, economically, etc.), and developed their own spatial langage, a *geni locci*. Such "informal" places would gain to be studied with locally implemented tools of connectivity to understand the structural order, the morphological modalities of the outdoors' appropriations and the related visual behaviours.

## **APPENDIX- BIBLIOGRAPHY**

### **APPENDIX**

## Appendix A : Review table on landscape connectivity terminology

TABLE : Review of connectivity terminology

	Connectivity Science Terminology	an or a state of the state of the	
Functional	Describes the case with which individuals can move about	Kindlemann & Burel 2008	References
Connectivity	behavioral response to landscape elements and the spatial configuration of the entire landscape.		Andersson, E. and O. Bodin. 2009. Practical tool for landscape planning? An empirical investigation of network based models of habitat fragmentation. <i>Economics</i> 32: 123-132.
	The extent to which a species or population can move	Hilty et al. 2006	Date D. D. B. Matter and W.D. Granne. 2000. Performation and sharing and second strengthere for
	Describes the response of individuals to landscape features and the patterns of gene flow that result from these	Brooks 2003	designing wildland linkages. Conservation Biology 22(4): 836-851.
	The degree to which the landscape facilitates or impedes movement among resource patches.	Taylor et al. 2003	Bennett, G. 2004. Integrating biodiversity conservation and sustainable use: lessons learned from ecological networks. IUCN, Gland, Switzerland and Cambridge, UK. Vi + 55 pp.
	Describes the combined effects of (1) landscape structure and (2) the species' ase, ability to move and risk of mortality in the various landscape elements, on the movement rate among hobitst natchers in the landscape	Tischendorf & Fahrig 2000	Blasi, C. et al. 2008. The concept of land ecological network and its design using a land unit approach. <i>Flant Biosystems</i> 142(3): 540-549.
1.000	A species-specific characteristic determined by the interaction between the movement potential of each species	Monkkonen & Reunnen 1999	Brooks, C.P. 2003. A scalar analysis of landscape connectivity, Oikos 102: 433-439.
	and landscape structure. The functional relationship between habitat patches owing to the spatial contagion of habitat and the movement.	With et al. 1997	Chetkiewicz, C.L.B., C. C. St. Clair and M.S. Boyce. 2006. Corridors for conservation: integrating pattern and process. Annual Review of Ecology, Evolution and Systematics 37: 317-342.
Structural Connectivity	responses of organisms to landscape structure. Describes the physical relationships among habitat patches while ignoring the behavioral response of organisms to	Kadoya 2009	Debinski, D.M. 2006. Forest fragmentation and matrix effects: the matrix does matter. Journal of Biogeography 33: 1791-1792.
	A product of habitat amount: spatial configuration and configuration across multiple across	Andersson & Bodin 2009	Forman, R.T.T. and M. Godron. 1986. <u>Landscape Ecology</u> . John Wiley and Sons, New York, N.Y. 619p.
	Describes the shape, size and location of features in the	Brooks 2003	Hess G.R. and R.A. Fischer. 2001. Communicating clearly about conservation corridors. Landscare
1.	landscape. The spatial contagion of habitat	Monkkonen & Reunnen 1999	and Urban Planning 55: 195-208.
Corridor	A swath of land intended to allow passage by a particular wildlife species between two or more wildland areas.	Beier et al. 2008	Hilty, J., W.Z. Lidicker Jr. and A.M. Merenlender. 2006. Corridor Ecology, Island Press,
	Any explicit spatial area designed, protected or managed to maintain connectivity for focal species or critical ecological	Hoctor et al 2007	Washington D.C. Hoctor, T.S. et al. 2007 Land corridors in the southeast: connectivity to protect biodiversity and
	Any space identifiable by species using it that facilitates the movement of animals or plants over time between two or	Hilty et al. 2006	ecosystem services. University of Florida, Geoplan Center. James, P., J. Ashley and A. Evans. 2000. Ecological networks: connecting environmental, economic
	Regions of the landscape that facilitate the flow or movement of individuals, seens and ecological processes.	Chetkiewicz. et al. 2006	and social systems? Landscape Research 25(3): 345-353.
	Narrow, continuous strips of habitat that structurally connect two otherwise non-contiguous habitat patches.	Tischendorf & Fahrig 2000	Jongman, R.H.G. and G. Pungetti, 2004. <u>Ecological Networks and Greenways. Concept. Design.</u> <u>Implementation</u> , Cambridge University Press, New York, N.Y.
	A linear landscape element that provides for movement between habitat patches, but not necessarily reproduction.	Rosenberg et al. 1997	Kadoya, T. 2009. Assessing functional connectivity using empirical data. Population Ecology 51: 5-15.
	Linear landscape elements that connect two or more patches of natural habitat and function to facilitate movement.	Soule & Gilpin 1991	Kindlmann, P. and F. Burel. 2008. Connectivity measures: a review. Landscape Ecology 23: 879-890.
A laboration	Narrow strips of land that differ from the matrix on either side.	Forman & Godron 1986	Mönkkönen, M. and P. Reunanen. 1999. On critical thresholds in landscape connectivity: a management perspective. Oikos 84(2): 302-305.
Linkage	Connective land intended to promote movement of multiple focal species or propagation of ecosystem processes.	Beter of al. 2008	Ricketts, T.H. 2001. The matrix matters: effective isolation in fragmented landscapes. The American
	Large conservation corridors containing significant areas of habitat while also facilitating connectivity between conservation areas.	1000 01 01 2007	Naturalist 158(1): 87-99.
Matrix	The rest of the landscape after exclusion of habitat patches consisting of patches of non-habitat elements.	Kindlemann & Burel 2008	Kosenberg, D.K., B.K. Noon and E.C. Meslow, 1997. Biological corndors: form, function, and efficacy, <i>BioScience</i> 47(10): 677-687.
	Collectively, the communities outside of the community type of special interest.	Hilty et al. 2006	Singleton, P.H., W.L. Gaines and J.F. Lehmkuhl. 2002, Landscape permeability for large carmivores in Washington: A generaphic information system weighted distance and least-cost
	The area between liabitable patches.	Debinski 2006 Mass & Eisebas 2001	corridor assessment. Research Paper PNW-RP-549. United States Forest Service, Pacific
	The most extensive and connected randscape type. Nonhabitat surrounded by native habitat natches in a	Ricketts 2001	Northwest Research Station.
	landscape.	No. 4 June 4 Louis	Soule, M.E. and M.E. Gilpin. 1991. The theory of wildlife corridor capability. In Nature
	The environment in which habitat an dlinear patches are embedded.	Rosenberg et al. 1997	Conservation 2: The Role of Corridors, eds. D.A. Saunders and R.J. Hobbs, pages 3-8. Chipping
Landscape Permeability	Characterizes the relative potential for animal movement between habitat natches at a regional scale.	Singleton et al. 2002	Norton, New South Wales, Australia: Surrey Beatty & Sons.
Scale	The spatial or temporal dimension of an object or process characterized by both grain and extent.	Chetkiewicz et al. 2006	Taylor, P.D. et al. 1993. Connectivity is a vital element of landscape structure, <i>Oikos</i> 68(3): 571-573.
Ecological	A set of nodes and links that simulates landscape suitability as perceived by different ornanisms.	Andersson & Bodin 2009	Olkos 90: 7-19.
THE REAL PROPERTY IN THE REAL PROPERTY INTERNAL PROPERTY	The ensemble of environmental elements with heterogeneous physical and biological features that maintain their structural and functional heterogeneity regardless of human activity.	Blasi et al. 2008	
	Interconnected systems of conservation lands.	Hoctor et al. 2007	
	A coherent system of natural and/or semi-natural landscape elements that is configured and managed with the objective of maintaining or restoring ecological functions as a means to conserve biodiversity while also providing appropriate opportunities for the sustainable use of natural resources.	Bennett 2004	
	Aim to provide the physical conditions necessary for ecosystems and species to survive in landscapes also exploited by economic activities.	James et al. 2000	

Source: Meiklejohn et al. (n.d.)

Appendix B : Some principles of urban web theory, on connectivity by Salingaros's approach



Figure 1. The irregularity of connections: (a) minimal connections look regular from the air; (b) multiple connections between four nodes.

Figure 4. The search for purity: (a) office building connected to apartment block via overloaded channel; (b) factory connected to residential suburb via overloaded channel; (c) both (a) and (b) are equivalent to parallel non-interacting strands.

Figure 5. The connective process: (a) different types of nodes, shown with distinct numbers, connect naturally; (b) connections between complementary nodes amalgamate into a path.

Figure 6. Pedestrian paths: (a) these two node clusters are too far apart to be connected; (b) introducing two new intermediate nodes establishes a connection.

Figure 7. Connections in retail areas: (a) the worst case is when each store is connected only to the parking lot; (b) stores connect on separate sides of a street; (c) the most successful solution connects all stores by pedestrian paths.

Figure 8. The combination of two urban elements: path and edge: (a) path and edge are separate, which is weak and unstable; (b) when path and edge coincide, the boundary sustains the connection.

Figure 9. Roads: organizing the connections on a higher level: (a) protected pedestrian paths cross and connect to local street; (b) superimposed networks of pedestrian, bicycle, local and through traffic.

Figure 10. Local separation of paths: (a) dangerous sidewalk next to a highway will not be used; (b) path is protected by trees and a low wall with gaps.

Source: Salingaros (1998)

(1) <u>Nodes</u>: The urban web is anchored in nodes of human activity whose interconnections make up the web. There exist distinct types of nodes: home, work, park, store, restaurant, church etc. Natural and architectural elements serve to reinforce human activity nodes and their connective paths. The web determines the spacing and planning of buildings, not vice versa. Nodes that are too far apart cannot be connected by a pedestrian path.

(2) <u>Connections</u>: Pair wise connections form between complementary nodes, not like nodes. Pedestrian paths consist of short straight pieces between nodes; no section should exceed a certain maximum length. To accommodate multiple connections between two points, some paths must necessarily be curved or irregular. Too many coinciding connections overload the channel's capacity. Successful paths are defined by the edge between contrasting planar regions, and form along boundaries.

(3) <u>Hierarchy</u>: When allowed to do so, the urban web self-organizes by creating an ordered hierarchy of connections on several different scales. It becomes multi-connected without becoming chaotic. The organization process follows a strict order: starting at the smallest scales (footpaths), and moving on to higher scales (roads of increasing capacity). If any connective level is missing, the web is pathological. A hierarchy can rarely be established all at once.

Figure 2. Connections between the nodes of the urban web: (a) over-concentration creates a singularity and exceeds the channel's carrying capacity; (b) the same number of nodes better distributed.

### Appendix C: Space synthax, the dual approach, from Porta et al., 2006

1<sup>st</sup> document:



The methodology of axial mapping (the primal approach mainly explored by Hillier and Hanson) lies in representing the intersection of nodes and the streets with edges. The dual approach (Porta *et al.*, 2006) reverses the process by considering the intersections as edges and the streets as nodes. It leads to the "dual connectivity graph" ( $2^{nd}$  document, column 3).

- Jiang and Claramunt (2004) proposed, as a first step to anchor the representation of street patterns to an actual primal graph, based on the common characteristics of nodes and visibility; and more recently to propose a model based on the named-street in order to cope with the principle of continuity (2<sup>nd</sup>

document, row B). However street names can represent a major problem in that approach, as they are not always meaningful, and can be interpreted differently according to people from different social backgrounds, leading to social indetermination issues.

- The ICN<sup>1</sup> model (2<sup>nd</sup> document, row C) tried to avoid the problems of social interpretation within a pure spatial context, allowing a dual step-distance representation of urban street networks linked to a primal graph and further geographic-Euclidean investigations of the space. They characterized the topological properties of a network by looking at various mathematical criteria and coefficients which correlated to the network analysis, such as the degree distribution<sup>2</sup> (scale-free networks), the degree correlations, the characteristic path length, the clustering coefficient, the global and local efficiency<sup>3</sup>, the small-world networks<sup>4</sup>. This last model was applied to analyze and compare six cities, Ahmedabad, Barcelona, San Francisco, Venetia, Wien, Walnut Creek ("lollipops") (1<sup>st</sup> document), for their organic properties for one ("Fine-grained incremental growth, out of control"), and an immediately visible Euclidian order (grid pattern) for the others. All the graphs are the expression of real street networks included in a one square mile boundary. An interesting outcome from this analysis regarding the two kinds of patterns is the property linked to the scale-free behaviour, which is clearly emerging from the organic patterns of Ahmedabad, Venetia and Wien, by letting an order emerge. Hence, the largest number of nodes is noticed for Ahmedabad which follows a "power law"<sup>5</sup>.

2<sup>nd</sup> document:



Fig. 1. Row A: the Space Syntax way: (1) A fictive urban system; its (2) primal axial map network model; and its (3) dual connectivity graph, after Ref. [6]. Row B: the named street way (street names replaced by numbers): (1) A fictive urban system; its (2) primal networ model; and its (3) dual connectivity graph after Ref. [15]. Row C: the ICN way (street names replaced by numbers): (1) A fictive urban system; its (2) primal graph; and its (3) dual connectivity graph. In this latter proposal, the direct representation of the urban network is properly a graph, where intersections are turned into nodes and street arcs into edges, edges follow the footprint of real mapped streets (a linear discontinuity does not generate a vertex); the ICN process assigns the concatenation of street identities throughout nodes following a principle of "good continuation" [12].

At a first look of its map, the city has a very dense street pattern, compared to Venetia  $(2^{nd})$ , Wien  $(3^{rd})$  and the other grid patterns. On the contrary, grid patterns of the San Francisco, Barcelona and Walnut Creek, where the surface was simply too short, do not show any order. Issues such as walkability. the community cohesion and the proxemic (e.g. the study of the cultural, behavioural, and sociological aspects of spatial distances between individuals) are at stake in the last cases, as underlined by the dual graphs of connectivity (1<sup>st</sup> document, figure 3). For the determined surface scale, organic patterns have numerous nodes & edges.

<sup>&</sup>lt;sup>1</sup> Intersection Continuity Negotiation (ICN) model: street names are replaced by numbers. In this latter proposal, the direct representation of the urban network is properly a graph, where intersections are turned into nodes and street arcs into edges; edges follow the footprint of real mapped streets.

 $<sup>^{2}</sup>$  "The degree of a node is the number of edges incident with the node, ie the number of first neighbours of the node." / The degree correlation quantifies the degree of connected vertices, i.e., the average degree of the nearest neighbours of vertices with a certain degree. It can be assortative and disassortative mixing..."In a social system, there is a high probability that two individuals linked by an acquaintance have a third acquaintance in common. Such a tendency can be measured by the clustering coefficient C." (Porta et al., 2006, p. 856) <sup>3</sup> How well the nodes communicate over the network

<sup>&</sup>lt;sup>4</sup> "The small-world definition is based on the concept of network efficiency. Since a small characteristic path length indicates that the system is efficient on a global scale, and a high clustering means that the network is efficient on a local scale...a network in which the nodes communicate efficiently both at the global and at a local scale." (Porta et al., 2006, p. 859)

<sup>&</sup>lt;sup>5</sup> An order clearly emerges in fine-grained, incrementally grown cities like Ahmedabad, Venetia and Wien, that correlate streets with their degree, thus the number of other streets intersected. Many streets intersect few other streets while a restricted number of "rich" streets do intersect a large number of other streets.

# Appendix D: 5 Lynchian elements through the axial map interpretaion: similarities, differences, and complementary nature; Resume and extracts from the article of Conroy and Bafna (2003).

Both approaches on the notions of intelligibility (space syntax) and legibility (or imageability in Lynchian terms) could be reconciled according to Conroy and Bafna, who reinterpreted Lynchian five elements in space syntax terms. To resume their hypothesis, if Lynch approach focused on visual qualities and residents' cognitive maps of the city, space syntax proposes rather abstract spatial descriptions as an underlying structure (or structures in relationship to observable behaviour).

- The Lynchian elements can be distinguished in two groups: a first order of *spatial* descriptors (nodes, paths, districts) as topological elements for the observer (structurally distinctive), and a second order of visual descriptors (edges and landmarks) as geometrical order relationship for the observer (visually distinctive). According to Kuipers et al. (2003), individuals find their ways by using a mental map constructed in terms of a skeleton of paths<sup>1</sup>. Hence the cognitive memory of a city cannot be only a collection of features or visual qualities of elements in Lynchian terms but necessitates a systematic structure with structural qualities to bind them. Axial map developed urban configuration in their totality when Lynch cognitive maps of the inhabitants is selective regarding their visual characteristics<sup>2</sup>. The intervention of an overall wayfinding structure is needed, with the possibility of axial analysis for Conroy and Bafna (2003). They assumed that the dependencies of Lynchian elements upon the basic space syntax descriptors, but not reversely: "all imageable cities must be intelligible, but all intelligible cities need not to be imageable. Lynch claimed that visually differentiated and ordered landscape (imageable landscape) is characteristic of a functional city, but the visual differentiation can only arise from a well-developed structural hierarchy. "Furthermore, syntactical structure of the city is a multi-level one<sup>3</sup>, permitting the description of the city into subparts or districts with their order and structural properties.

- The selectivity is the key feature for Lynch analysis, when space syntax characteristically sorts elements (axial maps, convex shapes etc...) with different values and can only answer the question why non-visually distinctive elements acquire importance for building the image of the city for their inhabitants. Lynch cognitive map could be roughly identified by a 10% integration core in space syntax, analogous to the "skeleton map" from Kuipers *et al.* (2003)<sup>4</sup>. The divergences are that space syntax views the skeleton as being intrinsic to the spatial configuration of the system (a given state), that Kuipers *et al.* consider the skeleton which emerges over time from the cumulative experience of navigating an environment, and that Lynch sees such skeletons with structural features of their own (not simply with the identification of elements and spatial structures. The structure permits the recognition of elements and any set of elements are by necessity structured. If Lynch analysis strongly proposed a visual nature of his elements, space syntax has inherently a cognitive basis.

- In such visual frame, isovist field connects Lynch elements to space syntax definitions<sup>5</sup>. In that sense, axial line will feature more strongly the structural elements of the city image, missed by Lynch, but isovist would be stronger for some specific categories as the node and the landmarks<sup>6</sup>

<sup>&</sup>lt;sup>1</sup> "Paths within a complex environment that is used with greater frequency than the rest of the paths and therefore serves as a mental frame of reference in the environment cognition"

 $<sup>^{2}</sup>$  In that sense, verbal maps hold more information than the sketch maps but some elements (visually distinctive) from the sketch maps are not in the verbal maps. Lynch (1960) recognized himself that his method was very good for accounting the different elements describing the visual image of the city, however it underemphasized the relationship between them.

<sup>&</sup>lt;sup>3</sup> Hierarchical with structures of structures and not a single level of axial maps

<sup>&</sup>lt;sup>4</sup> They raised up the pertinent question: "Is there a qualitative difference between the skeleton and the rest of the map, or is the role of the skeleton an emergent behavior of some uniform mechanism applied to the entire cognitive map?"

<sup>&</sup>lt;sup>5</sup> See definitions of different visual fields in part 1.5.1

<sup>&</sup>lt;sup>6</sup> "The difference between the axial line map and an isovist is more than the one between spatial and visual, but that one allows mapping of a local to global structure (but a serious attenuation of local characteristics), while the other (isovist) preserves much more of a local spatial information (but does not allow a natural global extension)"(Conroy and Bafna, 2003)

- <u>Paths</u>: Lynch's paths are broadly similar to axial lines in space syntax terms, however the axial map is much closer to the map from sketches than from the one derived from verbal interviews. However some discrepancies have been noticed, that the axial map helps to solve. The sketch map is far less differentiated compared to the interview map and dissolves the differences between segment of the streets. "Axial map helps downplay the particular strength that elements with strong visual characteristics acquire in the interview and it allows the capturing of the structural sense of the city (an aspect that Lynch is aware of, but is unable to assimilate to the dominant visual bias of his study). The sketch map is easily explained by the axial structure."

- <u>Nodes</u>: Lynch distinguishes two types of nodes, major intersections and those characterized by a concentration with a thematic activity, however they are hard to understand in terms of features of node. Nodes are key points in way finding tasks and might not need any distinctive physical or visual characteristic as shown in axial map, however they noticed that oddly, very few of the nodes in Lynch's maps do not figure in the strong axial lines. It is a possibility, "if observers may not be visually aware of key decision points in their paths". Hence the sketch map can be useful but not sensitive enough to distinguish normal crossings from key ones, but the axial map highlight such nodes very efficiently. Another interesting point underlined by the authors is regarded the isovist mapping of the nodes, which might help better characterise further the significant nodes. Such nodes would need to have highly concave shapes (visually penetrating star-shapes), strong visual asymmetry, and proximity to highly integrated axial lines. Such contribution is useful for nodes with strong visual character but not contribute especially to the sense of orientation.

- <u>District</u>: Districts, like nodes lack of identification in axial map, since "they do not provide any sense of hierarchical structures in their mapping of the cities. No techniques exist at the moment, for capturing the natural emergence of distinct districts within a city, a phenomenon that Lynch points out as being both ubiquitous and highly relevant to the image of the city". However, once districts are know, the axial map becomes interesting in understanding their characteristics. Moreover, all districts are marked with local intelligibility (significant predictability).

- <u>Edge</u>: For Lynch the definition of edge are: "Linear elements not considered as paths", "boundaries between two kinds of areas", edges are visually prominent..continuous in form and impenetrable to cross movement" (definition closed to isovist considerations), "edges, whether of railroads, topography, throughways, or district boundaries, are a very typical feature..and tend to fragment (the environment)", "edge are often paths as well". For Conroy and Bafna (2003), who noticed that few edges are identified in Lynchian cognitive maps, "the edge in an urban environment seems to depend to a great extend, not only on its own visual (isovist) properties, but where it occurs to with respect to the main paths of movement (the structure of the axial map)."

- <u>Landmark</u>: They are visible in the most significant streets from Lynch's map, however they do not have any relationship at all with axial map. Global landmark has the ability to be visible over long vista (but no memorable connection to the paths network in cognitive map). local landmarks are much better grounded and used in planning routes, but tend to be very personal. "Axial analysis or even visual field may contribute little to the identification of typical landmark.", although they can also be described in syntax and visual terms."The inhabitants consensus landmark are those whose visual catchment regions can be accessed from spatially integrated lines of movement, and have a distinctive isovist shape, as per Peponis' findings."

#### Appendix E : Qualitative assessment model for evaluation of the open spaces

#### QUALITY OF BUILT ENVIRONMENT (Basic dimensions and their interrejations) USER ENVIRONMENT PERFORMANCE / QUALITY USERS CHARACTERISTICS LEVELS OF PHYSICAL ENVIRONMENT Open spaces -homogeneity /h Cou PERFORMANCE tructure , size, Fer nihy Open spaces between B.G. Surrounding/enclosed oper ng Group Behavior related to use Individual -eex , age , activity ,education , **Build** + m , front garden) Connected open spaces ( balcony, terrace, rod, garden) Dwell ne Unit QUALITY Buik Window exten sions, Fitness for use wind · .... Ea laterial QUALITY CHARACTERISTICS PERFORMANCE / QUALITY REQUIREMENT SPACE CHARACTERISTICS USERS NEEDS H ic / si G -fo -form, shape, di configuration tric / dvnu Stability Durabilit Comfort т tor, time lag, U Value... Optic light refle He , ide wind of 1 Cal. xmy, EVALUATION METHODOLOGY TECHNIQUES OF BEHAVIORAL EVALUATIONS TECHNIQUES OF PERFORMANCE EVALUATIONS SUBJECTS OF EVALUATION 1.Physical character istics of buildings and of Physics open spaces Punctional sp er / manager interviews tech. udio-visual techn istural cha -Ea Checklists -Hard and soft is NS OR ST 2.Users chara-Checklist -User types -Users needs and m iterature a 3. Conditions of using -Frequency of using (Francis, 1989) n lan Lite nture search nges / alt al and Sta evi ...etc. Manager etc uni DATA SEHAVIORAL DATA RECEIVED FROM PERFORMANCE DATA RECEIVED FROM TYPE OF DATA Expert knowledge rt Ino des. FINDINGS JUDGMENT & INTERPRETATION

#### QUALITY ASSESSMENT MODEL (QAM)

Systematic approach to assessment of quality of built environment.

Source: Ozsoy et al. (1996)

#### Appendix F :Survey and factors on creation of lively streets/ criteria at eye level for urban street

#### Facades and public life, Copenhagen 2003

The study objective was to explore the connection between the content, transparency and design of ground floors, and the extent and nature of pedestrian activities and stays along the street.

The 100-m-long sections of typical shopping streets in Copenhagen were selected as study, areas. The sections feature two very different types of façades: (a) varied facades with many doors, visual contact between outside and inside and various functions, and (b) uniform facades with few doors, blind or no windows and few or no functions. A 10-m segment was selected as the primary study area for each section. The 10-m segments were subsequently designated A and E areas.

Other factors such as general population mix, pedestrian flow, climate, time and traffic intensity were constant, as the A and E areas are on the same side of the street and less than 100 m apart.

By comparing the extent and nature of activities within the A and E areas, it is possible to illuminate the impact of the facades (transparency, function, design, etc) on the activities and street life going on in front of them.

Observers in the individual façade segments registered the following:

- · Number of people passing by the façade per hour
- Speed at which pedestrians passed the façade · Number of people who turned their heads
- towards the façade as they passed by Number of people who stopped in front of the
- façade · Number of people who went in or out of a door
- in the facade Number of people who carried out other types
- of activities or stayed in front of the façade; type of activity and where it took place.

The studies were conducted using manual observations (counts and behavioural mapping) divided into morning, noon, afternoon and evening. The day studies were conducted under good summer weather conditions from 10 a.m. to 4 p.m. Evening studies were conducted on autumn weekdays between 5 and 8 p.m., when it was dark but the weather was good for the season.

PEDESTRIAN BEHAVIOUR IN FRONT OF GROUND FLOORS IN MAIN STREETS



Figure 12. Pedestrian behaviour in front of ground floors in main streets.

ACTIVITIES PER HOUR IN FRONT OF GROUND FLOORS IN MAIN STREETS



Figure 13. Activities per hour in front of ground floors in main streets

Source: Gehl et al.(2006)



	LIST OF KEY WORDS		
SUALE	MANY UNITS – VERTICAL DIVISIONS Minimum 10 units per 100 m provides an interesting façade and a vertical façade expres- sion that shortens the percep- tion of distance	RHYTHM Narrow units, many doors and a wide mix of functions provides a dynamic rhythm in the streetscape	SPACE SCALE The width of the street rela- tive to surrounding buildings, for example, a scale of 2:1, 1:1 or 1:2
PAHENUT	TRANSPARENCY Visual contact between inside and outside increases the street space as well as opportunities for interaction with buildings	LIGHT IN DARKNESS Night lighting maintains transparency	ACTIVE FACADES Interesting window displays Many entrances The opportunity to observe ground-floor activities
UESIGN I HANS	UNBROKEN FACADES No gaps in the row of facades Keeping the facade in line with the other facades on the street	FAÇADE RELIEF Doorsteps, edges to sit on or stand next to, benches, niches and columns enrich sensory impression and enhance opportunities for stopping and staying	MATERIALS AND DETAILS Wealth of details Quality materials Good sensory experiences
FUNCTION	EXCHANGE Function and content with street appeal Pleasant smells along the street and wares out on the street	FUNCTION AND CONTENT Rich variation of functions to create life and a feeling of security at any time of day or night	EDGE ZONES Detailing of the base of buil- dings Displays and wares on the street Soft edges
EXI-CONDITION	CLIMATE Utilize good sun conditions Avoid wind problems	LIGHTING Good evening and night lig- hting – also in street space	TRAFFIC Wide sidewalks that have few breaks and are accessible to all user groups



Figure 8. Urban scenes at eye level.



.A.



#### Appendix G : The biophilic cities from T. Beatley project

At 2009 ELPR Symposium, Timothy Beatley from the University of Virginia School of Architecture, introduced biophilic urban design. His primary focus was on encouraging city planners to look at every space as an opportunity for green. His book *Biophilic Design* attempts to rethink urban infrastructure in an effort to eventually develop a multi-level design that connect humans with nature, incorporating nature into city planning and architecture. Many cities and neighbourhoods have already undertaken to reach out to nature, in a planned or vernacular way<sup>1</sup>. Furthermore this reconnection takes into consideration the social benefit of re-discovering interaction with natural features, not only through outdoor activities in remote forests and countryside but also within the city. However those thoughts are more incorporated into architectural apparatus than at the urban scale. Hence for Beatley, urbanists and city planners have special opportunities and unique obligations to advance biophilic city design<sup>2</sup>, toward a city, even greener and richer in the nature they contain (Beatley, 2001).

The Biophilic Cities project is an international collaborative research initiative, including potential partner cities such as London, San Francisco, New York City, Perth (WA), Houston (e.g. Houston Wilderness), Oslo, Helsinki, Vitoria-Gasteiz, Spain, Capetown, Sao Paulo, Singapore and other, with a focus of research and long term monitoring on biophilic qualities. The idea and image of biophilic cities are exclusively green, organic and natureful; The qualities of wonder and fascination, the ability to nurture deep personal connection and involvement, visceral engagement in something larger than outside oneself, offer the potential for meaning and deep attachment to its place and environment; In biophilic cities, favour is given to any kinds of aspects which enhance the relationship and direct interaction between human and natural features. Thus, residents should develop a deep affinity with the unique flora, fauna and fungi found there, with the climate, topography, and other special qualities of place and environment that serve to define the urban home: This interaction also encourage the knowledge on common species of trees, flowers, insects and birds and their seasonal rhythms. The biophilic cities provide abundant opportunities to be outside and to enjoy nature through different activities (strolling, hiking, bicycling, exploring, gardening, or just feeling and spending time amongst the trees, birds and sunlight). In that sense they are rich multisensory environments, where visual, touch, smell, ears celebrate natural forms, shapes, and materials; Furthermore biophilic cities invest in the social and physical infrastructure that help to bring urbanites in closer connection and understanding of nature, whether through education by providing many and varied opportunities to learn about and directly experience nature (natural history museums, wildlife centres, school-based nature initiatives, or parks and recreation programs etc...). Biophilic cities and projects aim to be globally responsible cities that recognize the importance of actions to limit the impact of resource use on nature and biodiversity and actively support the conservation of global nature;

To resume the targets of biophilic cities, some elements should be valorised to reach optimum natural relationships: knowledge and local place-strengthening, connection and connectivity, the awareness on the benefit of nature into environment at small and large scale and through daily activities, moments and movements, and more conceptually a quest for wonder and awe in our lives that this connection to natural environment could enhance.

<sup>&</sup>lt;sup>1</sup> From incorporating natural light in the workplace to raise moral and productivity, to efforts such as growing green rooftops, walls and bridges or gardens in sewer runoff systems etc...

<sup>&</sup>lt;sup>2</sup> By utilizing a variety of strategies and tools, applied on a number of geographical and governmental scales; by extending principles beyond conventional urban parks, and beyond building-centric green design; by redefining the very essence of cities as places of wild and restorative nature, from rooftops to roadways to riverfronts, with the vision but also through practices

#### Appendix H : A study on health and comfort issues for outdoors in the traditional frame of Tokyo

Let's take one research developed by Takano, Nakamura, and Watanabe (2002). In that analytical approach study, researchers looked at the association between greenery filled public areas that are near residences and easy to walk in and the longevity of senior citizens in two densely populated cities from the Tokyo metropolitan area (east and west parts). They submitted questionnaires among 3144 people born in 1903, 1908, 1913 and 1918, in order to provide facts of the evidence of ???based policy making and to promote the health of senior citizens. The questionnaires given to residents, whose survival was registered until the 31st of May 1997, underlined: space near a residence for taking a stroll, a park, tree lined streets near the residence, noise from automobiles and factories near the residence, the crime level in the community, hours of sunlight on that part of the residence which faced the road, existence of a garden in the residence, whether the residence faced a road with a regular bus service, active communication within the neighbourhood's members, preference to continue living in the current community. Association was made between baseline residential-environmental characteristics and the five year survival of the senior subject, through the Krusla-wallis test and results were subject to "multiple logistic regression analysis" and further analytical parameters (factor analysis with Varimax rotation, logistic models etc...).

To resume the research results, the highest age-score was obtained for the different following characteristics.

- space for taking a stroll near the residence: enough space available
- parks and tree lined streets near the residence: plenty
- noise from automobiles and nearby factories: no trouble
- safety against crimes in the community: perceived as very safe
- hours of sunlight at the residence (april-june): 5 hours and longer/day
- garden at the residence: have a garden of two units or larger
- residence facing a road with a regular bus service: yes
- active communication among neighbouring residents: relatively good (not the highest criteria)

- preference to continue living in the current community: would like to continue

The overall results show an interesting outcome, as the "residential environments with walkable green spaces positively influenced the longevity of urban senior citizens, independently from their age, sex, marital status, functional and socio-economical status. The outcomes can constitute a solid basis for a decisive shift in the favour of an urban planning policy that promotes the health of residents. The provision of greenery filled public areas that are nearby and easy to walk in should be advanced by inter-sectored collaboration".

There are numerous other studies related to outdoor spaces explored through scientific approaches, outdoor thermal comfort issues, such as the influence of wind, sunlight, and temperature in urban outdoor spaces. However this research will not focus on their outcomes. I noticed that many of them focused on the capture of the complexity of the adaptation displayed by people in outdoor settings, instead of underlining the place specificities and more particularly the case of a dense neighbourhood of Tokyo.

Recommendations
and
Charters
Key
of
Analysis
Comparative

Comparative An	alysis of Key Charters and Recor	mmendations	based on the presentation of Jaco for the Expert Planni 1987	or addr, former writtown wentiger, tebanon og meeting on HUL, Sep. 2006 at UNESCO 2005
	RECOMMENDATION CONCERNING THE PRESERVATION OF CULTURAL PROPERTY ENDANGERED BY PUBLIC OR PRIVATE WORKS	NAIROBI RECOMMENDATION CONCERNING THE SAFEGUARDING AND CONTEMPORARY ROLE OF HISTORIC AREAS	WASHINGTON CHARTER FOR THE WASHINGTON CHARTER FOR THE CONSERVATION OF HISTORIC TOWNS AND URBAN AREAS	VIENNA MEMORADUM ON WORLD HERITAGE AND CONTEMPORARY ARCHITECTURE – MANAGING THE HISTORIC URBAN LANDSCAPE
DEFINITIONS	<ul> <li>a) Immovable: Archeological, historic and scientific sites including groups of traditional structures, <u>historic quarters</u> in urban or rural built up area and ethnological structures</li> <li>b) Movable: (not relevant here)</li> </ul>	<u>Historic and architectural areas</u> : group of buildings, structures and open spaces in an urban or rural environment, the cohesion and value of which are recognised from the archaeological, architectural, prehistoric, historic, aesthetic or sociocultural point of view. Environment: Natural or man-made setting which influences the static or dynamic way these areas are area area area area area a	<u>Historic urban areas</u> , large and small, including cities, towns and historic centres or quarters together with their <u>natural and man-</u> made environments.	<u>Historic urban landscape</u> goes beyond the notions of historic centres, ensembles, surroundings to include the broader territorial and <u>landscape context</u> . Composed of character-defining elements: land use and patterns, spatial organisation, visual relationships, topography and soils, vegetation and all elements of the technical infrastructures.
GENERAL PRINCIPLES	<ul> <li>a) Preservation of the entire site or structure from the effects of private or public works</li> <li>b) <u>Salvage or rescue</u> of the property if the area is to be transformed, including preservation and removal of the property</li> </ul>	<ul> <li>a) Historic areas and its <u>surroundings</u> to be considered in their totality as a coherent whole whose balance and specific nature depend on the parts of which it is composed.</li> <li>b) Elements to be preserved include human activities, buildings, spatial organisation and their surroundings</li> </ul>	<ul> <li>a) Conservation should be integral part of coherent policies of economic and social development and of urban and regional planning.</li> <li>b) Qualifies to be preserved include urban patterns, relationships between buildings and open spaces, formal appearance of buildings, relationship with surrounding setting and functions.</li> </ul>	a) <u>Continuous change</u> acknowledged as part of city's tradition: response to development dynamics should facilitate changes and growth while respecting inherited townscape and its landscape as well as historic city's authenticity and integrity. Denhancing quality of life and production efficiency help strengthening identity and social cohesion.
IDENTIFIED THREATS	<ul> <li>a) Urban expansion and renewal projects removing structures <u>around</u> scheduled monuments.</li> <li>b) Injudicious modifications to <u>individual</u> buildings</li> <li>c) Dams, highways, bridges, cleaning and levelling of land, mining, quarrying, etc</li> </ul>	a) Newly developed areas that could ruin the environment and character of <u>adjoining historic</u> <u>biosfigurement of historic areas</u> caused by infrastructures, pollution and environmental damage c) Speculation which compromises the interests of the community as a whole.	a) <u>Physical degradation and destruction</u> caused by urban development that follows industrialisation. b) Uncontrolled Traffic and parking, construction of motoways inside historic towns, natural disasters, pollution and vibration.	Socio-economic changes and growth that would not respect historic cities authenticity and integrity as well as their inherited townscape and landscape.
PROPOSED POLICY AND RECOMMENDED STRATEGIES	<ul> <li>a) Enact and maintain legislative measures necessary to ensure the preservation or salvage of endangered cultural properties</li> <li>b) Ensure adequate <u>public budgets</u> for such preservation or salvage</li> <li>c) Encourage such preservation thru favourable tax rates, grants, loans, etc d) Entrust responsibility for the preservation to appropriate official bodies at national and local levels.</li> <li>e) Provide advice to the population and develop educational programmes</li> </ul>	<ul> <li>a) Prepare detailed surveys of historic areas and their surroundings including architectural, social, economic, cultural and technical data.</li> <li>b) Establish appropriate plans and documents defining the areas and items to be protected, standards to be observed, conditions governing new constructions, etc</li> <li>c) Draw up priorities for the allocation of public funds</li> <li>d) Protection and restoration should be accompanied by social and ecconomic revitalization policy in order to avoid any brake in the social fabric</li> </ul>	<ul> <li>a) Conservation plans must address all relevant factors including history, architecture, sociology and economics and should ensure <u>harmonious relationship</u> between the historic urban area and the town as a whole.</li> <li>b) New functions and activities should be compatible with the character of the historic area.</li> <li>c) Special educational and training programmes should be established.</li> </ul>	a) Planning process in historic urban landscapes requires a thorough formulation of <u>opportunities and risks</u> in order to guarantee a well-balanced development. b) <u>Contemporary architecture</u> should be complementary to the values of the historic urban landscape and should be historic urban landscape and should be burd to the goals of long term heritage preservation.

Appendix I : Key moments and recommandations on the historic landscape and HUL

Source: ICOMOS Quebec 2008, Topic: Preservation of the spirit of place



Appendix J : Edo low-high cities and segregated residential sections

Left, a vision of Shitamachi by Hiroshige/ Right, merchant scene in Yotsuya Source: http://www.ippusai.com/hp\_home/edo\_tokyo/edo000\_graph/shitamachi.jpg/ Shinjuku ward

#### Appendix K : Global city and new urban cores

#### Global city concept

Capitalist industrial strategies are unavoidably territorial strategies, as geographic patterns in production and consumption create places of growth and decline (Storper and Walker, 1989). The globalization of economic activity has not made place unimportant but rather has given rise to new kinds of places such as the "global city" (Knox 1993, Knox and Taylor 1995, Sassen 1991). "At a global level, a key dynamic explaining the place of major cities in the world economy is that they concentrate the infrastructure and the servicing that produce a capability for global control." "A global production system and global market-place for finance are both under condition of economic concentration for both firms that operate regionally but need centralized control and servicing, and for

the raise of complexity transaction among multinational headquarter functions. Cities are a preferred place for global, national, regional level of services furnisher, creating a new urban economic core of banking and service activities replacing the manufacturing of previous ones. This tendency increased with the "new valorisation dynamic" around finance and business from the 70s and more specifically the 80s. Internationalized sectors and its activities (restaurants and hotels) increased competition for space and investment for other activities" (Sassen, 2000). "Growth machines" of place-entrepreneurs-local annuitants, politicians, media, and utilities- pursue ever more intensive land-use so that greater amounts of exchange-value may be extracted from commoditized property. They sometimes face resistance from community organizers more concerned about the use-value of place, who oppose growth because of its detrimental consequences for neighbourhood quality of life or environmental health.



Shinjuku new global core: Shinjuku station- East exit (left) and surroundings in 1954 (right) Source: historical Photo Book of Shinjuku municipality

#### Appendix L : Japanese central government as main actor shaping the global city







Japan's national debt and budget balance, 1990-2005 (source; Frankfurter Allgemeine Zeitung May 4, 2004).



Machimura underlines that the concept of a world city has been used symbolically on a political level in domestic political conflicts over urban space (Machimura, 1998). In contrast to much of the Anglo-American literature on globalization and world cities, the main player was the TMG (Tokyo Metropolitan Government), which saw its role as fostering Tokyo's emergence as a premier world city by creating advantageous location for high tech office towers and high amenity living space (example of water front sub-centre redevelopment) (Saito, 2003). The priority was always "economic space", over "life space" (Friedmann, 1988).

In Japan, the central government has long been the much more powerful level of government, and has been controlled for almost all of the last 50 years, up until 2009, by the conservative Liberal Democratic Party (LDP), that prioritized economic development and kept municipal governments relatively weak (Sorensen, 2002). The share of GDP devoted to infrastructure, and the share of the workforce employed in construction are both double the rate of other developed countries, leading to an increasingly wide characterization of Japan as a "construction state" (dokken doka) in which land development, construction, and politics became increasingly intertwined, in particular because corrupted binding practices allowed inflated profits, a significant portion of which flowed to the ruling LDP (Mc Cormack 1996, Woodall 1996).

A direct consequence has been the priority given to urban land development profits at the expense of urban livability (Hayakawa and Hirayama 1991, Machimura 1992, Waley 2000, Sorensen 2003). From the early 1980s, a shift in the power balance was enforced, with the pressure from industry developments to weaken progressive regulations from the 60's to permit more redevelopment in central Tokyo.

**Different data on construction investments of Japan iron triangle** Source: Sorensen and Fuck, (2007, p. 113, 115, 117)

#### Appendix M : the Bubble burst and "lost decades"

The bubble burst caused damages to the National Japanese economy and the country, as the system almost collapsed under the weight of bad real estate's loans. The average real GDP annual growth did not exceed 1% between 1991 and 2003 and the country suffered economic stagnation from 1991 to 2005. Government policy has given priority to stabilizing the financial system. Various measures for economy recovery such as the expansion of public expenditure by issuance of government bonds, the adoption of low interest rates close to 0%, a tax reduction policy, and the expansion of money supply; in particular huge public expenditure was injected on infrastructure development in an attempt to restart economic growth. Supplementary budgets amounted approximately to 66 trillion yen. As a result, the decrease in domestic demand coming from the extended recession led to excessive supply, and in turn a deflation spiral effect accompanying a decline in consumer prices and the real GDP coincidentally since 1998 was continued. The Japanese economy and the system of Japan Inc, once a model of economic development for all countries in the world changed to that of criticism, turning the 1990s into the "*lost decades*". By the end of the 1990s, the **"Emergency Economic Package"** was an attempt to approach the problem from a fundamental perspective, with a new set of policies.

During the two booming periods in the 1980s and since 1997, single mansions were built explosively and declined after the bubble burst. They were constructed as single mansions in the suburban area for the first period (decentralization), and in inner Tokyo for the second one (recentralization), in forms of high-rise condominiums, 20 floors and up. Since the late 1990s, through the lost decades, with the high-rise construction boom in central Tokyo, facilitated by an urban regeneration strategy, a rapid population influx into the inner city describes a recentralization phenomenon in Tokyo. The population from many suburban areas, mainly Saitama, has been decreasing between 1990 and 1995 toward the main central wards of Tokyo (Sang, 2008). The phenomenon concerned more young and middle-aged households, as well as single and multi-income households (Yabe, 2003). Moreover, the influx of new comers has taken place without displacing existing renters and home owners, which is different from gentrification (Takagi 2002, Sonobe 2001), but more the result of the construction of new prestige high-rise complexes in a relatively central part of the city, mainly investigating the bay using the large plots of previous industrial and distribution land-facilities (Waley, 1997). Since the 1990's, the core population is growing again, a trend observed in the 23 ward, which increased from 163 000 inhabitants from 1995 to 2000. From the late 80's to the early 2000's, Tokyo welcomed major changes in population migration, in the price of commercial and residential land in central Tokyo from 1984 to 2005, and many new constructions of condominiums and high-rise buildings.

	1975-1980	1980-1985	1985-1990	1990-1995	1995-2000	2000-2005
3 core Ku <sup>n</sup>	-6.22	-4.04	-18.16	-8.43	10.01	21.67
5 inner Ku <sup>b</sup>	-7.85	-3.29	-9.60	-6.17	2.37	4.67
15 outer Ku	-2.37	0.86	-0.21	-1.55	-1.77	3.63
Central Tokyo	-3.40	0.03	-2.29	-2.40	2.10	4.36
Tokyo Metropolis	-0.43	1.81	0.17	-0.68	2.46	4,31

 Table
 Change in Population in Tokyo Metropolis (in percentages)

Source : Ministry of Internal Affairs and Communications, Bureau of Statistics, Population Census of Japan, Each year,

<sup>9</sup> Chiyoda, Chuo, and Minato Ku <sup>b</sup> Shibuya, Shinjuku, Toshima, Bunkyo, and Taito Ku

TableConstruction of New Condominium in Central Tokyo,1986-2004 (unit, 10,000 yen, times)

	1986	1988	1990	1992	1994	1996	1998	2000	2002	2004
No. of new units	10,021	5,824	7,225	5,657	20,304	25,902	22,035	35,318	31,574	39,117
Price per m <sup>2</sup>	55.8	125.6	152.7	124.2	85.8	74.5	72.3	66.0	63.8	67.0
Price/annual salary	5.3	10.8	11.6	9.0	6.5	6.5	6.1	6.0	6.1	6.5

Source: TMG, Land of Tokyo 2005

**Change in Tokyo's population and construction of new condominium in central Tokyo** Source: Sang (2008)

#### Appendix N : Data on recentralization and decentralization processes in Tokyo

Table	Household Income of 3 Core Ku and Waterfront Ku, and Their Ranks
	1990-2003 (100 yen)

	1990	Rank	2000	Rank	2003	Rank
23 Ku	47,500		43,460		41,780	
Chiyoda	106,430	1	75,290	1	73,660	2
Chuo	69,560	3	50,790	7	51,370	6
Minato	80,310	2	72,980	2	76,750	1
Koto	41,280	17	38,830	15	37,160	13
Edogawa	41,300	16	39,750	13	37,160	14
Shinagawa	45,420	13	43,350	11	41,470	12
Ota	47,470	11	44,270	8	41,910	9

Source: Nihon Marketing Kyoiku Center, 2004

Table New High-rise Condominium Units of 20 Storey or Over

		and the second sec	and the second sec	and the second sec	
	1999	2000	2001	2002	2003
Chiyoda			500		
Minato	244	257	330	15	211
Chuo		1,078	925	288	608
3 core Ku	244	1,335	1,755	303	819
23 Ku	1,590	2,990	4,130	4,419	2,132

Source: Hirose, M. (2005), "Impacts of Recentralization of Tokyo on Urban Structure and Travel Demand," Transportation and Economy 65(8), p.18. (Japanese)

Table	Number of Buildings with a Height 100m or Over (Including Residential	
	Building) 1,000 m <sup>2</sup>	

	00	01	02	03	04	05	06	Total
No of Buildings	14	9	23	19	20	21	22	128
Total Floor Area	838.2	858.5	2,701.4	1,752.9	1,235.8	1,834.0	1,455.0	10,675.8

Source : Hirose, M. (2005), "Impacts of Recentralization of Tokyo on Urban Structure and Travel Demand," Transportation and Economy 65(8), p.19. (Japanese)

Table ,	Large-scale Urban	Development	Projects	Completed	between	2002 and 2007	

area	Name of project	Total floor space (m <sup>2</sup> )	Previous land use	Present land use	Completed year
Otemachi/ Marunouchi/ yurakucho	8 projects including Tokyo Station and Mar- unouchi Building	1,385,260	No change	Office, commercial	2002~2007
Akasaka/ Roppongi/ Omotesando	Roppongi Hills, Tokyo Midtown, Omotesando Hills	1,388,991	Housing, com- mercial, offices, public land	Office, commercial, residential, recrea- tional	2003~2006
Nihonbashi	Koredo, Mitsui Tower	233,855	Office, commer- cial	Office, commercial	2004,2005
Akihabara	Akiabara Daibiru, UDX	211,676	Wholesale mar- ket, Railway yard	Office, commercial, hotel, residential	2005,2006
Shiodome Shio site	4 blocks	1,147,808	Railway yard	Office, commercial, hotel, residential	2002~2005
Shinagawa East	6 projects	596,112	Railway yard	Office, commercial, hotel, residential	2003~2004

Source: Nikkei BP, Tokyo Projects



Population Gain and Loss in Central Tokyo (23 Ku) 1988-2007 Source: Tokyo Metropolitan Government, Population and Household by Basic Resident Registers. Each year

Source: Sang (2008)

#### Appendix O : Some examples of communities fighting for their living environment

In 1952, a group of citizens stood up to maintain a good living environment in their city, Kunitachi. Their activity became a big citizen movement, petitioning for the zoning designation of the Education District, where land uses are strictly controlled and undesirable uses banished. The term "*Machizukuri*", as a slogan for "municipal reform" was created by Professor Shiro Masuda from Hitotsubashi University of Kunitachi, in an article published in 1952. In the 1960s, citizens and residents in various places in Japan, started social movements in order to protest against the negative impacts of the rapid economic growth of the time, and more generally the government's existing system policy<sup>1</sup>. As the 1968 Act came out within the National Diet, the citizens and residents movements of *Machizukuri* started (Watanabe, n.d.).

- In the 1970s, the government started to answer the people's need, expressed in *Machizukuri* activities, through the Model Community Program<sup>2</sup>, the Living Environment Improvement Model Program<sup>3</sup>, which aims at improving the physical condition of a neighbourhood through rehabilitation rather than clearance and redevelopment methods.

- In the 1980's, the amendment of the 1968 Act, introducing the District Planning System, by detailing strict land use controls at the neighbourhood level with intensive community participation, also showed a government's positive response to the growing needs of *machizukuri* activities.

<sup>&</sup>lt;sup>1</sup> Urban redevelopment proposals for Nagoya's Sakae-Higashi districts, industrial and residential developments' opposition in Mishima and Tsujidô, progressive municipal administration in Tokyo and Yokohama, neighbourhood resident movements of Kobe's Maruyama and Mano districts

<sup>&</sup>lt;sup>2</sup> The Model Community Program was administrated by Ministry of Home affairs, which designated 83 model neighbourhoods all over Japan and promoted community organization approach from 1971 to 1973, as community centres building.

<sup>&</sup>lt;sup>3</sup> Started by Housing Bureau from Ministry of Construction in 1978

- In 1992, the 1968 Act was amended to institutionalize the Municipal Master Plan system for the 1st time in Japan, a system which required citizen participation in the process of preparing the Master Plan. It had a great impact, since, before, it was not a requirement in the Act. Many citizen groups made a "master plan" on their own and presented it to the localities, with no legal basis nor support provided by the government (Sorensen and Funck, 2007).

- In 1998, the NPO Act was enacted, which legally authorized citizen activity groups and gave them a corporate status. It played in great role in the reconstruction after the great Hanshin Earthquake.

During the post war period, the traditional neighbourhood association (NA) occurred and was linked to the state priorities. Afterwards, many newer patterns of mobilization and action emerged. They have played a major role in the growth and strengthening of the civil society. However, the diversity of *machizukuri* activities also reflects the complex ways national and local interact to create different possibilities for citizen's movements and can be an obstacle in understanding recent public participation in environmental management in Japan (Sorensen and Funck, 2007).

The main targets of the *Machizukuri* processes were developed around liveability arguments to improve the public living environment and provide facilities, precisely regarding public green spaces. However, sustainability does not appear to be a major goal or motivation in most *machizukuri* processes (Sorensen in Sorensen and Funck, 2007). Another major goal is historical preservation by preventing historic environments, townscapes or streetscapes, from being affected by the construction of large-scale apartment buildings in low-rise neighbourhoods.

Private developers have enormous freedom and the public works project carried out by the State continue to redevelop existing urban areas into new patterns. Hence, protecting valued spaces and improving urban liveability and sustainability, will be a difficult challenge for the coming decades: In many cases planning authorities cannot legally prevent redevelopment without facing demands for compensation; Redevelopment projects promise increased property taxes, and a growing population that makes them eligible for larger transfer grants from the central government; Development industries are politically and financially powerful with strong incentives to support pro-development forces in the local government. Small local groups are confronted with large corporations that have usually bought the land, prepared plans, and applied for building permits before the community even hears of the project. Developers have not only the advantage of surprise, but also overwhelming legal and financial power (Sorensen & Funck, 2007, p. 269-279).

*Machizukuri* can appear to simply be communities voluntarily dealing with issues that government and markets failed to provide. However a citizen movement led to a real voice for the local government to act, and not only to follow economical directives from the central governments. Many public projects were belated and cancelled after citizens raised their voices. Sorensen (cited in Sorensenand Funck, 2007) pointed out, that it is not so easy to cancel such plans, as thousands of affected landowners might call for compensation for plans approved in the 1960s and 1970s, even though they are not appreciated anymore. They are in numerous numbers, particularly for City Planning Roads (*toshi keikaku dôro*) with projects for multi-arterial roads through existing urban areas. Only very few projects have been revised or cancelled such as dams and highways. Moreover, "the politicized system of public work projects has not experienced substantial changes and the basic topdown approach remains largely intact, as the state continues its creative deregulation to support the profitability" (Sorensen & Funck, 2007, p. 269-279).

Many processes engaging citizens in low rise or urban dense neighbourhoods in actions against redevelopment projects failed or received a mitigated outcome. Some common points were observed: the element of shock learnt from large-scale buildings in low-rise areas, changes in building regulations permitting those large-scale initiatives or some more obscure technical changes to the National Building Standard law. Hence, citizen invested large amounts of energy (without great help from the local government shorted by National building law local ordinances) for little result. The 1978 TMG ordinance to prevent and mediate construction disputes also clearly contributed to this pattern of mediation and consensus, seen as the solution in such cases. Another important point is that the majority of construction projects all over Japan do not provoke opposition movements.

"The strategies of the groups of residents were consistent: they organised meetings, collected signatures on petitions, met the developers and asked for changes etc... In all the cases the local government and TMG relied on a strategy of negotiations, persuasion, and mediation, in the hope of conciliation. This strategy reflects both long-established traditions of governance

in Japan, in which consensus is valued, and government 'administrative guidance' (gyousei shidou) is considered to carry considerable weight" (Sorensen & Funck, 2007, p. 269-279).

FUJII *et al.* (cited in Sorensen and Funck , 2007, p. 247-266), resumed three neighbourhood cases: **- Fukaya**: The example of "significant public support for historical preservation instead of a wholesale clearance and renewal of the downtown historic district, revealed by a questionnaire sent to all households in the municipality" led to the "conservation and utilization of historic environment" being included as a basic policy of the downtown regeneration part of the Master Plan of Fukaya. This was clearly a victory for the Downtown Regeneration Group, as the city planning department was forced to acknowledge that other approaches to planning in the downtown area were possible and had public support. However they have the legal authority to revise the current plan to carry out Land Readjustment in the remaining downtown area. That plan was approved 30 years ago and became government policy when it was confirmed by the Ministry of Construction. Local powers have no power to revoke or revise such plans, even though they may no longer be relevant or desired.

- Kunitachi: one of the most influential machizukuri movements, a townscape improvement movement and planning system in Japan. The area was originally a railway garden suburb by the Hakone Estate in the 1920s, which developed into a campus and the University of Hitotsubashi, one of Japan's best. There is a strict building regulation along the University Street, with a FAR of only 1 and an absolute height limit of 10m along the street. A developer wanted to build an eighteen-story (53m in height) building, which eventually decreased to fourteen stories. As soon as they knew about the project, inhabitants created the 'Association to consider the Environment of the University street' (Tokyo kaijou atochi kara daigaku douri no kankyou wo kangaeru kai) and started with the support of nineteen already established groups and the local government to discuss the introduction of a district plan with a 20m high building limit; however, the developer urged on the reception of the construction permit. Despite calling the Tokyo District Court, which made an historical judgment in December 2002 in favour of the citizens, asking the developer to remove the part over 20m; the Supreme Court of Japan, as the last medium in march 2006, let the developer go ahead with his initial plans. The first positive judgment encouraged many other machizukuri movements all over the country in favour of townscape preservation. Despite being the most sophisticated and biggest movement ever, the 'citizens' failed in their attempts to change the building plan and this may indicate the limit of this kind of machizukuri movement's practice in Japan (Sorensen and Funck, 2007). However, the new landscape law (keikan hou) was inspired by this case.

- Kagurazaka historical value: A major commercial area from the 1920s to the 1960s, famous for its *ryotei*, a traditional geisha culture and *rakugo* storytelling; In 1988 the local government designated this area as a *machizukuri* promotion area and then in 1991, a *machizukuri* association (*machizukuri kyougikai*). In 1997, an agreement consisting of eight restrictions was made by the merchants of the main street as an improvement project for streetscape. The association became less active. In that context, a 'land shark' (*jiageya*) who bought many *ryotei* and buildings during the Bubble economy, demolished the site which became a parking lot for a long time, and eventually a condominium tower project (31 story-mansion), after the consolidation of several small sites into a big plot of 4500m2. A new association to fight the project was created and negotiations between the developer and the local government started, with the support of research groups at Tokyo University. The council members tried many ways to stop the project such as, for example, as a last resort, to draw a district plan for the area to stop further development, but the proposal was successful and the building was completed in February 2003. Nowadays many lots have been grouped and huge projects are under construction. However the neighbourhood is still working for the preservation of the historical heritage of their place.

> Yanesen, a successful model of preservation from Shitamachi?

The case of Yanesen, largely published, is particularly representative of a bottom up approach through a hardly engaged community, which extensively fought to defend and enhance the local meaning of their shared outdoor spaces, as an identity to be preserved. The issue was major, as Yanesen is a very dense "informal" area, with the same characteristics of little narrow streets, suggesting a certain intimacy and an ambiguous private-public status. The area also has high fire risks in case of disaster,

due to its density and the high number of remaining wooden houses. It was also a very poor area, a kind of slum that survived the WWII bomb attacks.

Yanaka is one of those remaining very dense areas, where a strong sense of community has survived for generations despite the potential danger. Yanaka developed one of the major temple areas of the city of Edo, and the family temple of the Tokugawa Shoguns, Kan-eiji, is still located there. The street network with its narrow alleys and their high level of care provide a singular character to the area, associated with the great number of temples, shrines, open spaces surrounded by walls, cemeteries, clusters of packed small houses, restaurants and shops lining narrow streets. There are almost no parks, which underlines the importance of those different kinds of outdoor spaces as part of the public landscape realm. Yanaka kept its back alley system from the old Tokugawa period (on private land but with customary shared community use). Those outdoor spaces were obstacles to any kinds of redevelopment or even renovation, increasing development pressures.

The community faced land development pressure and focused on emphasizing the value of their shared outdoor spaces as a meaningful space for their community, their identity, and developing new meanings. They emphasized the historical value of many shared outdoor spaces, with the same function until nowadays, such as for back alleys and laneways, and wells: neighbours' small gathering place. As a strategy tool, for survival, or to gain decision power in localities against the government or economical projects, the local community developed various activities such as celebrating or protecting little known historical or environmental features, local history projects, by making new festivals, creating community maps, demarking neighbourhood boundaries, proposing or opposing development schemes, and a whole range of commercial activity such as creating tourist destinations, housing or shopping areas and writing newsletters.

From 1984, many initiatives were taken within Yanaka: a monthly magazine, called "YaNeSen" (www.yanesen.net), on local history, people, historical assets, including maps, walking tours, directions to special places, listing for events and shops etc... The group Yanaka Gakko ("Yanaka School") was created in 1989 by the faculty and the former students from the Tokyo university of fine arts, to discover, inherit, and regenerate" the neighbourhood. The group has been involved in many projects, working with the local residents on various issues, such as the conversion of the old bathhouse into a modern gallery called SCAIthebathhouse (www.scaithebathhouse.com) or the major fights during the 1990s against the construction of a huge parking lot beneath the historic Shinobazu pond. The project was cancelled afterwards. The school also created a catalogue of community resources and spaces, to identify and celebrate shared resources (old communal hall or public/private lanes etc...) and to conduct educational tours for the community and visitors, as part of consciousnessraising. They conduct the annual art event in October, called Geitoken (www.geitoken.net). Since 1998, Yanaka-Gakko has been actively involved in community opposition to large-scale condominium developments within the area, and mainly two projects on the former sites of a temple and a school. A permanent Community council including members of the neighbourhood associations, shopkeepers associations, temple association, and machizukuri groups was formed to discuss matters regarding community development in the area. They successfully negotiated a reduced overall building height, a new design, and a better treatment of the street facade without reducing the floor space. In the 2nd case, the developer simply ignored the protest and refused to cooperate. The landowners along the street where the new condominium was built pledged not to sell or redevelop their land in the future. The movement against the condominium strengthened the citizen community (Sorensen, 2009). The group adopted together a "constitution for Yanaka and Ueno-Sakuraji", outlining their vision for the future of the district (Ueno-Sakuraji being the adjacent neighbourhood). The constitution recognized the area's unique historic characteristics, in order to preserve and foster its culture. It declared six basic principles (the right of self-determination, community care, environment and nature, streetscape, safety for children and the elderly, and land). The constitution has no legal weight but claiming ownership and authorship of the meaning of a local public space is thus a political strategy of selfempowerment by community groups that has been relatively successful in this case.

A successful model of valorisation of Shitamachi areas in Tokyo attracted many people willing to experience the life of a small neighbourhood. It led to the increase in price and various collateral effects, which can be counter-productive for preserving the urban dense frames. New challenges, such as gentrification, change the social composition and vocation of the place; tourism has to be considered.

Appendix P : Extracts from the guideline for reconstruction in dense urban areas, misshū shigai ichi

N 1	1		<ol> <li>①街並み誘 導型地区 計画</li> </ol>	<ol> <li>2 建ペい率</li> <li>特例許可</li> </ol>	③三項道路	<ul> <li>④連担建築</li> <li>物設計制</li> <li>度</li> </ul>	⑤ 4 3 条 た だし書許 可
地國	区施設	の配置、規模	0	100000		100.000.04	14
12	用途の制限		0		<b>©</b> 6		
	容積	最高限度	0*		-		1
2.1	率の	最低限度	0		in the second second		
	建ペい率の最高限度		0				
Ī	敷地	面積の最低限度	•*		©6		
制	建築面積の最低限度		0				
限	壁面(	の位置の制限	•*	O5	a-1010		
を	工作	物の設置の制限	0*		In sure		
沿	高さ	最高限度	•*		V		
す	0	最低限度	0	-			
a 重	構造(	の制限			06		
項	間口王	シの最低限度					
18	野田の	D 冬 供 等				0	@12
	通路(	の幅昌 配置等				0	@12
	加路	の間口部の位置				0	012
	方半の	の確保				0	
H	王地の	H H	01		07	0	
	1在:16 #		01			0.9	
H	接進機務				Δ	Δ10	Δ
	用途の制限					1.10	
制日	谷積準の限度					Δ10	
を緩	前面道路幅員による 容積率制限		Δ2	01.0	∆8	Δ10	
和	建ぺし	い率の限度		Δ	∆8	Δ10	
9	斜線	道路斜線制限	∆3			△10	
事	制限	隣地斜線制限	∆3			△10	
項	ind	北側斜線制限	∆3			△10	
1	日影制	削限	∆4			△10	
1	その他					△10, 11	「人口でん」
	-	1 *	<ol> <li>1:形態,意匠、 かき又は檣の 構造等</li> <li>2:*が定められ</li> <li>●が条例の化と域</li> <li>3:容積率の最高 限度以外の* が定められ、</li> <li>●が条例化されている区域</li> <li>4:条例で除外可</li> </ol>	5:または壁面 線の指定	<ul> <li>6: 日16 通知で</li> <li>条制のになっている</li> <li>条制限になっている</li> <li>第四限とする</li> <li>1000</li> <li>116 通知で</li> <li>116 通知で<td><ol> <li>9:区域外への斜線開、適用</li> <li>線動限、の適用</li> <li>等</li> <li>10:複数建築物が同一をもの として適用</li> <li>11:木造外壁の 延焼防止、外 壁の後近距</li> <li>離等</li> <li>(H11 運用指 %)</li> </ol></td><td><ol> <li>その他、交通・安全・防火・衛生上支</li> <li>障のないこと、道路水準・機能</li> <li>(H11 運用指針)</li> </ol></td></li></ul>	<ol> <li>9:区域外への斜線開、適用</li> <li>線動限、の適用</li> <li>等</li> <li>10:複数建築物が同一をもの として適用</li> <li>11:木造外壁の 延焼防止、外 壁の後近距</li> <li>離等</li> <li>(H11 運用指 %)</li> </ol>	<ol> <li>その他、交通・安全・防火・衛生上支</li> <li>障のないこと、道路水準・機能</li> <li>(H11 運用指針)</li> </ol>
: 第 : 五	を例に:	定めなければなら ことができる事項 ※ ※ ※ ※	ない事項 ◎:国 Δ:下記※の観 ※①、⑤:交通上、 ※②、④:安全上、 《③ :交通上、	<b>土交通省通知で</b> 点から支障なけ 安全上、防火 防火上、衛生 安全上、防火	定めることが望まれば緩和または れば緩和または と、衛生上の観点 との観点から審査 上、衛生上の観点	ましいとされてい 適用除外できる事 こから審査する にする いち条例で付加・	<b>る事項</b> 項 する場合がある

-2-19-

第	V部	わ	が街はこれで解決! ~事例紹	介~
	事例	1	品川区戸越一丁目地区	(街並み誘導型地区計画)
	事例	2	大阪市建べい率許可制度	(建べい率特例許可)
	事例	3	東京都中央区月島地区	(三項道路、街並み誘導)
	事例	4	京都市東山区祇園町南側地区	(三項道路、街並み誘導)
	事例	5	京都市袋路再生	(連担建築物設計制度)
	事例	6	大阪市法善寺横丁	(連担建築物設計制度)
	事例	7	荒川区近隣まちづくり推進制度	(連担建築物設計制度)
	事例	8	中野区南台一・二丁目地区	(防災街区整備地区計画)
	事例	9	足立区関原一丁目地区	(防災街区、用途別容積)

表 2-3 まちづくり誘導手法の特徴の比較

-	4.0	街並み誘導型 地区計画	<b>建ぺい率</b> 特例許可	三項道路	連担建築物 設計制度	43条ただし 許可
法律で規定 されている 適用の要件		<ul> <li>壁面の位置の制限*、 工作物の設置の制限、 連集物の高さの 最高限度、容積率の 最高限度(斜線制限 適用除外の場合の み)、敷地面積の最低限度*を定めた地区 計画等の内容に適合 (* は条例化が必要)</li> <li>交通、安全、防火、衛生とち酸がたいこと</li> </ul>	<ul> <li>隣地境界線から後退して壁面線を指定、または条例で壁面の位置の制限</li> <li>安全、防火、衛生上支障がないこと</li> </ul>	<ul> <li>二項道路で あること</li> <li>土地のやむ によりやむ を得ない場合</li> </ul>	<ul> <li>一定の一団の</li> <li>土地の一団の内で、既存準備造を前肢、病生上必要な</li> <li>転換に、病生上必要な</li> <li>い総合のに設計すること、</li> <li>大素生上を</li> <li>安全、防支障がかいこと</li> </ul>	●敷地の周姫有 広い空地を加め するなど合する こと ●交通、安全、 防険がないこ と
適用区域	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	・地区計画としての適 切な規模が求められ るが、街並み誘導型の 適用は、特定の道路と 両側の敷地を単位と する地区計画区域の 一部でも構わない	・【豊面線の指定の場合】 一般的に背割り線に接 する全敷地だが、隣接す る複数敷地への適用も あり得る ・【壁面の位置の制限の場合】 地区計画としての適切 な規模が必要だが、適用 は地区計画区域の一部 でも載力ない	<ul> <li>・特定の路線の</li> <li>区間</li> </ul>	<ul> <li>一定の一団の 土地の区域 (区域内に道路を含むこと はできない)</li> </ul>	<ul> <li>特定の通路</li> <li>に接する敷 地全体、また は路地状敷</li> <li>地と表側敷</li> <li>地</li> </ul>
1.対象 対象内 道 外 の 集 い	従前	●敷地は建築基準法上 の道路に接道	●敷地は建築基準法上の 道路に接道	<ul> <li>敷地は二項道路に接道するが、4mへの道路拡幅が困難</li> <li>周辺道路が良好であることが留ましい</li> </ul>	<ul> <li>一定の一団の 土地の区域の 中に接道して いない敷地が ある</li> </ul>	・敷地が接道し ていない
	従後	●敷地は建築基準法上 の道路に接道	●敷地は建築基準法上の 道路に接道	<ul> <li>●道路幅員を</li> <li>2.7mまで緩和</li> <li>可能</li> </ul>	●各建築物は避 難、通行の安全 上十分な幅員 で道路に通じ る通路に接す る ・通路幅員は4 m未満も可	●敷地は避難、 通行の安全上 十分な幅員でる 道路に接する ・敷地前面の空 地(通路)を道路とみなす
2.建替え後 のボリュー ムの違い 3.決定手続 きと住民合 意の違い		・通常の建替えと比較し て、延床面積が確保で きる	<ul> <li>通常の建替えと比較して、建築面積の確保が可能</li> <li>・延床面積の大幅な増加は</li> <li>見込めない</li> </ul>	・延床面積はあ まり確保でき ない	<ul> <li>一般の建築制限</li> <li>を適用した場</li> <li>合と比較して、</li> <li>延床面積の増</li> <li>加が可能</li> </ul>	<ul> <li>一般の建築制</li> <li>限を適用した</li> <li>場合と比較して、多くは延</li> <li>床面積が減少</li> </ul>
		●地区計画の都市計画 決定と必要事項は条 例で議決 ・地区計画全体につい て通常は全員合意に 近い形で望ましい ・街並み誘導型につい ての合意は、実質的 には路線沿道単位	<ul> <li>【壁面線の指定の場合】</li> <li>特定行政庁が建築審査会の同意を得て指定</li> <li>【壁面の位置の制限の場合】</li> <li>地区計画の都市計画決定と必要事項は条例で議決</li> <li>いずれも全員合意に近い形で合意を得ることが望ましい</li> </ul>	●建築審査会の 同意を得て、特 定行政庁の職 権で指定	●一定の一団の 土地の区域内 に、所有権又は 借地権を有合意	<ul> <li>● 建築 着査会</li> <li>の指定</li> <li>・通路に彼数は、</li> <li>・通路でのむ員なす</li> <li>・金行政策</li> <li>で特定</li> <li>で特定</li> <li>(特定用次第)</li> </ul>

Source: page 2-19 and 2-21 from guideline



### Appendix Q : Taishido-3-chome reconfiguration following guideline in the 1980's

Figure 8.2 Taishido area machizukuri. Forming one small part of Tokyo's notorious wooden apartment belt, the Taishido area was typical in its concentration of tightly packed wooden houses and apartments, many dwellings built on narrow, privately owned dead-end lanes, and utter lack of park space. The Taishido area is now famous as a successful case of citizen participatory machizukuri of incremental improvement through park building, road improvement, and the fireproofing of dangerous buildings.

Source: Adapted from Setagaya Ward Branch Office Machizukuri Section (1993).

Source: Sorensen (2002, p. 286)

Appendix R :Some characteristics of the streets and open space in Tokyo's neighborhoods/ block densification process and configuration with the street's at 4m wide





Source: Nishimura (2000).



#### Appendix S : Some documents from Shinjuku municipality

#### Appendix T : Survey questionnaire sample: for residents of Wakaba

アンケート調査:若葉地区住民向け Source: Author work

- A) 居住者について About the resident:
- 1. お名前とご住所(よろしければ) Name and address (if you don't mind)
- 2. お幾つですか?(よろしければ)
- What is your age (if you don't mind)?
- 3. 現在の家にいつからお住まいですか? (所有または賃貸どちらですか?) Since when do you live in your home? (Owner or rental?)
- 4. あなたの家に何名の家族がお住まいですか? How many persons live in your home?
- B) 屋外空間や眺めについて About outdoor spaces and views:
- 5. あなたは屋外空間をどのように使用されていますか? (通りの地図から) How do you use the different outdoor space? (From your plot to the street)
- 6. 屋外空間であなたにとって重要なものは何ですか?
   What is important for you in the outdoor space?
- 7. 公共および民間のオープンスペースについてどのように思われますか? What is your perception of public and private open space?
- 8. あなたはどのような屋外空間がお好きですか? What kind of outdoor space do you like?
- 9. どの屋外空間について、改善をご希望ですか? Which open space you would like to ameliorate?
- オープンスペースがより多くなり、快適になることについて必要性を感じますか?
   Do you feel the need of more open space or better amenity spaces?

   はい
  - ② いいえ
- 11. あなたの家の外のどのような種類の眺めが好きですか? Outside of your house, which kind of views do you like?
- 12. あなたはどちらが嫌いな眺めですか? あなたの家の前にあるのが嫌なのはどの眺めですか? Which views you dislike? Which ones you wouldn't like to have in front of your house?
- 13. あなたは現在と比較して、昔の風景を好みますか?それはなぜですか?
  - Do you have regrets on previous scenery, compared to nowadays? Why?
  - ① はい
  - ② いいえ
- 14. あなたは好きな帰宅路をお持ちですか?あなたは近隣に好きな道はありますか?それはなぜですか?

Do you have a favorite way to arrive to your home? Is there a way you like to walk on in the neighborhood? (Wakaba map support)Why or why not?

- C) 近隣の変化、記憶、アイデンティティと遺産について: About transformation of the neighbourhood, memory, identity and heritage:
- 15. あなたはそれ以前の生活または屋外空間の質と現在との違いに気づいたことがありますか? Have you noticed any differences on the livelihood or quality of outdoor spaces before and now?
  - し はい (要素:より多くの人々、新しい構造...) (which elements: more people, new constructions etc...)
  - ② いいえ
- 16. 近隣の変化に対してどのようにお考えですか?
  - What is your opinion on the transformation of the neighborhood?
- 17. あなたはこの地区についての計画をご存知ですか?
- Have you heard of any project for this area? 18. 私は多くの古い店の消失を目の当たりにしました。そのことについてどのようにお感じですか? 郷愁を感じますか?

I could see that many old shops disappeared. How do you feel about that? Nostalgic?

② いいえ

- 19. あなたは現在より大きな家またはマンションを持ちたいですか? Do you wish to have a bigger home or to live in a condominium?
  - □ はい○ いいえ
  - 2 1117 + + + + + +
- 20. あなたは地区の歴史をご存知ですか?
  - Do you know the history of the neighborhood?
  - □ はい② いいえ
- 21. あなたは、近隣の記憶のなかで重要と判断される過去から現在までのなんらかの事実について、 詳細に説明できますか?
  - Could you precise any facts from the past to nowadays that you judge important for the memory of the neighborhood?
  - 22. あなたは近隣のアイデンティティにとって何が価値があるとお考えですか? What do you find valuable for the identity in the neighborhood?
  - 23. あなたは何を近隣の遺産としてお考えですか? What do you consider as heritage in your neighborhood?
  - 24. あなたが描かれた場所について、何が価値があるとお考えですか? What do you find valuable in your plot?
  - 25. あなたはオープンスペースを保存することが重要だと思いますか? Do you think that open spaces are important to preserve?
    - 0 はい(なぜ、そしてどの種類のオープンスペースですか?) (Why and which kind of open space?)
    - ◎ いいえ (なぜですか?) (why)
  - 26. 震災後、近隣の安全性について考えたことがありますか?
     After the earthquake, have you thought about the security of the neighbourhood?
     ① はい
    - ② いいえ
  - 27. あなたは以下についてどのようにお考えですか。安全のため再開発の必要性はありますか?
    What do you think? Is there a need of reconstruction for better safety?

    ① はい(どのようにそれは行われますか?) (how would you proceed?)
    - ② いいえ
  - 28. あなたは、安全のための路地の4メートル幅員ルールについて聞いたことがありますか?
     Have you heard about the 4m wide alley's rule, for safety purpose?
     ① はい
    - ◎ いいえ
  - 29. それはあなたの近隣の路地に適していますか? Is it appropriate for the alleys of your neighbourhood?
  - D) 近隣の関係性について: (About the neighbourhood's linkage:)
  - 30. あなたは近隣にご友人がいらっしゃいますか?
    Do you have any friends in the neighbourhood? (Map of Wakaba)
    ① はい
    ② いいえ
  - 31. あなたの近隣の方とお話しされますか? Do you talk to your neighbours? の はい
    - ② いいえ
  - 32. 今年あなたはどなたを訪ねましたか? どこの地区の方ですか? Which persons have you visited this year? Where? (Wakaba, Shinjuku-ku or other parts of Tokyo and Japan) (map of Shinjuku-ku and Tokyo)
  - 33. 近隣の方と会議をされますか? Is there neighbour's meeting?
    - ⊙ はい
    - ② いいえ
  - 34. それは何のためですか? For which purpose?
    - ① パーティー、おまつり、festivities and omatsuri

- 金活の質に関するコミュニティの議論 Community's discussion to organize living's conditions etc...
- ③ 子供のための活動、大人のための活動、退職された方の活動...Activities for kids, for adult, for retired...
- お互いを知るために集まった Just gathering to know each other
- ⑤ その他 Other
- 35. どのくらいの頻度で会うのですか? How often do you meet?
  - ① 毎月 Every month
  - ② 毎学期 Every semester
  - ③ 年に一度 Once a year
  - 定期的ではなく、議論すべきことがあるとき
  - Not really fixed, and depending on the issues to be discussed ⑤ 時折(事故や大きなトラブルの場合)
  - Occasionally (in case of accidents or big trouble)
- 36. どこで近隣の住民が会いますか? (若葉の地図)
  - Where do the resident of the neighbourhood meet? (Map of Wakaba)
- 37. あなたは近隣から強い介入を受けていると思われますか?
  - Do you think that there is a strong commitment in the neighbourhood?
    - ② いいえ
- 38. あなたは、近隣の NPO やアソシエーションについて聞いたことがありますか?
   Have you heard about any NPO or associations based in the neighbourhood?
   ① はい
  - ② いいえ
- 39. あなたは若葉地区で買い物をなさいますか? Do you shop in Wakaba?
  - ① はい(何を買われますか? for which products?)
  - ② いいえ
- 40. あなたはもう少したくさんの小さな商店が近隣にあることを望まれますか? Do you wish to have more little shops?
  - ① はい
  - ② いいえ
- 41. あなたは近隣でどのような活動をされますか(レジャー、アソシエーション、勤務)?それはど こですか? Which activities you practice in the neighbourhood (leisure, associations, working)? Where?
- 42. あなたは若葉地区の神社やお寺に属されていますか?どの社寺ですか?

Are you attached to the shrines and temples in Wakaba? Which one?

ありがとうございます。

### Appendix U : Some results from the survey of the residents of Wakaba

**Conditions of the survey** 

age		Years	living	in	Occupation	
		Wakaba				
30-50	3	0-5		1	housewife	2
51-70	8	5-10		2	Retail shop-firm	5
Over 70	10	10-20		3	Service(laundry-temple-nurse)	4
Born in Wakaba	8	20-30		2	communication	1
Family members in ho	30-40		1	Restaurants-bars-	3	
1-3	12	40-60		б	Baito worker	1
4 and more	6	More tha	m 60	6	retired	5

 Table 1: Characteristics of the interviewed residents (n=21)
 Source: Author work



The survey was conducted in May 14<sup>th</sup>-16<sup>th</sup>-17<sup>th</sup>-19<sup>th</sup> 2011 among residents from Wakaba 2nd and 3rd districts (see characteristics on the table 1). Twenty-two people, gathered into twenty-one voices, were interviewed, some in a group and others individually. They are distributed in different block-samples from the Wakaba area.

Fig. 1: Left, places of surveyed inhabitants/ right, sample division map Source: Author work with Zenrin row map support

Limitations of the survey

- I focused on the perception of outdoors and the neighbourhood knowledge, exclusively from a resident's point of view, as a complement to the viewpoint analysis. Thus, the aim of the research was not to go deeper in the social conditions of Wakaba, or to define the economic and social vitality of the place. However this approach could be further developed, as a useful counter balance to the morphological point of view. Other stakeholders, closely or not related to the neighbourhood could also be the object of surveys.

- A more detailed survey on the activities displayed in each kind of outdoors (little abandoned plots, thresholds in front of houses, alleys in between houses) by each resident (from children to elders) could provide valuable insights into fully understanding the space appropriation made by the residents. In that sense, optional and social activities<sup>1</sup> could be considered. They occur spontaneously when there are better conditions of outdoor spaces. Thus, poor outdoor quality welcomes strictly necessary activities and in high outdoor quality, a longer time for necessary activities to occur.

- The sample of twenty-one people is not relevant for social science however the outcomes can bring additional qualitative characteristics and may include ,in that regard, an interesting point of view.

Results on the identity of the neighbourhood for their inhabitants

➤ 1- Wakaba, a place for its inhabitants: Places-habits-stories mentioned by residents during the whole discussion (no matter the questions) (see figure 58, chapter 5.2.1).

- I tried to evaluate different aspects of the walker's (stranger or resident) perception of a place and the outdoors, which is closely related to the images they shape or recall on a daily basis. This image is not only shaped by the visual physical field but also with the imaginary. Hence, it is also made up through years and generations during which your body gets to identify the practices, space and memories of the area. It is important to mention that many other external factors and common imaginary also interfere in shaping the perception of a space. However, it will not be the object of this research.

- The map (Fig. 2) shows all the places mentioned by residents during the survey regardless of the questions. It concerns the walking places, the places with positive or negative<sup>2</sup> descriptions, the historic places or the places cumulating local memories. Notably, the mansions were mentioned

<sup>&</sup>lt;sup>1</sup> The optional activities (activities dependant on exterior physical conditions) could be: taking a walk, getting a breath of fresh air, sitting and sunbathing, standing and enjoying life. The social activities include the presence of others in public spaces (children at play, greetings and conversation, communal and neighbourhood activities, festivals etc...);

<sup>&</sup>lt;sup>2</sup> Especially, some places generated fear and anxiety for the residents given the recent earthquake.

positively, from the building to the design of their open space, or in terms of security. The main *roji* of Wakaba-3-chome is strongly representative of the inhabitants' linkage and image of their place, despite the area's risk of disaster level. The situation of Wakaba was expressed many times: an alcove topographically and "historically" landlocked in Shinjuku ward, near the "very noisy and active" pole of Shinjuku station. The "little Asakusa" term was used many times to evoke the old "Edo style" village's aspect of Wakaba and the fact that it is rare to have maintained such a high built density in a central ward, which received among the highest transformations with tremendously speculative high prices. Consequently for the inhabitants, Wakaba has an exceptional situation, a paradise in the jungle of Tokyo. Wakaba was described as being very conveniently served by many transportation medias and surrounded by many parks and amenities. The residents enjoy such conditions and, to describe their place, mostly evoked external places instead of Wakaba itself. Nonetheless, they seem to appreciate very well the life in Wakaba and are proud to describe the popularity of their Wakaba among walkers living in other areas.

- Record 1 mentions the little 'stories' perpetuated and part of the memory of their place.

#### Record 1: stories and memories from the residents about their neighbourhood:

- The history of Oiwa and her graveyard in Oiwainari Tamiya shrine, situated in the next district of Sugano (close to Wakaba)

- The graveyards of the famous samourai Hattori Hanzo and his son Iwaminokami in Sainen-ji temple's cemetery inWakaba 1-chome;

- Onihei TV drama depicting Edo era stories and other police fiction dramas chose the old stairs underneath Suga shrine for suicide shootings;

- Suga shrine organising the *omatsuri* (festivals), especially *mikoshi* (portable shrine festival); It is also a meeting place for the neighbourhood community;

- Old wells, where people in the pre-war period used to gather and chat. Many of them disappeared;

- Oinari san little shrine as another place for people to meet, in Wakaba 2-chome;

- The important role of the Kura house family, which played a very important role after WWII, as the local "bank" lending credit-money and work for the poor people and the day-workers;

- The 1<sup>st</sup> elementary school created in Japan in a poor area; (nowadays a pretty wealthy part of the city)

- The canal used in old times, along the street, to throw away dead bodies, from the Shinjuku dori and top of the valley toward the bottom place (Wakaba- 3- *chome*).

- The lively *nagaya* houses urban frame and *shotengai* (shopping street) where you could drink and stay in izakaya the whole night, where people, out of Ginza could enjoy an Edo style atmosphere.

- In Showa 11, February, the prime minister was threatened by terrorists passing through their neighbourhood and some bullets marks were visible in the walls of houses.

- Many of them talked about how they missed the previous shops (Tofu, fish, rice, osushi ya etc...)

Wakaba also used to be a place full of yakuza as it was a very poor area. Nowadays it is no longer the case.
Wakaba was named Tanimachi Ginza and some residents are concerned about the possible change of the present name, as in other neighbourhood of the ward (A resident gave the example of Nishi-Shinjuku area).

> 2- Valuable elements to be preserved for the identity of the area:

- The question of memory, the preservation of their place or heritage received mitigated answers. Many of them do not see which elements should get so much value to be preserved, "except the graveyards" (claimed someone). As the majority of residents are elders, they expressed nostalgic feelings, and many regret the lively *nagaya* and alleys' atmospheres from pre and post-war or economical boom periods.

- Talking about everyday places or urban preservation was a bit abstract for the residents. In many cases the residents never thought about that aspect or had a disregardful opinion about their place<sup>1</sup>. Heritage is perceived as a built monument, a temple or a nice old wooden house, precious enough that upper authorities engage actions to protect it. Many of them, elder, were persuaded that the neighbourhood also has to follow its time and if needed change its aspect to keep existing. The most important element to preserve, evoked as being part of the neighbourhood identity, is the linkage of the resident (*kizuna*). In that sense, some expressed the urge of renewing the population, to attract younger people, who would maintain the place. The residents also want to maintain the quietness of

their place<sup>1</sup> and the image of "shitamachiness", where everyone knows each other<sup>2</sup>. This closeness of bond and solidarity brings security and defines the identity of Wakaba according to them<sup>3</sup>.

- Some residents evaluated Wakaba as a place full of interesting elements that should be preserved for the memory of the place: the graveyard places, the temples and the shrine, the only one kura house remaining, the name of the place. However the president of the association of Wakaba 2-chome, was very much concerned about the security of the neighbourhood and the transportation issues<sup>4</sup>. The main members of the association want to rename the main shotengai (commercial street) as the "Prince street" and bring dynamism into Wakaba, through the redevelopment projects of large mansions, and their "wide, safe and more beautiful" open spaces. It would solve car parking and traffic problems and bring safety in case of disaster. Hence, for Wakaba-2-chome's main members, the identity of Wakaba remains in having a good shopping street and living conditions to attract new residents. The glory of the place lies more in its closeness to Asakasa palace than in the place itself.

- It's interesting to see that the urban identity of Wakaba to be preserved is mainly defined by abstract, volatile objects or future expectations, such as names, linkage, young and new residents and little physical elements such as improving the shopping street (not in its original form), old stories and graveyards. Some elder residents kept the nostalgic identity of Wakaba during the pre-war period, with the nagava's types of built arrangement, the resulting stronger bond between inhabitants, the previous shops, bars and restaurants.

- Some residents mentioned the houses' arrangement, greenery in *rojis* (alleys), their beauty, as a mark of the Wakaba identity, but given the context of the survey (after the 11<sup>th</sup> of march 2011, earthquake and tsunami), many associated them with a threatening image. But to the question: "If there were a possibility to make Wakaba a safer place without constructing new mansions", many answered that they would prefer to keep rojis the way they are, and rehabilitating some of them, because the structure itself brought better communication between people compared to the linkage you could expect while living in a mansion. Moreover Wakaba is a very popular area for walkers, in the morning (from 6am), the evening and during weekends as well, where they enjoy the small shapes of greenery within alleys, in comparison to other strategic places and bigger parks (Meiji kinen kan, Shinjuku gyoen, Shinanomachi etc...).

- Looking at statistics on the image and identity valued by the residents (Fig. 3): despising or unqualified opinions (30%); the non-physical elements (humans included) such as the name, rich history, linkage etc..., (underlined in yellow in the table) count for 48% of the place's identity, together with the expectations and the nostalgic places; physical elements (graveyards, shopping street and outdoor spaces from alleys) represent 22%; 22% is attributed to the linkage of the community.

➢ 3- Community linkage: a mark of urban identity (Fig. 3. A)

- Most of the people evoked the strong community commitment in the neighbourhood, even though they might be not much involved in the community tasks. Both associations from the 2<sup>nd</sup> and 3<sup>rd</sup> districts are concerned regarding local social events (birthdays and diverse celebrations), festival and transportation safety (especially for children and elders). They do not discuss issues such as the preservation or the enhancement of alleys and outdoors, since it belongs to the private sphere and responsibility. Lately and because of the last events, the concern about the security grew up. It led the members of the association to encourage the mansions and their open spaces recommended by the ward, the rehabilitation of some alleys (" many are very dangerous"), the street enlargement etc.

- The president of the 2-chome association was very much into entirely changing the whole urban frame to make it better for safety and transportation, even if it means only having mansions<sup>5</sup>. His association has about 30 active members for 300 people registered. For the president of the 3rd district

<sup>4</sup> "There are too many cars in a very narrow street"

<sup>&</sup>lt;sup>1</sup> "Peaceful even during the night, when my daughter is walking back home from school", "there are no problems with strange visitors during the night, even after it becomes dark because of electricity saving measures"; <sup>2</sup> Referred to as "little Asakusa", by some residents born in Wakaba;

<sup>&</sup>lt;sup>3</sup> "I lost my mobile phone while walking in alleys of Wakaba 3 chome and someone brought it to me after my son called the mobile. You wouldn't find it in other places of the city." claimed a relatively new retired resident who settled in Wakaba five years ago for its greeneries and peacefulness.

<sup>&</sup>lt;sup>5</sup> "The soul of the neighbourhood lies in its kizuna. The most important thing is to strengthen and create a good association for a good connection and communication when such a catastrophe happens".

association, this linkage is so important that they negotiated with the real estate company for each member living in their apartments to join the association and pay the 2400yen fee/year. It was a success and a singular example as all the 160 apartment residents are involved in the neighbourhood's life. For the president, the liveliness of the place has not been destroyed by the mansions' constructions. Organizations like Sekyo Newspaper Company and Sokka Gakai (based in Shinanomachi) are also contributing to the neighbourhood association and are very important in Wakaba-3-chome, to a point that one resident associated (maybe ironically) Sokka Gakai to the identity of the neighbourhood. In parallel, some elder residents complained about the new comers from the mansions for their lack of interest in the neighbourhood life and in the associations in comparison to the liveliness and solidarity between neighbours in years gone past. A general opinion among the surveyed people is that the place has to follow its evolution and despite its transformations this linkage decreased but could be maintained so far.

#### **Results on outdoor spaces perception for inhabitants**

#### 1- Attachment to the green spaces in the alleys (Fig. 4. B):

The attachment to the green spaces of the alleys, their beauty and arrangement is mitigated. Some residents were very much sensitive to that aspect, claiming the beauty of "seasonal flowers and plant changes", the conviviality in the narrowness of the vernacular outdoor spaces where "you can even hear your neighbours cooking while walking", the "cooling effect of some plants like *goya* and also wind in the outside". Some were proud, as they received compliments from outsiders on the singularity of Wakaba. However more than the half does not pay attention to that dimension and shows detachment or fear<sup>1</sup>. One of the reasons for this detachment toward their vernacular outdoors, lies clearly in the promoted forms of the outdoors design (POPS) of mansions. They usually benefit from the ward and TMG support as safer design in case of disaster (a mansion for its structure and outdoor spaces for evacuation purposes). This unilateral discourse of prevention gained people's conviction over time.

2- POPS, parks and outdoor spaces in alleys (Fig. 4.C)

Many residents (almost 50% of them) seem to like POPS design<sup>2</sup>. Interestingly their opinions encourage a balance between vernacular outdoors and designed POPS (around 20%). Both of them have qualities: different kinds of greeneries (bigger trees for POPS and pot-plants for outdoor spaces in alleys), more security with POPS as wider platforms where residents from a dense part can evacuate) and the social factor (young and kids versus elder). 'Vernacular POPS' gained around 20% of the preferences. Hence, "the balance is satisfactory now between both typologies, vernacular and new design, however if you construct more mansions, then you better destroy everything and put mansions everywhere. There is no meaning in keeping too short alcoves of dense house arrangements", -claimed a nostalgic elder resident in favour of keeping old style composition-. For others "*shoganai*, we have to follow our times as well and change if necessary".

3- Sufficiency of outdoor spaces (Fig.4.D): about a possible need for supplementary amenity spaces

Some residents were looking for more space to enjoy community activities outside and "have a cup of tea during the afternoon outside in a small community space-park". Some others were mentioning evacuation purposes as a concern for this dense built area and a few residents, walking everyday, wish to further enjoy the variety of greenery. They do appreciate greenery in the alleys, and found the green design in parks and POPS nice in different ways, as bigger trees could be planted contrarily to small alleys. However most of the residents are indifferent or do not feel the need (about 65%) for more parks or amenity space, as they are surrounded by so many.

4- Popular places for walking (Fig. 4.E)

Some residents do not walk (20%) or find it strange to enjoy walking in the neighbourhood in the alleys, considering it as interfering in the private sphere. Among the eldest one, walking is a real daily

<sup>&</sup>lt;sup>1</sup> "vernacular wild green on wall is "pretty scary (ghost place), since no ones is taking care by cutting them" <sup>2</sup> "There are no other options to get a safer place...mansions come with sufficient parking places, and are beneficial for car traffic, which often congestions the street", according to the president of the Wakaba-2-chome association.

pleasure, in the alleys of Wakaba and around the closest temples for maybe 20% and mostly in the surrounding parks and areas for 50% of the interrogated residents.

5- View's attraction elements in the outdoor spaces while walking (Fig. 4.F)

Around 23% of the viewpoints are toward seasonal plant changes, flowers and greenery or elements of vernacular outdoors shaped by the residents; 13% are toward POPS design. The same proportion of 13% is not paying any attention to the blocks' outdoor spaces when almost 30% of the residents' views concern unsecured elements in the case of disaster. A resident was complaining about disordered alleys with too much storage, garbage wrongly disposed, or bicycles everywhere, which can be a danger in case of fire<sup>1</sup>. Many elder pay attention to the cars more than anything else, as a source of annoyance and danger<sup>2</sup>. When being in the alleys or from the street, a few but notable residents views' attraction goes toward the space in between houses (3%), quietness (5%) (an invisible element of perception), humans generating the life of the allevs such as cats and kids for 5%. 10% of the people look at their own plot's outdoors. What is interesting is that most of the main elements which attract the views of the residents (positive or negative) are related to the vernacular outdoors in alleys and in between them, from the street or from the alley themselves. It is somehow contradictory to the preference of the residents for mansions and POPS, estimated at almost 50% previously. POPS attract the view for 13% when vernacular POPS made by residents represents 71%. 13% are not concerned by views and 3% by cars on the streets. Positive aspects and enjoyable views in 'vernacular POPS'<sup>3</sup> count for 46% (which is 65% of the views on vernacular POPS), when negative or worrisome parts are around 26% of the total types of views (35% of the vernacular POPS view).

### **Results on the physical quality of outdoor spaces**

### 1- Management and maintenance

From the surveys, it happened that Wakaba is properly managed and maintained, by their neighbourhood associations (町内会 chonaikai) of Wakaba 2nd and 3rd districts. Interviewing the *riji* (chief from the division) from *kumi* (division) of sample 7-8, in Wakaba 3-chome, some complaints emerged towards the relatively "new" comer for not respecting the garbage disposal rules or the danger of the improper disposition of bicycles or objects in the alleys, instead of using the in-between house's spaces. Except this fact, inhabitants find their place and outdoor spaces pretty well maintained. 2- Climatic evaluation:

It has been demonstrated that in such a small density of house arrangements the necessity of air circulation is a vital condition for well being in the place. Rather original, environmentally friendly and adapted solutions to cope with the heat and humidity of summer and the cold of winter, were adopted by the residents: plants along the facades of their houses for a cooling effect; they also mentioned the urban configuration that provides shade and wind along the alleys and the space inbetween each house.

3- User's impression of the security of outdoor spaces

"Roof tiles fell down from some houses after the earthquake of the 11<sup>th</sup> of March, but except that, the houses resisted pretty well to the shakes." All of the interviewed residents felt very much concerned about the security of their neighbourhood and disaster issues and are afraid of a possible disaster. So far, the area, even in the most fragile part in the 3rd district, has resisted well to the earthquake <sup>4</sup>

<sup>&</sup>lt;sup>1</sup> Many residents attributed such troubles to the arrival of residents from China in sample 7-8! (another debate?).

<sup>&</sup>lt;sup>2</sup> Some defend that enlarging the streets can provide fluid car circulation and secured pedestrian ways.

<sup>&</sup>lt;sup>3</sup> vernacular POPS: my own expression to compare with designed POPS from redevelopment projects

<sup>&</sup>lt;sup>4</sup> "If there were a safer way of keeping the houses' structure that way, it would be the most desirable solution. 80% of people are very scared of disaster since the area was categorized as a higher area for danger 10 years ago. People feel safer, since the mansion has been built... These mansions were built because for security reasons as it's safer for evacuation."voice of the president of the Wakaba 3-chome neighbourhood association






Fig. 4: Survey outcomes in Wakaba-2-3-chome: A involvement in the community by their inhabitants/ B: attachment to the green spaces of the alleys for their inhabitants/ C: preference between global and local POPS/ D: resident's opinion on the need for another park/ E: popular places for walkers/ F: attracting elements from outdoor spaces for residents Source: Author work from survey data

#### Record 2: Words from the president of the 3-chome association:

He appreciates the outdoor spaces in the alleys, but after this last earthquake, he thought, it was maybe dangerous to live in such houses (everything was trembling) and even thought that a mansion may be better. He walks and very much appreciates the views from the alleys, as they are very nice, but many times he thinks that the configuration and arrangements of some alleys are very dangerous in case of fire. Many people are walking, coming from Yotsuya and many of them like that area and tell him that the neighbourhood of Wakaba is very pretty. Those outdoor spaces are part of the beauty and the identity of the area. However beauty and danger are two different things. He thinks that the balance between old and new houses is very good here. There is the danger of losing this balance but at this stage TMG and authorities are promoting mansion houses."

Asking if the people were in favour of new POPS and mansion construction for better safety or if they thought that the situation was manageable with the present balance between new mansion plot designs and old house arrangements, or any other possibilities for better safety?

- Around 54% of answers were in favour of keeping the specific neighbourhood's frame, its houses and outdoors, whether through repairing old houses, providing some form of evacuation or any other system. A resident strongly emphasized that the security argument was not the question when the preservation of the place is concerned, as it is often used to build new mansions and destroy traditional frames. Other residents claimed that light houses were safer than the massive structure of mansions. For them, the communication level developed in alleys is more important in comparison to a mansion. "The alleys are positive prevention tools during an earthquake but also before and after, and an effective information system."

- 34% were in favour of mansions, (as a good solution for building safety and for the open spaces provided) or at least for reconfiguring, enlarging the streets and alleys and "ordering" houses, as recommended by the local metropolitan government.

POPS and new mansions			
More ordered and clearer space arrangements, wider alleys			
repairing or consolidating some old houses			
Keeping the neighbourhood's frame (safety isn't the question)			
Little houses and alleys are safer than mansions			
Any efficient system if alleys can be preserved			
No specific need, it's enough the way it is			
No opinion			

 Table 2: 24 answers on safety solutions for the neighbourhood (18 surveyed people):

 Source: Author work from survey data

Rich visual elements of the cultural landscape, such as the valley's stone wall, were reconsidered as dangerous for the little houses underneath, as a consequence from the earthquake traumatism. However massive mansions and some *aparto* buildings (not respecting legislation), were perceived as equally if not more dangerous, by some residents.

Record 3: An elder lady living in the main alley of Wakaba-3-chome explained her experience during the strong shake of the 11<sup>th</sup> of March:

"You could hear everyone and also people would ask and shout to everyone from their house to check if there were any troubles, while holding their furniture inside or hiding under the table. We used to laugh about that after, because the alley became noisy, with everyone asking if everything was alright".

## BIBLIOGRAPHY

\*Refences cited in the script

\***ABU-LUGHOD J.**, "The city is dead-long live the city. Some thoughts on urbanity", in FAVA S.F. (ed), *Urbanism in world perspective*, New York, 1968.

AIRAUDI S., « Introduction. La voie bunsha, in Bunsha », in *Diviser l'entreprise, laisser vivre les hommes*, SAKAI K. and SEKIYAMA H. (eds), Taiyô Industry C° Ltd Kisshokai, 1987.

\*ALBERTI L.-B., L'Art d'édifier. Seuil, 2004.(Translation from original title: De re aedificatoria)

ALDERSON A.S. and BECKFIELD J., "Power and position in the world city system", *AJS* vol 109 num 4, January 2004, p.811-51

\*ALEXANDER C., "A city is not a tree", Architectural forum, vol 122, n°1&2, p58-62.

ALEXANDER C., A Pattern Language: Towns, Buildings, Construction, OUP USA, 1978.

\*ALEXANDER C., Notes on the Synthesis of Form, New Ed. Harvard University Press, 1974.

\*ALEXANDER C., The Nature of Order: An Essay on the Art of Building and the Nature of the Universe; The Phenomenon of Life, Oxford University Press, 2003.

\*ALEXANDER C., The Oregon Experiment, OUP USA, 1978.

\*ALEXANDER C., NEIS H., ANNINOU A. & KING I., A New Theory of Urban Design, Oxford University Press New York, 1987.

\*ALEXANDER C., ISHIKAWA S., SILVERSTEIN M., JACOBSON M., FIKSDAHL-KING I. & ANGEL S., A Pattern Language?-Town buildings construction, Oxford University Press, New York, 1977.

\*ANDERSON E. and BODIN O., "Practical tool for landscape planning? An empirical investigation of network based models of habitat fragmentation", *Ecography* 32, 2009, p123-132.

**AMINO Y.**, "some problems concerning the history of popular life in Medieval Japan", *Acta Asiatica* n°44, Studies in Japanese medieval social and economic history, Toho Gakkai, 1983, p.77-97.

ANTROP M., "Landscape change: plan of chaos?", Landscape Urban Planning 41, 1988, p.155–161.

**ANTROP M.**, "The concept of traditional landscapes as a base for landscape evaluation and planning. The example of Flanders Region", *Landscape Urban Planning* 38, 1997, p.105–117.

\*ANTROP M., "Background concepts for integrated landscape analysis", Agriculture, ecosystems and environment n°77, 2000, p.17-28.

**ANTROP M.**, "Landscape change and the urbanization process in Europe", *Landscape and Urban Planning* 67, 2004, p. 9–26.

\*ANTROP M., "Sustainable landscapes: contradiction, fiction or utopia", *Landscape and urban planning* n°75, 2006, p.187-197.

**ANTROP M.**, "Why landscapes of the past are important for the future", *Landscape and urban planning* n°70, 2005, p 21-34.

\*APPADURAI A., Modernity At Large: Cultural Dimensions of Globalization. University of Minnesota Press, 1996.

ARNOLD H., Trees in urban design, Van Nostrand Reinhold, New York, 1993.

ASHIHARA Y., "Machinami no bigaku", Iwanami vol.I, Tokyo, 1979. (vol. II, 1983)

**ASHIHARA Y.**, *The hidden orden: Tokyo through the Twentieth century*, Kodansha International, New-York, Tokyo, 1986.

AUGOYARD J.F., Pas à pas, Paris, Le Seuil, 1979

AVELINE N., La bulle fonciere au Japon, editions de l'ADEF, Paris, 1995.

**AVELINE N.**, La ville et le rail au Japon, expansion des groupes ferroviaires privés à Tokyo et Osaka, CNRS editions, Paris, 2003.

**AVELINE N., IWAMOTO, T., NAKAMURA F. and YABE T.**, "A study on station space maintenance of urban railways in Tokyo metropolitan area", *Eastern Asia Society for transportation Studies* vol. 5, 2005, p.228-238.

**BACHELARD G.**, *La poétique de l'espace, Presses universitaires de France*, 8th Edition, Quadrige, Paris, novembre 2001.

**BAIRD CALLICOT J. and AMES R.T.** (dir), *Nature in Asian Traditions of Thought. Essays in environmental Philisophy*, University of New York Press, Allbany, NY State, 1989.

BARTHES R., L'Empire des signes, Seuil, Paris, 2005(1st edition, Skira Editions, 1970).

**BARTHEL, D.L.**, *Historic Preservation: Collective Memory and Historical Identity*, New Brunswick, N.J.: Rutgers University Press, 1996.

**BATTY M.**, "Exploring isovist fields: space and shape in architectural and urban morphology", *Environment and planning B: planning and design* n°28, 2001, p.123-150.

**BATTY M.**, *A new theory of space synthax*, Working paper n°75, Centre for advanced spatial analysis, University College, London, 2004.

\*BATTY M. and LONGLEY P., Fractal Cities, Academic Press, London, 1994.

BAUDRILLARD J., La société de consommation, 1st Edition, Denoël, 1970.

**\*BEATLEY T.**, *Biophilic Cities: Integrating Nature into Urban Design and Planning*, Island Press, Washington DC, 2011.

**BEL Jean**, *L'espace dans la société urbaine japonaise*, Publications orientalistes de France, Paris, 1980.

BENJAMIN W., Passim, Editions du Cerf, Paris, 1989

**BENJAMIN W.**, L'oeuvre d'art à l'époque de sa reproductibilité technique: Version de 1939. Gallimard, 2008.

**BENNETT G.,** Integrating biodiversity conservation and sustainable use, Lessons learned from ecological networks, IUCN, Gland, 2004.

**BERCE F.**, Des monuments historiques au patrimoine du dix-huitième siècle, Flammarion, Paris, 2000.

**BERGER A. and LUCKMANN T.**, *La construction sociale de la réalité*, Méridiens Klinckciek, Paris, 1986.

BERQUE A., Vivre l'espace au Japon, First Edition, Presses Universitaires de France (PUF), 1982.

**BERQUE A.**, Le sauvage et l'artifice: Les Japonais devant la nature (Bibliotheque des sciences humaines). Gallimard, 1986.

BERQUE A., Le Japon : gestion de l'espace et changement social, éditions Flammarion, Paris, 1976.

**BERQUE A.**, *Du geste à la cité : formes urbaines et lien social au Japon*, Gallimard Editions, bibliothèque des sciences humaines, Paris, 1993.

BERQUE A., Dictionnaire de la civilisation japonaise, F. Hazan Editions, 1997.

\* **BERQUE A.**, *La qualité de la ville : urbanité française, urbanité nippone Etudes japonaises1*, publications de la maison franco-japonaise, Tokyo, 1987.

- RAYMOND H., « L' Urbanité : socialité et fait urbain », chapter V, p. 195-201.
- FUJIMORI T., « le problème de la tour de Tokyo », chpater IV, p. 130-138.
- JINNAI H., « Changements morphologiques et continuité de la ville », chapter II, p73-90.
- MAKI F., « La construction des lieux », chapter III, p 112-118.

\*BERQUE A., La maîtrise de la ville : urbanité française, urbanité nippone- Etudes japonaises 2, Editions from Ecole des hautes etudes en sciences sociales, Paris, 1994.

- CHOAY F., "Six theses en guise de contribution à une réflexion sur les échelles d'aménagement et le destin des villes", p 221-227.
- **KATOU K.**, « Structure de l'habitat, tentative de compréhension théorique de « l'habiter » », p 189-220.

**BERQUE A. and SAUZET M.,** *Le sens de l'espace au Japon : vivre, penser, bâtir*, Arguments Editions, Paris, 2004

BERQUE A., BONNIN P. and GHORRA-GOBIN C., La ville insoutenable, Belin, Paris, 2006.

BESTOR T. C., Neighborhood Tokyo, Standford, Ca., Standford University Press, 1989.

\*BLASI C. et al., "The concept of land ecological network and its design using a land unit apporach", *Plant biosystems* 142, p540-549, 2008.

BOGNAR B., World cities Tôkyô, Academy editions series Editor: Maggie Toy, West Sussex, 1997.

**BONARD Y. and CAPT V.**, "Drift and derivation. The contemporary urban itinery as a pursuit of situationist writings", *Articulo-Journal of Urban Research*, vol.2 special issue, 2009. URL: http://articulo.revues.org/1111.

**\*BOURDIER M. and PELLETIER P.**, *L'archipel accapare, la question fonciere au Japon*, Etudes japonaise 3, EHESS editions, 2000.

BOURDIEU P., La Distinction, Critique sociale du jugement, ed. Minuit, 1979.

\*BOURDIEU P., "The logic of practice", Polity Press, 1990, p. 25-9.

\*BOYER M.C., «The city of collective memory: its historical imagery and architectural entertainments, MIT press, Cambridge, 1994.

BRESSI TW. and GROTH P. (eds), Understanding Ordinary Landscapes, Yale University press, 1997.

BROOKS C. P., "A scalar analysis of landscape connectivity", Oikos 102, 2003, p.433-439.

BROWNING, W.D., RYAN, C.O., CLANCY, J.O., 14 Patterns of Biophilic Design.", Terrapin Bright Green, LLC., New York, 2014.

BURCKHARDT, L., Warum ist Landschaft schön? Die Spaziergangswissenschaft, Martin Schmitz Verlag, Berlin, 2006.

\*BURDETT R. and SUDJIC D. (eds), the endless city/ The urban Age Project by the London School of Economics and Deutsche Bank's Alfred Herrhausen Society, Phaidon press Limited, London, 2007. \*BURKE E., Recherches philosophiques sur l'origine de nos idées du sublime et du beau, Vrin, 2009.

(A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful, 1<sup>st</sup> ed., 1757)

\*BUYTENDYK F. J. J., L'Homme et l'Animal, trad. de l'all. par R. Laureillard, Gallimard, Paris, 1958, rééd. 1965

CALLICOT, J. B., and AMES, R.T. (dir), Nature in Asian Traditions of Thought. Essays in environmental Philisophy, Allbany, NY State University of New York Press, 1989.

\*CASSEGARD C., "Play and Empowerment- The Role of Alternative Space in Social Movements", ejcjs, volume 12, issue 1, article 4, May 2012.

http://www.japanesestudies.org.uk/ejcjs/vol12/iss1/cassegard.html

CASTELLS, M., the network society, a cross cultural perspective, ed. Edward Elgar, Cheltenham, UK, 2004.

CASTELLS, M., "The power of Identity", Information age: Economy, society and culture Vol.2, Blackwell, Cambridge MA, Oxford, 1997.

\*CERTEAU, M. de, The practice of everyday life, chapter Spatial stories, university of California press, 1984, p115-130.

\*CHANIAL, P., "Espaces publics, sciences socials et démocratie", Quaderns n°18, Autom 1992, p.63-73.

CHASTEL, A., « restauration et avenir du patrimoine », monuments historiques, numéro hors série, 1977.

\*CHETKIEWICZ, C.-L.B., St. CLAIR, C.C., and BOYCE, M.S., "Corridors for conservation: integrating pattern and process", Annual Review of ecology, evolution and systematics 37, 2006, p317-342.

**CHISHAKI, T.**, *City planning in Asia*, Publisher City planning branch Institute of Japan, 2001. **\*CHOAY, F.**, *La règle et le modèle*, Seuil edition, 2<sup>nd</sup> edition, Paris, 1997.

\*CHOAY, F., L'allégorie du patrimoine, Seuil, Paris, revised 2007 (1992, 1st publication).

CHOAY, F., The invention of the historic monument, (translated by Lauren M. O'Connell), Cambridge University press, 2001.

Chūshingura (仮名手本忠臣蔵 Kana dehon Chūshingura), 1748.

\*CAUQUELIN, A., « Des mémoires demain », in Metamorphose de la ville, 1987, p125-135.

CERTEAU, M. de, « Marche dans la ville », in Arts de faire, Société général d'édition, Paris 1980.

CHASTEL, A., « La notion de patrimoine », in NORA P. (dir), Les lieux de mémoire, t.II, Gallimard, 1986, p.405-450.

CHIKU, M., "Asakusa shuuhen" (the periphery of Asakusa), in Kindai chounin seikatsu (Chronicles from popular life in modern time), Sanichishobo, 1984, p392-401.

Colloque d'Amiens. Esthetique de la rue. L'Harmattan, Paris, 2000.

\*CONROY, R., and BAFNA, S., "The syntactical image of the city: a reciprocal definition of spatial elments and spatial syntaxes", proceedings at 4th International Space Syntax Symposium, London, 2003.

CONZEN, M.R.G., "Anlwick, Northumberland: a study in town-plan analysis, Institute of British Geographers Publication 27, London, George Philip, 1960.

**CONZEN, M.R.G.**, "Morphogenesis, morphological regions and secular human agency in the historic townscape as exemplified by Ludlow", in DENECKE D. and SHAW G (eds), *Urban historical geography: recent progress in Britain and Germany*, Cambridge University Press, Cambridge, UK, 1988.

CROOKS, K.R., and SANJAYAN, M., *Connectivity conservation*, Cambridge university press, Cambridge UK, 2006.

\*CSIKSZENT, M., "Design and order in everyday life", Design issues vol.8 n°1, MIT press, automn 1991, p26-34.

CYBRIWSKY, R., Tokyo/ the shogun's city at the 21<sup>st</sup> century, ed. John Wiley and Sons, UK, 1998.

\***CYBRIWSKY, R.**, "Changing patterns of urban public space/ Observations and assessments from Tokyo and New-York metropolitan areas", *Cities* Vol. 16- No4, 1999, p.223-231.

**DANIEL, TC.**, "Whither scenic beauty? Visual landscape quality assessment in the 21<sup>st</sup> century", *Landscape urban plan* N°54 (1-4), 2001, p.267-281.

**DAVID, S. and MEYER, C.**, *Blur*, Addison Wesley publishers, Reading Mass, US, 1998. (French edition, le paradigme du flou, Editions village mondial, Paris, 1992.

**DEBORD, G.**, "Théorie de la dérive", in MOSCONI P. (dir.), *Internationale situationniste*, Fayard publisher, Paris, 1997, p 51-55.

\*DERFLER, F., Connectivité du PC, ed Dunod tech, Paris, 1992

\*DIESTEL, R., Graph Theory, Electronic Edition, 2005, p 12.

\***DIMMER, C.**, *Re-negotiating public spaces in Japan — a historical critique of modern public space in metropolitan Japan and its contemporary Re-evaluation*, PhD thesis, urban planning department of University of Tokyo, 2006.

**DINKEL, R.**, L'Encyclopédie du patrimoine (Monuments historiques, Patrimoine bâti et naturel - *Protection, restauration, réglementation. Doctrines - Techniques - Pratiques*), Les Encyclopédies du patrimoine Editions, Paris, sept.1997.

\*DOWN, R.M., and STEA, D., *Maps in minds: reflections on cognitive mapping*, Harper & Row publishers, New York, London, 1977.

\*DOUGLASS, M., "the New Tokyo story: restructuring space and the struggle for place in a world city", in Fujuta K, Hill RC (eds), *Japanese cities in the world economy*, Temple University press, Philadelphia, 1993, p83-119.

**\*DOUGLASS, M.**, "Mega-urban regions and world city formation: globalization, the economic crisis and urban policy issues in Pacific Asia", *Urban studies* Vol 37, No12, 2000, p.2315-2335.

\*DOUGLASS, M., "The transnationalization of urbanization in Japan", *International journal of urban and regional research* 12(3), 1988, p425-254.

EGENHOFER, M.J., and MARK, D.M., "Naïve geography", in FRANK & KUHN W. (eds), *Spatial information theory: a theoretical basis for GIS*, Springer-Verlag, Berlin, 1995.

\*ELLIN, N., Postmodern Urbanism, Blackwell publishers, Cambridge, MA, 1996.

**ELLIS, C.**, « The new urbanism : critiques and rebuttals », *Journal of Urban design* vol.7-n°3, 2002, p. 261-291.

\*EMERSON, R.W., Emerson's Complete Works: English Traits. BiblioBazaar, 2009.

**ENCYCLOPOEDIA UNIVERSALIS**, available at: <www.universalis.fr/ >

- HOUZEL, C., Leonhard Euler

- MORLET, C., *Topologie* 

- RAYNAUD, H., *La théorie des graphes* 

\*ETLIN, R.A., "Space, stone and spirit: the meaning of a place", in GOLDING S. (ed.), *The Eight technologies of otherness*, Routledge, London and New York, 1997.

**\*EVANS, G., SMITH C., and PEZDAH, K.**, "Cognitive maps and urban forms", *Journal of the American planning association*, vol 48, n°2, p 232-244.

\*EWING, R., and HANDY, S., "Measuring the unmeasurable: urban design qualities related to walkability", *Journal of urban design*, vol 14, n°1, feb. 2009, p 65-84.

FREDERIC, L., Le Japon, dictionnaire et civilisation, Robert Laffont Editions, 2005.

\*FLEURY, A., "Pérennité urbaine, ou la ville par delà ses métamorphoses », *Vol 2-Turbulences*, Paris, l'Harmattan, collection Itinéraires géographiques, 2009, p 105-116.

FOUCAULT, M., Les mots et les choses, Gallimard, Paris, 1966.

**FOUCAULT, M.**, "the subject and power", *Chicago journals, the critical inquiry* vol.8- no 4, 1982, p. 777-795.

\*FOURNIER, E., Paris Demoli, Hachette Bnf, s. d., 1st Ed., 1883

**\*FRIEDMANN, J.,** "Life space and economic space: contradictions in regional planning", in *life space and economic space: Essays in the Third world planning*, Transaction books, New Brunswick, N.J, 1988, p 93-108.

**\*FUJITA, K.**, "a world city and flexible specialization: restructuring of the Tokyo metropolis", *International Journal of urban and regional research* 15(1), 1991, p. 269-284.

**FUJITA, K.**, « neo-industrial Tokyo: Urban development and globalization in Japan's State-centered Developmental capitalism », *Urban studies* Vol 40- num2, February 2003, p. 249-281.

\*GEHL, J., Life between Buildings: Using Public Space, Van Nostrand Reinhold, New York, 1987.

\*GEHL, J., JOHANSEN KAEFER, L., and REIGSTAD, S., "Close encounters with buildings", *Urban design International* vol.11, 2006, p29-47.

GEITOKEN (<u>www.geitoken.net</u>).

**GHORRA-GOBIN, C.**, "Du « wireless wilderness » au « global electronic capitalism » : repenser le raport espace et société", *Quaderni* n°30, 1996, p.105-115.

\*GHORRA-GOBIN, C., "Les rapports public-privé, enjeu de la regulation des territories locaux", *Géocarrefour* vol. 81/2, p99-104, 2006.

\*GHORRA-GOBIN, C., "Les espaces publics, capital social/ public space and social capital", *Géocarrefour* vol. 76/1, 2001, p5-11.

\*GIBSON, J.J., *The ecological approach to visual perception*, Houghton Miffin, Boston, 1979. \*GIERYN, T. F., "A space for place in sociology", *Annual Reviews- Sociology* number 26, 2000, p 463-496.

\*GILPIN, W., Observations on the River Wye And Several Parts of South Wales, & c., Relative Chiefly to Picturesque Beauty: Made in the Summer of the Year 1770. Pallas Athene Arts, 2005. \*GIOVANNONI, G., Vecchie città ed edilizia nuova, 1913.

\*GIOVANNONI, G., Vecchie città ed edilizia nuova, Unione tipografico-editrice, Turin, 1931. (L'urbanisme face aux villes anciennes, french translation Seuil collection « points Essais », in 1998.) GLUCK, C., "the people in history: recent trend in Japanese historiography", Journal of Asian stories vol 38- n°1, November 1978.

**GOEBEL R.J.**, "Benjamin's Flaneur in Japan: Urban Modernity and Conceptual Relocation", *The German Quarterly*, Vol. 71, No.4, p 377-391, Autumn, 1998.

\*GOFF, J. Le, and NORA, P. (dir), Faire de l'histoire. Gallimard, 1974.

\*GOMBRICH E.H., The sense of order: a study in the psychology of decorative art, The Wrightsman lectures, V.9, january 1994.

**\*GOMBRICH, E.H.**, "Standards of truth: the arrested image and the moving eye", Critical inquiry, vol.7, n°2, winter 1980, p237-273.

**GOTTMAN**, J., « L'entreprise municipale du patrimoine », in Davallon J., *Claquemurer, pour ainsi dire, tout l'univers*, La mise en exposition, ed. du centre Geroge Pompidou, Paris, 1986.

GREENBERG, M., The poetics of cities, Ohio state University press, Columbus, 1995.

\*GUILLAUME, M., La politique du patrimoine, Galilée, Paris 1980.

HABERMAS, J., L'espace public. Payot, 1988.

**HAGA, T.**, *Landscape in crosscultural perspective : from Hsiao-Hsiang to the Eight views of Omi*, Actes du colloque franco-japonais sur la recherche paysagère, Maison franco-japonaise, Tokyo, 1988, p 115-123.

**HALBWACHS, M., and LEWIS, A. C.**, On Collective Memory. The Heritage of Sociology, University of Chicago Press, Chicago, 1992.

HALBWACHS, M., *The Collective Memory*, Harper Colophon Books, 1st ed. Harper & Row, New York, 1980.

\*HALL, E.T., Hidden Dimension, Anchor Press Doubleday, 1969.

**\*HALL, E.T.**, *The dance of life: the other dimension of time*, Anchor books, Garden city, New York, 1984.

\*HANSON, J., Decoding homes and houses, Cambridge University Press, Cambridge, 1998.

\*HARVEY, D., Social Justice and the city, Edward Arnold Publishers, London, 1973.

\*HARVEY, D., Justice, Nature and the Geography of Difference. Blackwell Publishers, 1996.

**\*HARVEY, D.**, "Between space and time: reflections on the geographical imagination", *annals of the association of American geographers* 80(3), 1990, p418-434.

HASEGAWA, T., Tokyo no takuchi teisei shi, Tokyo, Sumai no Toshokan shuppankyoku, 1988.

HATTA, T, Economics of urban recentralization, Nihonkeizai shinbunsha, Tokyo, 2006.

\*HATTA, T., and OHKAWARA, T., "Population, Employment and Land price distributions in the Tokyo metropolitan Area", *Journal of Real Estate finance and Economics* 6, Kluwer Academic publishers, 1993, p.103-128.

\*HAYDEN, D., The Power of Place: Urban Landscapes as Public History, Mass.:MIT Press, Cambridge, 1995.

HAINES- YOUNG, R.H., *Countryside Survey 2000: Accounting for Nature*, Department for Environment, Food & Rural Affairs, 2000.

\*HAYAKAWA, K., and HIRAYAMA, Y., "The impact of the minkatsu policy on Japanese housing and land use", *Environmental and Planning D: society and space* 9, 1991, p. 151-164.

**HEDMAN, R.**, *Fundamentals of urban design*, American planning association, Chicago, Illinois, 1984.

HIGUCHI, T., Nihon no keikan, Shunjusha, Tokyo, 1981.

HIGUCHI, T., The Visual and Spatial Structure of Landscapes, New edition. MIT Press, 1988.

\*HILLIER, B., Space Is the Machine - a configurational Theory of Architecture, Cambridge University Press, Cambridge, 1996.

\*HERBERT, M., and NAKAI, N., "How Tokyo grows/ land development and planning on metropolitan fringe", in SHAPIRA P., MASSER I., EDGINGTON D.W. (eds), *Planning for cities and regions in Japan*, Liverpool University press, 1994.

**HEIN, C.**, "Toshikeikaku and Machizukuri in Japanese Urban Planning - the Reconstruction of Inner City Neighborhoods in Kobe", *Jahrbuch des DIJ (Deutsches Institut für Japanstudien)* no. 13, 2001, p. 221-52.

**HEIN, C.**, "Japan-big scale versus small scale", *Arch+Minihaüser in der Megacity Tokio*, p24-26, 2000.

**HEIN, C., and PELLETIER, P. (eds)**, *Cities, Autonomy, And Decentralization In Japan*, Routledge, New-York, 2006.

- **\*WATANABE, S.I.,** "Machizukuri in Japan: a historical perspective in Participatory Communitybuilding Initiatives"

\***HILLIER, B.**, *Theory of the city as Object*, 3<sup>rd</sup> International Space Synthax symposium, Atlanta, 2001.

**\*HILLIER, B.**, "The hidden geometry of deformed grids: or, why space synthax works, when it looks as though it shoudn't", *Environemntal and planning B: Planning and design* 26, 1999, p. 169-191.

\*HILLIER, B., and HANSON, J., The Social Logic of Space, Cambridge University Press, Cambridge, 1989.

\*HILLIER, B., and IIDA, S., Network effects and psychological effects: a theory of urban movement, University college London, UK, 2005.

\*HILLIER, B., BURDETT, R., PEPONIS, J., and PENN, A., "Creating life: or, does architecture determine anything?", *Architecture& comportement/ Architectural behaviour* vol. 3- n°3, 1987, p. 233-250.

\*HILTY, J., LIDICKER, Jr W.Z., and MERENLENDER, A.M., *Corridor ecology*, Island Press, Washington DC, 2006.

HIROSUE, T., Iwanami, 1984.

\*HOCTOR, T.S., ALLEN, III, W.L., CARR M.H., ZWICK, P.D., HUNTLEY, E., SMITH, D.J., MAEHR, D.S., BUCH, R. and HILSENBECK, R., Land corridors in the southeast: connecitivty to protect biodiversity and ecosystem services, University of Florida, Geoplan Center, 2007.

**HONJO, M.**, "'The growth of Tokyo as a world city", in LO F.-C. and YEUNG Y.-M. (Eds), *Globalization and theWorld of Large Cities*, United Nations University Press, Tokyo, 1998, p.109-131. **\*HONJO, M.**, "Key issues of urban development and land management policies in Asian developing countries", in HONJO M. and INOUE T. (eds), *Urban development policies and land management: Japan and Asia*, City of Nagoya, Nagoya, 1984, p. 15-35.

HOWARD, E., Tomorrow: A peaceful Path to real Reform, 1898.

**IMAMICHI, T., and AKIRA, T.**, *L'Esthétique contemporaine du Japon*, CNRS Editions, 1998. **INOUE, T.**, *sekentei no kôzô*, Nippon Hôsô Kyôdai, Tokyo, 1977.

\*IGLESIAS, F., and SHINJI, I., "Creation and evolution of the open space in the subcenter high raise zone of Nishi Shinjuku", *Journal of Agriculture sciences*, Tokyo university of Agriculture, 46 (4), 2002, p. 250-264.

**\*ISHIZUKA, H., and ISHIDA, Y. (eds)**, "Tokyo, the metropolis of Japan and its urban development", in *Tokyo, Urban growth and planning 1868-1988*, Tokyo Metropolitan university Center for Urban tudies, Tokyo, 1988, p 3-35.

\*ISOZAKI, A., "Ma, espace-temps du Japon", *exhibition catalogue, Decorative arts museum*, Automns festival, Paris, oct-dec. 1978.

**ITOH, T.**, *Space and illusion in the Japanese garden*, Weatherhill/Tankosha, New-York, Tokyo, Kyoto, 1973.

JACOBS, A., Great streets, MA, MIT press, Cambride, 1993.

\*JACOBS, A., and APPLEYARD, D., "Toward an urban design manifeto", *Journal of the american planning association*, n°53, p 112-120.

\*JAKUB, K., "A study of the transformation of street-blocks in Tokyo: a case study in Shinjuku", *Journal of Asian Architecture and building engineering- JAABE* Vol. 5, N°1, may 2006.

**JEANHWA, S.,** *Keeping an eye on the cityscape/ a study on the role of cityscape management system for cityscape Identity management (focused on 23 wards in Tokyo, Japan)*, doctoral thesis at University of Tokyo, august 2008.

\*JIANG, B., and CLARAMUNT, C., "Environ", Plan B n°31, 15, 2004.

\*JIANG, B., and CLARAMUNT, C., "Integration of space syntax into GIS: new perspectives for urban morphology", *Transactions in GIS* n°6, 2002, p295-309.

\*JIANG, B., CLARAMUNT, C., and KLARQVIST, B., "Integration of space syntax into GIS for modelling urban spaces", *JAG* vol 2, issue <sup>3</sup>/<sub>4</sub>, 2000, p161-171.

\*JINNAI, H., 1985, *Tôkyô a spatial anthropology*, translated by Kimiko Nishimura, University of California Press, Berkeley, 1995. *Tokyo no kuukan jinruigaku*, originally published by Chikuma Shobou, 1985.

**\*JONAS, M.-L., and RAHMANN, H.**, "I love Tokyo: questioning contemporary urban identities of Tokyo and their potential for sustainable urban regeneration", *Weimarpolis Multidisciplinary Journal of Urban Theory and Practice* vol. 1- no. 2, p. 19-34.2009.

JONES, E., Metropolis: the world's great city, Oxford University press, New York, 1990.

**\*JUNJIRO, T., and NORIYUKI, S.,** "The Japanese urban system and the growing centrality of Tokyo in the global economy", in FU-CHEN, L. and YUE-MAN, Y., *Emerging world cities in Pacific Asia*, The United Nation University Press, Hong Kong, 2nd ed., 1999, chapter 4, p101-143.

\*KADOYA, T., "Assessing functional connectivity using empirical date", *Population Ecology* 51, 2009, p 5-15.

KAIJIMA, M., TSUKAMORO, Y., Bow-wow from post-bubble city, INAW, Tokyo, 2006.

\*KAWAMOTO, S., Watashino Tokyo machi aruki (My walking of Tokyo's machi), 1990.

\*KAZUNORI, H., "The affective meaning of Tokyo verbal and non-verbal approaches", *Journal of environmental psychology* n°13, academic press, 1993, p 161-172.

KEER, A., Dogs and demons, the fall of modern Japan, Penguin Book publishers, 2001.

KIKUCHI, Y., Japanese Modernisation and Mingei Theory, Routledge Curzon, 2004

\*KIMURA, S., Tokyo hanjouki (Report on prosperity of Tokyo), 1958.

\*KINDLMANN, P., and BUREL, F., "Connectivity measures: a review," *Landscape ecology* 51, 2008, p5-15.

\*KIRA, M., and TERADA, M., Japan. Towards Totalscape, Nai publishers, Rotterdam, 2000.

\*KLIJN, J., and VOS, W., "A new identity for landscape ecology in Europe: a research strategy for next decade", in: KLIJN J. and VOS W. (Eds.), *From Landscape Ecology to Landscape Science*, Kluwer Academic Publishers, WLO, Wageningen, 2000, p.149–161.

\*KNOX, P.L. (ed), The Restless Urban Landscape, Englewood Cliffs, Prentice-Hall, 1993.

\*KNOX, P. L., and TAYLOR, P. J. (eds), World Cities in a World-System, Cambridge University Press, 1995.

\*KOBAYASHI, N., Tokyo sanbusaku (Tokyo trilogy).

\*KOBAYASHI, N., and ARAKI, N., *Shisetsu Tokyo hanjouki* (My interpretation of the account of Tokyo's prosperity), 1984 and 1992 (2<sup>nd</sup> publication).

**\*KODAMA, T.**, "the new aspects of housing problems in Tokyo", *Osaka city university economic review* 25(1), 1990, p1-12.

KOJIKI (712) and NIHON SHOKI (720)

KOLEN, J., and LEMAIRE, T. (eds.), Landschap in meervoud: perspectieven op het Nederlandse landschap in de 20ste/21ste eeuw, Jan van Arkel, Utrecht, 1999.

KOZAKAI, T., Les Japonais sont-ils des occidentaux?, Paris, L'Harmattan, 1991.

**KUIPERS, B., TECUC, I D.G., and STANKIEWICZ, B.J.**, "Environment and behaviour", 35, in Skeleton in the cognitive map, p 81-106, January 2003

SHÛZÔ, K., structure de l'iki, 1939, (traduction Maeda Toshikuni), Maison franco-japonaise, 1984.

\*KUROKAWA, K., Toshi no kakumei (The revolution of city), 2006.

\*KUROKAWA, K., Rediscovering Japanese space, ed. Weatherhill, New-York, Tokyo, 1989.

**KUROKAWA, T.**, "Classification of Landscapes by Scenes and Words-Original Landscape of the Japanese-", *Kanazawa College of Art bulletin* No. 45, 2001.

\*LACLAU, E., New Reflections on the Revolution of Our Time. Verso Books, 1990.

\*LARNER, J., *Culture and Society in Italy, 1290-1420*, Illustrated edition, HarperCollins Distribution Services, 1971.

LAWRENCE, D.L., and LOW, S.M., "The built environement and spatial form", Annu. Rev. Anthropology N°19, 1990, p. 453-505.

\*LAZZAROTTI, O., « Patrimoine et tourisme : un couple de la mondialisation », *Mappe Monde* n°57, Paris, Jan. 2000, p 12-16.

\*LE CORBUSIER, and ABIDAT, A., Une Cité Radieuse: Le Corbusier, Images Plurielles, 2006.

LEFEBVRE, H., Critique de la vie quotidienne. Introduction, tome 1, L' Arche (Theatre), 1997.

LEFEBVRE, H., Le droit à la ville, Seuil ed., Paris, 1968.

LENIAUD, J.-M., L'utopie française, Essai sur le patrimoine, 1992.

\*LENNARD, S.H.C., and LENNARD, H.L., *Livable cities- people and places: social and design principles for the future of city*, center for urban well-being, New-York, Southhampton, 1987.

**LE NOUVEAU PETIT ROBERT DE LA LANGUE FRANCAISE 2007**, French dictionary, 2007. **\*LEY, D.**, *The New Middle Class and the Remaking of the Central City*, Oxford University Press, 1997.

\*LEWIS, E., "connecting memory, self and the power of place in African American History", in GOINGS K.W. and MOHL RA., *The new African americal history*, Sage, Thousands Oajs, CA, 1996. LI, N., *Preserving Urban Landscapes as Public History, Asian Context*, Presentation for ICOMOS Forum of Yong Researchers and Professionals, 2008.

\*LICKLIDER, H., Architectural scale, The architectal press of New York, 1966.

\*LÖW, S. M., « The Constitution of Space The Structuration of Spaces Through the Simultaneity of Effect and Perception », *European Journal of Social Theory*/ SAGE Publications (Los Angeles, London, New Dehli and Singapore, 2008), vol 11(1) edition, 2008.

\* **LOWENTHAL, D.,** "European transformations: the rural residue", in BRESSI T.W. and GROTH P. (eds), *Understanding Ordinary landscapes*, Yale University Press, New Haven, CT, chapter 15, 1997.

\*LOWENTHAL, D., « la fabrication de l'héritage », in Poulot D., *Patrimoine et modernité*, l'Harmattan, Paris, 1998, p 110-126.

\*LYNCH, K., L'image de la cité, Dunod Editions, Paris, 1999.

LYNCH, K., Good city form, MIT press, Cambridge, 1984

LYNCH, K., What Time is This Place?, MIT Press, Cambridge, 1972.

\*Mc CORMACK, G., The emptiness of Japanese affluence, NY, M.E., Sharpe, Armonk, 1996.

\*Mc KEAN, M., *Environmental protest and citizen politics in Japan*, University of California press, Berkeley, 1981.

\*MACHIMURA, T., "Symbolic Use of globalization in urban politics in Tokyo", *International journal of urban and regional research* 22(2), joint editors and Blackwell Publishers Ltd 1998, Oxford, UK., 1998, p183-194

\*MACHIMURA, T., « The Urban Restructuring Process in Tokyo in the 1980s: Transforming Tokyo into a World City », *International Journal of Urban and Regional Research* Vol. 16, Issue 1, march 1992, p.114–128.

MAFFESOLI, M., La connaissance ordinaire, librairie des Méridiens, Paris, 1985.

MAGAUD, J. and SUGITA, K., "Aspects économiques de la relation au temps et à l'espace dans la culture japonaise", *Anthrologie et société*, 1990, 14-3, p 45-50.

\*MAKI, F., "La ville et son espace intérieur", *Cahiers du Japon* n°1, summer 1979.

\***MAKI, F.**, "L'espace de la ville japonaise et le concept d'*oku*", in NUSSAUME Y., *Anthologie critique de la théorie architecturale japonaise, le regard du milieu*, Ousia Editions/ arts des lieux, Philippe Nys (dir), Paris, 2004, p 391-409. (1<sup>st</sup> publication in Japanese in the review *Sekai*, fev. 1978).

MAKI, F., Miegakure suru toshi (The visible and invisible town), Kajima Shuppankai, Tokyo, 1986.

\*MAKI, F., On Maki architecture/Maki on architecture, Fumihiko Maki traveling exhibition executive committee, co Delphi Inc, Tokyo, 2001.

\***MAKI, F.**, *Nurturing dreams: collected essays on architecture and the city*, edited by Sullivan Mark, MIT press book, Cambridge MA, 2008.

MANSVELT, J., VAN, D., and VAN DER LUBBE, M.J., Checklist for Sustainable Landscape Management: Final Report of the Eu Concerted Actio Air-Ct93-1210: The Landscape and Nature Production Capacity of Organic/Sustainable Types of Agriculture. Elsevier Science Ltd, 1998.

\*MARCUSE, P., and VAN KEMPEN, R. (eds), *Globalizing cities: a new spatial order*, Blackwell publishing Publishers, 2000.

- \*WALEY, P., "Tokyo: Patterns of Familiarity and Partitions of Difference".

MARTINEZ, L., and BREMEMN, J.V., *Ceremonies and rituals in Japan*, London Routledge, 1995. MASUDA, T., *ie to niwa no fûkei* (Paysages du jardin et de la maison)

**MATSUMOTO, Y.**, "Personal networks in Japanese metropolis", in MORIOKA K. (ed), *Human relations in Urban society*, Housou University publisher, Kyouiku Shinkoukai, Tokyo, 2000, p 59-71. **MATSUMOTO, Y.**, "Urbanism and friendship: structuration of social networks in a metropolis",

*Japanese sociological review* N°56/1, publisher: Japan sociological society, Tokyo, 2005, p. 147-164. **MATTER, C.**, "urban landscapes of Japan", in KARAN P. and STAPLETON K. (eds.), *The Japanese city*, Lexington, University press of Kentucky, 1997, p 40-55.

**MEIKLEJOHN, K., AMENT, R., and TABOR, G.**, *« Habitat Corridors & Landscape Connectivity: Clarifying the Terminology »*. Available through: the climate conservation website < www.climateconservation.org>

MERLEAU- PONTY, M., Phénoménologie de la perception, Gallimard, 1945 (first ed.), 1976.

**MERLIN, P., and CHOAY, F.**, *Dictionnaire de l'urbanisme et de l'aménagement du territoire*, PUF, Paris, 1st edition, 1988.

**MILES, R.S.**, *Metropolitan problems/ International perspectives, a search for comprehensive solutions*, Routledge library Edition-The city, London, 1970 (1st) and 2007.

\*MILGRAM, S., GREENWALD, J., KESSLER, S., Mc KENNA, W., and WATERS, J., "A psychological map of New York", *American scientist* 60, 1972, p.194-200.

MITCHELL, C., Land evaluation, Longman, London, 1973.

MITSHERLICH, A.K., Psychanalyse et urbanisme. Réponse aux planificateurs, Gallimard, Paris, 1970.

M. O'DONNELL, P., Urban Cultural Landscapes & the Spirit of Place, ICOMOS QUEBEC, 2008.

**MONTELLO, D.R.**, "Scale and the multiple psychologies of space", in FRANK and KUHN W. (editors), *Spatial information theory: a theoretical basis for GIS*, Springer-Verlag, Berlin, 1993.

**MOGGRIDGE, H.**, "Visual analysis: tools for conservation of urban views durinf development", *proceedings, 6<sup>th</sup> international Space synthax*, Istanbul, 2007.

**\*MORIMURA, M**, "Change in the Japanese urban planning priorities and the response of urban planners 1960-90", in University of Tokyo Department of Urban Engineering (ed), *Contemporary studies in urban environmental management in Japan*, Kajima Institute Publishing, Tokyo, 1994, p 8-24.

# **NACHIN-POIRRIER, C., and POIRRIER, P.**, *L'État & le patrimoine, deux siècles d'histoire*, Patrimonium Edition, Apt, 2002.

NAÏTO, A., Edo to Edo-jô, Kajima Shuppankai, Tokyo, 1966.

NAKAE, C., Dialogues politiques entre 3 ivrognes, editions CNRS, Paris, 2008.

NAKAMURA, Y., « Tradition paysagère et postmodernité au Japon », Le Débat 65, 1991, p. 75-87.

NAKANE, C., Tate shakai no rikigaku, Kodansha, Tokyo, 1978.

NAGAI, K., Hiyorigeta (wooden clogs for good wather).

NEISSER, U., Cognition and reality, W.H. Freeman, New York, 1976.

\*NEWMANN, P., and KENWORTHY, J.R., Sustainability and cities, Island Press, Washington DC, 1999.

NISHIMURA, Y. 路地からのまちづくり / 西村幸夫編著/出版者 京都: 学芸出版社, 2006.

NISHIMURA, Y., Townscape and Community Development, (in Japanese), Kokon Shoin, 1997.

NISHIMURA, Y., Urban Conservation and Urban Design (in Japanese), Kajima Institute, 1997.

NISHIMURA, Y., Notes on Urban Studies (in Japanese), Kajima Institute, 2000.

NISHIMURA, Y., Urban Conservation Planning (in Japanese), University of Tokyo Press, 2004.

\*NISHIMURA, Y., "Urban heritage and city development", paper presented at *Conference: Urban heritage and the city development*, National research Institute for Cultural Properties, Tokyo, 1<sup>st</sup> October 2004.

**NOHL, W.**, "sustainable landscape use and aesthetic perception- preliminary reflections on future landscape aesthetics", *Landscape urban plan* n° 54 (1/4), 2001, p 223-237.

NORA, P., les lieux de mémoires, Gallimard, Paris, 1986.

\*NUSSAUME, Y., Anthologie critique de la théorie architecturale japonaise, le regard du milieu, Ousia Editions/ arts des lieux, Philippe Nys (dir), Paris, 2004.

NUTE, K., Place, Time and being in Japanese Architecture, Routledge, London, 2004.

**\*OIZUMI, E.**, "Property finance in Japan: expansion and collapse of the Bubble economy", *Environmental planning A* 26 (2), 1994, p 199-213.

**\*ONISHI, T.**, "A capacity approach for sustainable urban development: An empirical study", *regional studies* 28 (1), 1994, p 39-51.

\*OKAMOTO, T., 江戸東京の路地:身体感覚で探る場の魅力/岡本哲志著/出版者 京都:学芸出版社, 2006.8. OSTROWETSKY, S., L'imaginaire bâtisseur, Librairie des Méridiens, Paris, 1983.

**\*OZSOY, A., ALTAS, N.E., OK, V., and PULAT, G.**, "Quality assessment model for housing; a case study on outdoor spaces in Istanbul", *Habitat international* vol.20, n°2, 1996, p 163-176.

\*PACIONE, M., Urban geography: a global perspective, Routledge, London, 2001.

PANOFSKY, E., La perspective comme forme symbolique, Minuit, Paris, 1975.

**PELLETIER**, **P.**, *Japon, Crise d'une autre modernité*, Belin Editions, collection Asie plurielle, La documentation française, Paris, 2003.

**\*PELLETIER, P.**, « 1. La saga paysagère de Yanagawa (Japon), 2. Le mythe du manque d'espace au Japon », Note de recherche- working paper n°9, Université Lumière Lyon 2, Institut orientale.

\*PEPONIS, J., ZIMRING, C., and CHOI, Y. K., "Finding the building in wayfinding", *Environment and Behavior*, N° 25(5), 1990, 555-590.

\*PEPONIS, J., WINEMAN, J., BAFNA, S., RASHID, M., and KIM, S. H., "The description of shape and spatial configuration inside buildings: Convex partitions and their properties", *Environment and planning B*, N°4, 1997, p 761-781.

\*PEPONIS, J., WINEMAN, J., BAFNA, S., RASHID, M., and KIM, S. H., "On the generation of linear representations of spatial configurations", *Environment and planning B*, N°25, 1998, p 559-576.

\***PEROUSE DE MONTCLOS, J.-M.**, « Observations sur le patrimoine français », *Revue de l'Art* vol 101, n°1, 1993, p11-16.

**POLESE, M., and RICHARD, E.S.**, *Social Sustainability of Cities: Diversity and the Management of Change*, University of Toronto Press, 2000.

\*PONS, P., D'édo à Tokyo, Gallimard Editions, Paris, 1988.

\*PONS, P., Japon, Seuil Editions, Paris, 1988.

**\*PORTA, S., CRUCITTI, P., and LATORA, V.**, "the network analysis of urban streets: a dual approach", *Physica A* n° 369, 2006, p 853-866.

**\*POULOT, D.**, *Patrimoine et modernité*. L'Harmattan, 2000.

**\*POUPON, C.**, Détection des faisceaux de fibres de la substance blanche pour l'étude de la connectivité anatomique cérébrale, Ecole Nationale Supérieure des Télécommunications, Paris, 1999.

\***PRED**, **A.**, *Making Histories and Constructing Human Geographies: The Local Transformation of Practice, Power Relations, and Consciousness*, Illustrated edition, Westview Press Inc, 1990.

\*PREECE, R.A., Designs on the Landscape, Belhaven Press, London, 1991.

\*PRIGOGINE, I., Les Lois du chaos, Flammarion, Paris, 1993.

**RADOVIC D. and BOONTHARM, D. (eds),** *Small Tokyo - Measuring the non-measurable 00& 01*, Flick Studios, Tokyo, Japan, 2012.

- RAHMANN, H., "S, XS, XXS-designing for the public", p76-79.

\*RAPOPORT, A., and HAWKES, R., "The perception of urban complexity", *Journal of the american institute of planners*, n°36, 1970, p 106-111.

**\*RATTI, C.**, *Urban analysis for environmental prediction*, phD thesis, department of architecture, University of Cambridge, Cambridge, 2002.

**\*RATTI, C.**, "urban texture and space syntax: some inconsistencies", *environment and Planning B: Planning and design 2004* volume 31, 2004.

**REISCHAUER, E.O.**, *Histoire du japon et des japonais*, ed.Seuil-histoire, Paris, last ed. 1997. (Original title: *Japan, the story of a Nation*, New York, 1970)

ROBERTSON, R., Globalization: Social Theory and Global Culture. SAGE Publications Ltd, 1992.

**ROBERTSON, N., and SEYMOUR, P.D.**, « Graph Minors II Algorithmic Aspects of Tree-Width », in *Journal of Algorithms*, vol. 7, no 3, 1983.

**\*ROTENBERG, R., and McDONOGH, G.W.**, *The Cultural Meaning of Urban Space*, Greenwood Press, 1993.

ROWE, C., STUTZKY, R., *Transparency*, 1st edition. ed. Birkhäuser Architecture, Basel; Boston, 1993.

**\*SABATIER, B.**, "De l'impossible espace public à la publicisation des espaces privés", in CAPRON G. and HASHAR-NOE N., *L'espace public urbain : de l'objet au processus de construction*, 2007. **SACCHI, L.**, *Tokyo architecture et urbanisme*, Flammarion editors, Paris, 2005.

**\*SAITO, A.**, "World city formation in capitalist developmental state: Tokyo and the waterfront subcentre project", *Urban studies* 40 (2), 2003, p 283-308.

**SAITO, A., and THORNLEY, A.**, "Shift in Tokyo's world status and the urban planning response", *Urban studies* Vol.40, No 4, 2003.

\*SALAT, S., Fumihiko Maki/ Une poétique de la fragmentation, Electa Moniteur, Paris, 1987.

\*SALAT, S., and LABBE, F., *Créateurs au Japon*, Hermann, éditeurs des sciences et des arts, Paris, 1986.

SANSOT, P., La poétique de la ville, Klincksieck, 1973. re-edited Petite Bibliothèque Payot, 2004.

**\*SAMUELS, R.J.**, *The Politics of Regional Policy in Japan: Localities Incorporated?*, Princeton University Press, Princeton, NJ, 1983.

\*SALINGAROS, NIKOS A., A theory of Architecture, Umbau-Verlag, Solingen, Germany, 2006.

\*SALINGAROS, NIKOS A., «Life and the geometry of the environment», P2P URBANISM, *Draft Version 3.0.*, 2010.

**\*SALINGAROS, NIKOS A.**, "The structure of pattern Languages", *architectural reseach quaterly* vol 4, 2000, p 149-161.

**\*SALINGAROS, NIKOS A.**, "Theory of the Urban Web", *Journal of Urban Design* Vol. 3, 1998, p. 53-71.

**\*SANG, K. A.**, "Recentralization of Central Tokyo and planning responses", *Journal of regional development studies*, Faculty of regional development studies, Toyo University, 2008.

SANSOT, P., La poétique de la ville, Payot, Paris, 2004 (1st ed. 1973).

\*SASSEN, S., *The Global City: New York, London, Tokyo*, NJ: Princeton University Press, Princeton, 1991.

**\*SASSEN, S.**, "On concentration and centrality in the global city", in KNOX P.L. and TAYLOR P.J., (eds), *World cities in a world-system*, Cambridge University press, London, 2000, chapter 4, p 63-73.

**\*SASSEN, S.,** "The global city: strategic Site/New frontier", *American studies* 41:2/3, Summer/Fall, p. 79-95, 2000.

SCAIthebathhouse, www.scaithebathhouse.com

SCHÜLER, O., Die Ziele der Gerographie des Menschen, Oldenbourg, Munich, 1906.

SETHA, M., LOW, M., and LAWRENCE-ZUNIGA, D., *The anthropology of space and place; locating culture,* Blackwell Publishing Ltd, , Victoria, Australia, 2003.

**SHIN, H.B.**, "The role of communities in urban regeneration and social mix: an interview with Anne Power", *Planning and policy*, Oxford University Press 309, 2007, p. 85-97.

**\*SHULZ, E.**, "The Renaissance of the city (toshi saisei) and the rediscovery of micro spaces (roji) in the megalopolis of Tokyo- strategies of integrating marginalized spaces into the mainstream of urban discourse", in *VI-Other Japanese case studies*, 2007, p19-28.

**SHULZ, E.**, "Nagai Kafu's Reflections on Urban Beauty in Hiyorigeta: Reappraising Tokyo's Back Alleys and Waterways", in *Review of Asian and Pacific Studies N°36*, 2007, p 169-164.

**SIMAY P.**, "Une autre ville pour une autre vie. Henri Lefebvre et les situationistes", *Métropoles* n°4, 2008 dec. online. URL: http://letropoles.revues.org/2902.

**\*SIMON, H.A.**, "The architecture of complexity", *American Philosophical Society* 106, 1962, p.467-482.

**\*SITTE, C.,** L'art de bâtir les villes-L'urbanisme selon ses fondements artistiques, (1st Edition, 1889), ed. Seuil, 1996. (English translation: *City Planning According to Artistic Principles*)

**SMITH, N.,** *New globalism, new urbanism: gentrification as global urban strategy*, Blackwell, Oxford, UK, 2002.

**\*SMITH, P.**, "The elementary forms of place and their transformations: a durkheimian model", *Qualitative sociology*, Human science press, vol22- no1, 1999.

\*SONOBE, A., Contemporary urban sociology, Dosinto publisher, Tokyo, 2001.

**\*SONOBE, M.**, "Is Tokyo a polarized city? Special issue: Class problems in the metropolis", *The annals of Japan association for urban Sociology* Vol. 17, 1999, p. 01-21.

**\*SORENSEN, A.**, *The making of Urban Japan/ Cities and Planning from Edo to the Twenty First Century*, Nissan Institute, Routledge Japanese studies series, New-York, 2002.

**SORENSEN, A.**, "Land readjustment and metropolitan growth: an examination of suburban land development and urban sprawl in the Tokyo metropolitan area", *Progress in Planning* 53, 2000, p. 217-330.

**\*SORENSEN, A.**, « Building world city Tokyo: globalization and conflict over urban space », *The Annals of Regional Science*, Springer-Verlag, 2003, p519-531.

**SORENSEN, A.**, "Subcentres and satellite Cities: Tokyo's 20th century Experience of planned Polycentrism", *International Planning Studies* Vol. 6-n ° 1, 2001, p. 9-32.

**SORENSEN, A.,** «Conflict, consensus or consent: implications of Japanese land readjustment practice for developing countries », *Habitat International* n°24, 2000, p51-73.

**\*SORENSEN, A.**, "Neighborhood streets as meaningful spaces: claiming rights to shared spaces in Tokyo", *City and society* Vol. 21, issue 2, American Anthropological Association, 2009, p. 207-229.

\*SORENSEN, A., and FUNCK, C. (eds), Living Cities in Japan/ Citizen's movements, machizukuri and local governments, Routledge, London and New York, 2007.

- FUJII, S., OKATA, J., SORENSEN, A., "Inner city redevelopment in Tokyo/ Conflicts over urban places, planning governance and neighbourhoods", chapter 12.
- SORENSEN, A., and FUNCK, C., "Conclusions/ A diversity of machizukuri processes and outcomes", chapter 13, p 269-279.

**SORENSEN, A., MARCOTULLION, P., and GRANT, J.** (eds), towards sustainable cities: East Asian, North American and European perspectives, Aldershot Ashgate, 2004.

**\*STEIN, V.,** *La reconquête du centre-ville : du patrimoine à l'espace public*, PhD thesis from geography department of Geneva University, 2003.

**\*STORPER, M., and WALKER, R.**, *The capitalist imperative: Territory, technology, and industrial growth*, B. Blackwell, (Oxford, UK and New York, NY, USA), 1989.

**\*TAKAGI K.**, «City center and inner area», in KIKUCHI and EGAMI (eds), Urban sociology toward 21 century, Gakumonsha, Tokyo, 2002.

**\*TAKAGI, K.**, "Transformation of central Tokyo and the upper Middle Class, Special issue: Class problems in the metropolis", *The annals of Japan association for urban Sociology* Vol. 17, 1999, p. 23-37.

**\*TAKAHASHI, J., and SUGIURA, N.**, « The Japanese urban system and the growing centrality of Tokyo in the global economy », in LO, F.-C. and YEUNG, Y.-M., *Emerging world cities in Pacific Asia*, United Nations University press, Tokyo, 1996.

**\*TAKANO, T., NAKAMURA, K., and WATANABE, M.**, "Urban residential environements and senior citizens' longevity in megacity areas: the importance of walkable green spaces", *Journal Epidemiol Community Health* n°56, 2002, p 913-918.

**\*TAKASHI, S.,** "Création architecturale, paysage urbain et conservation du patrimoine culturel" in *La recherche sur la ville au Japon, Actes des journées franco-japonaises du PIR Villes*, CNRS Éditions, 16-17 mars 1995, p17-27.

**TALBOT, J.**, "Planning concerns relating to urban nature settings: the role of size and other physical features", in NASAR J., eds, *Environmental aesthetics: theory, research and application*, Cambridge university press, Cambridge, 1988, p74-83.

\*TANIZAKI, J.I., Lob des Schattens, Manesse Editions, Zürich, 1987.

**\*TAYLOR, P.D., and PITHER, J.,** "An experimental assessment of landscape connectivity", *Oikos* n°83, 1998, p. 166-174.

**\*TAYLOR, P.D., FAHRIG L., KIMBERLEY A.**, "Landscape connectivity: a return to the basics", in CROOKS K.R., *Connectivity conservation*, Cambridge university press, 2006, chapter 2, p 29-43.

**\*TAYLOR P.D., FAHRIG, L., HENEIN, K., and MERRIAM, G.**, "Connectivity is a vital element of landscape structure", *Oikos* vol. 68, n°3, 1993, p 571-573.

**\*TCHAPI, M.**, "Resident's Perception of POPS and Vernacular Outdoors in Shinjuku, Tokyo", in *Privately Owned Public Space- the international perspective*, Center for Sustainable Urban Regeneration magazine, CSUR vol.25, Jan. 2013, The University of Tokyo, Tokyo, p. 62-63.

**THOMPSON, J. W., and KIM, Sorvig.**, *Sustainable Landscape Construction: A Guide to Green Building Outdoors*, New title, Island Press, 2000.

\*TISCHENDORF, L., and FAHRIG, L., "On the usage and measurement of landscape connectivity", *Oikos* 90, 2000, p7-19.

**\*TOMAS, F.**, «L'espace public, un concept moribond ou en expansion ? », *Géocarrefour* Vol 76/1, 2001, p. 75-83.

**\*TOMAS, F.,** «Les temporalités du patrimoine et de l'aménagement urbain », *Patrimoine et aménagement urbain* N° 79 vol.3, 2004.

**\*TOMAS, F.,** « Quartiers anciens et stratégies urbaines, d'une crise à l'autre, vue de Saint-Etienne», *Revue de géographie de Lyon* n°3, March 1985, p 173-203.

TOMOYA, M., Japon, Office du livre, Fribourg, 1969.

**TSUKAMOTO ARCHITECTURAL LAB& ATELIER BOW-WOW**, *Pet architecture guide book*, Tokyo Institute of technology, Tokyo, 2001.

**\*TUAN, Y.-F.**, *Topophilia: a study of environmental perception, attitudes and values*, Columbia University press, Columbia, 1974.

**TUAN, Y.-F.**, *Space and place: the perspective of experience*, University of Minneapolis press, Minneapolis, 1977.

\*TURNER, J.F.C., *Housing by people*, Marion Boyars, London, 1976.

**TURNER, A., DOXA, M., O'SULLIVAN, D., and PENN, A.**, "From isovists to visibility graphs: a methodology for the analysis of architectural space", *Environment and Planning B* N°28 (1), 2001, p 103–121.

**VAN OERS, R.**, "Sleeping with the enemy? Private Sector Involvement in World Heritage Preservation", Keynote presentation at the Xth World Congress of the Organization of World Heritage Cities, Quito, Ecuador, 8 - 11 September 2009.

**\*VAN OERS, R.**, "Preventing the Goose with the Golden Eggs from catching Bird Flu – UNESCO's efforts in Safeguarding the Historic Urban Landscape", Keynote paper for the 42nd Congress of The International Society of City and Regional Planners (ISoCaRP) "Cities between Integration and Disintegration", Istanbul, Turkey, 14 – 18 September 2006.

VINCLAIR, P., Kojiki: Chronique des faits anciens, 1st ed. Le Corridor Bleu, 2011.

**VON RICHTEHOFEN, F.**, "Aufgaben und Methoden der heutigen Geographie", Inaugural lecture, Berlin, 1883.

**VOS, W., and MEEKES, H.**, "Trends in European cultural landscape development perspectives for a sustainable future", *Landscape and urban planning* N°46, 1999, p3-14.

WALEY, P., Tokyo: city of stories, Weatherhill, 1991.

**\*WALEY, P.,** "Tokyo as World city: reassessing the role of Capital and the State in Urban restructuring", *Urban Studies* vol. 44 no. 8, July 2007, p. 1465-1490.

WALEY, P., "Tokyo: Patterns of Familiarity and Partitions of Difference", American Behavioral Scientist 41, 1997, p. 396-429.

WALEY, P., "Fragments of a city: a Tokyo anthology", Japan Times, Tokyo, 1992.

**WALEY, P., and FIEVE, N.**, *Japanese capitals in historical perspective: place, power and memory in Kyoto, Edo and Tokyo*, Routledge Curzon, London 2003.

\*WASUGI, K., まち路地再生のデザイン:路地に学ぶ生活空間の再生術 / 字杉和夫 [ほか] 編著, 出版者 東京: 彰国社, 2010.1.

WATANABE, S.I., "Metropolitanism as a way of life: the case of Tokyo, 1868-1930", in SUTCLIFFE, A. (ed), *Metropolis, 1890-1940*, University of Chicago press, Chicago, 1984, p403-429.

**\*WATANABE, S.I.**, "Comparative Planning History of Japan, Taiwan and Korea: challenges from "machizukuri or community Building". (draft version for publication)

**\*WATANABE, Y**, "The new phase of Japan's land, housing, and pollution problems", *Japanese economic studies* 20 (4), 1992, p. 30-68.

\*WHITEHAND, J., "Conzenian urban morphology and urban landscapes", *proceedings*, 6<sup>th</sup> *international Space synthax*, Istanbul, 2007.

**WHITEHAND, J.**, "Urban morphology and historic urban landscapes", *Managing historic cities*, *world heritage paper n*°27, sept. 2010, p 35-42.

WILSON, E. O., Biophilia, Harvard University Press, Cambridge, 1984.

**\*WOODALL, B.**, Japan under construction: corruption, politics and public works, University of California press, Berkeley, CA, 1996.

**WU, J.**, "Cross-disciplinarity, landscape ecology, and sustainability science", *Landscape Ecology*  $n^{\circ}$  21, p1-4, 2006.

**\*YABE, N.**, "population recovering in inner Tokyo in the late 1990s: a questionnaire survey in Minato ward", *Jinbunchiri* 55(3), 2003, p 79-94. (Japanese)

**YAMAORI, T.**, « Les japonais et leurs représentations de la nature », *Cahiers du Japon* n° 106, p 51-56.

YOKOHAMA, G., Kaso shakai tanboshu (Gendai kyoyo bunko). Shohan. Shakai Shisosha, 1990.

**YUNIKO, S.**, *The aesthetic appreciation of nature: western and Japanese perspectives and their ethical implications*, PhD thesis, University of Wisconsin- Madison, 1989.

ZAINO, H., Kaiwai : Nihon no toshin kûkan, Kajima Shuppankai, Tokyo, 1978.

ZHOU LI KAOGONGJI, Livre des Zhou, 1122-250 be. J.C.

**ZONNEVELD, I.S.**, Land ecology: an introduction to landscape ecology as a base for land evaluation, land management and conservation, SPB Academic Publishing, Amsterdam, 1995.

> Thesis and dissertations:

**CABALLERO J. A.**, Tokyo Public space at the intersection of the commercial and the domestic realms: toward a reframing of critical theory in architecture, PhD thesis, Tokyo Institute of Technology University, 2007

**EREZ GOLANI S.**, *The urban pathway narrated: daily itineraries and spatial practices in a contemporary city/ a Tokyo study*, PhD thesis, Tokyo University, 2006

**HANDLBAUER K.**, Spaces of control: control of spaces, a study about mechanisms of spatial control and their application in the context of territorial planning projects in Tokyo, PhD thesis, Tokyo University, 2005

**MANIRUZZAMAN K.M.**, Land Use and the Geometry of Urban Lots and Blocks (District Land Use Study and shape of lot and street in the city), 1994.

**MATSUMOTO Y.**, A study on the transfiguration of the slope area in the modern ages in central *Tokyo*, PhD thesis, Waseda University, 2004

NISHIMURA M./西村 賢洋, 既存住宅地に於ける集合住宅街区計画手法に関する研究: 空地条件を重視した 都営住宅街区更新計画 Study on the Housing Complex Planning Technique within existing Residential Areas: Focusing on the Condition of Open Spaces in Renewal Plans for Municipal Housing Blocks, master thesis, Urban Design Laboratory, 1993

**PORTILLO-RODRIGUEZ M.,** *Body-scapes: a study on the relationship between bodily elements and the urban scape of Tokyo*, PhD thesis, Tokyo University, 2005

SUZUKI S., (鈴木 伸治(スズキ シンジ), 東京都心部における景観概念の変遷と景観施策の展開に関する研究一 東京美観地区を中心として一 日本ニホン 乙(論文博士) 西村 幸夫 教授 1999./ expand research on the concept of landscape changes and landscape policies in Central Tokyo / Japan NIHON as aesthetic area around Tokyo, Ph.D. Thesis, 1999.

**VENARD C.**, *L'espace domestique au Japon, mémoire de DEA de géographie tropicale option ethnologie*, PhD thesis, Bordeaux III University, UER de géographie, 1988.

**YASUHIRO S.**須原 靖博/連担建築物設計制度の適用事例に関する研究/*Case study on lot merger in Japan*, University of Tokyo, 2002.

## > Institutions' reports, laws, research centres documents:

## Agency for cultural affairs of Japan: publications

- "Promoting Cultural Activities in Local Areas" (chaper 5)

- "Preservation and Utilization of Cultural Properties" (chapter 6)

- "The Report of the Study on the Protection of Cultural Landscapes/ Associated with Agriculture, Forestry and Fisheries".

**Building code regulation of Japan from 1919** 

Building Standard Law (kensetsu kijun hô) of Japan

City Planning Act of Japan 1919

CIAM 1951 : « cœur de la cité »

Conseil de l'Europe, déclaration d'Amsterdam de 1975

Council of Europe, 2000, European Landscape Convention, Firenze, October 20th, 2000.

Charte de Cracovie de 2000

Convention européenne du paysage, Florence, 2000

**City Planning Act of Japan 1968** 

**European Landscape Convention** signed the 20<sup>th</sup> Oct. 2000 (Council of Europe, 2000) **ICOMOS** 

- XI'AN declaration on the conservation o the setting of heritage structures, sites and areas, Adopted in Xi'an, China, by the 15th General Assembly of ICOMOS

**MLIT (Ministry of Land, Infrastructure, Transport and Tourism of Japan)**: project Implementation process under Special urban regeneration Act, White paper on national Land and Transportation 2006

MIAC (ministry of Internal affairs and communications), bureau of statistics, population census of Japan, per year

Nihon Marketing Kyoiku centre, 2004, Individual income indicators, Kyoiku centre

OCDE, 1986, Les politiques urbaines au Japon

**Regional environmental Center for Central Eastern Europe 2003**, UN HABITAT 2003, Sustainable urban neighbourhood program 2003...

**Research Institute of construction and economy (RICE)**, 2000, construction economy report, 35 **Rio Earth Summit of 1992** 

### \*Shinjuku city ward publications:

\*新宿時物語: 新宿区 60 年史/東京: 新宿区 (総務部総務課), 2007.5, 255p (Story at Shinjuku: Shinjuku 60year history. - Tokyo: Shinjuku (General Affairs Division General Affairs Department))

\*森山・新宿・荒木: 森山大道, 荒木経惟著/ 東京オペラシティ文化財団/ 東京: 平凡社, 2005.1 (Moriyama Shinjuku Araki / Daido Moriyama, Araki)

\*江戸の水- 玉川上水と新宿: 新宿歴史博物館企画展図録 / 新宿区立新宿歴史博物館編/ 東京: 新宿区教育委員会, [1993], 48p (Water Edo: Tamagawajōsui and Shinjuku: Shinjuku Historical Museum exhibition catalogues / Chapter History Shinjuku Museum, Shinjuku Ward)

\*新宿歴史博物館常設展示図録 / 東京都新宿区立新宿歴史博物館編/ 東京: 新宿区教育委員会, 1989.1, 127p (Shinjuku Historical Museum permanent exhibition catalogues / Chapter Shinjuku History Museum, Shinjuku Ward, Tokyo)

\*地図で歩く東京:エリアガイド/東京都地理教育研究会/東京私立中学高等学校地理教育研究会編著/東京:古今書院, 2002.11 (Walking in Tokyo Map: Area Guide / Geography Education Research Institute, Tokyo, edited Private Education Research Institute, Tokyo junior high school geography)

\*新宿区:景観まちづくりガイドブック

## Special Urban Regeneration Act of Japan 2002

## Tokyo metropolitan government, Bureau of urban development:

- TMG master plan and urban development targets in 2009

- TMG, population and household by basic resident registers, each year

- TMG 2003, White paper on housing in Tokyo (Tokyo jutaku hakusho)

- TMG 2006, land of Tokyo 2005 (Tokyo no tochi)

## Tokyo urban Improvement Act of 1888

**\*UNESCO** 

- 1972, « Convention concernant la protection du patrimoine mondial, culturel et naturel », 17<sup>ème</sup> session, Paris, 16th November 1972

- Management Guidelines for World Cultural Heritage Sites (Feilden and Jokilehto, 1998)

- N°6 World Heritage Cultural Landscapes – 1992-2002 (July 2004)

- N°7 Cultural Landscapes: the Challenges of Conservation (August 2004)

- N°9 Partnerships for World Heritage Cities: Culture as a Vector for Sustainable Urban Development (August 2004)

- N°13 Listing Universal and Local Values: Managing a Sustainable Future for World Heritage (November 2004)

- Basic Texts of the 1972 World Heritage Convention, Published in 2005 by the United Nations Educational, Scientific and Cultural Organization, Paris, UNESCO 2005.

- Vienna Memorandum 2005

- Declaration on the Conservation of Historic Urban Landscapes (Decision 29 COM 5D), 11<sup>th</sup> oct. 2005

- Vilnius Conclusions, dec. 2006

- Final Report Olinda Meeting 2007

- World Heritage Challenges for the Millennium, directed by Francesco BANDARIN, Published in January 2007, by the UNESCO World Heritage Centre

- Jan. 2008, « Orientations devant guider la mise en œuvre de la Convention du Patrimoine mondial », Comité intergouvernemental pour la protection du patrimoine culturel et naturel, Paris

- Nov. 2002, International workshop on Cultural landscape.

- World Heritage Papers 9: Partnerships for World Heritage Cities Culture as a Vector for Sustainable Urban Development/ World Heritage 2002, Shared Legacy, Common Responsibility, Associated Workshops, 11-12 November 2002, Urbino, Pesaro - Italy

- Jerusalem Statement, 4-6 June 2006.

- Report of St.Petersburg Conference, 6<sup>th</sup> march 2007.

- Montréal Round Table 14-16 March 2007.

- Zanzibar Recommendations, dec. 2009.

- Xth World Congress of the Organization of World Heritage Cities, Quito, 2009: Keynote Paper

- World heritage paper 26: World Heritage Cultural Landscapes/ A Handbook for Conservation and Management by Nora Mitchell, Mechtild Rössler, Pierre-Marie Tricaud (Authors/Ed.), UNESCO, December 2009.

- World Heritage paper 27: Managing Historic Cities, Published in September 2010 by UNESCO World Heritage Centre.

- A new international instrument: the proposed UNESCO recommendation on the Historic Urban Landscape (HUL), Preliminary Report, 23<sup>rd</sup> August 2010.

- Preliminary report on the draft Recommendation on the Historic Urban Landscape, 2010.

- OVPM Recueil d'études de cas sur la conservation et la gestion des villes historiques (source : http://whc.unesco.org/fr/activites/634/) 2010

**Electronic ressources** 

## Official institutions websites:

http://www.archi.fr/DAPA/pdf/SecSauv.pdf (ZPPAUP/ French secteurs sauvegardés/ Ministère de l'équipement, des transports et du logement)

http://archive.gsi.go.jp/airphoto/

http://www.bcj.or.jp/en/services/publication.html (The Building center of Japan)

http://blog.icomos-uk.org/2008/10/08/historic-urban-landscapes-a-new-concept-a-new-category-of-world-heritage-sites/ (ICOMOS-UK)

http://www.bunka.go.jp/english/index.html (Agency for cultural affairs of Japan)

http://www.culture.gouv.fr/culture/inventai/patrimoine/index.htm (Direction de l'architecture et du patrimoine DAP du ministère de la Culture et de la Communication, France)

http://www.international.icomos.org/home.htm (ICOMOS)

http://www.mlit.go.jp/en/index.html (Ministry of Land, Infrastructure, Transport and Tourism of Japan)

http://www.city.shinjuku.lg.jp/kusei/index13.html (Shinjuku city ward)

http://www.toshiseibi.metro.tokyo.jp/juutaku\_seisaku/yuuryou-1.html (Tokyo Metropolitan Government, bureau of urban development)

http://whc.unesco.org/en/ (UNESCO)

http://whc.unesco.org/en/conventiontext

## Associations and diverse websites:

http://biophiliccities.org/biophiliccitiesproj.html www.climateconservation.org http://www.d-kabukicho.com/ http://egypte06.over-blog.com/article-pause-dejeuner-cours-saleva-specialites-nicoises-au-menu-54334541.html www.geitoken.net http://homepage2.nifty.com/aquarian/Tokyo/Samegabashi/Tky030122.htm http://www.ippusai.com/hp home/edo tokyo/edo000 graph/shitamachi.jpg/ http://www.elpr.org/2009/01/biophilic-urban-design/ http://www.les-puces.com/marches/dauphine plan.html http://oldphotosjapan.com/en/photos/760/anjincho-in-nihonbashi www.scaithebathhouse.com http://www.shinjukuku-kankou.jp/english/map index.html http://www. Spacesyntax.com http://www.tiptop-espagne.com/les-incontournables-de-barcelone http://www1.touki.or.jp/gateway.htmlhttp://tokyoreview.blogspot.com/2007/09/42-museum-reviewshinjuku-historical.html

http://www.versailles.fr/typo3temp/pics/17a37282a2.jpg

www.yanesen.net http://zeta.math.utsa.edu/~yxk833/connecting.html

## **Dictionaries online:**

http://www.businessdictionary.com/ http://global.britannica.com http://www.macmillandictionary.com/dictionary/british/ http://www.thefreedictionary.com/ http://www.littre.org/

> Complementary sources in Japanese about Shinjuku history:

**東京都新宿区天龍寺跡: 新宿区生涯学習財団/新宿歴史博物館学芸課編**/東京: 新宿区生涯学習財団新宿歴史博物館 学芸課, 2004.2, 97p (Tenryu temple in Shinjuku-ku, Tokyo / Chapter History Museum Curator, Department of Lifelong Learning Foundation, Shinjuku, Shinjuku-ku)

**新宿の遺跡 - 新発見遺跡速報展/新宿歴史博物館/**東京:新宿区生涯学習財団新宿歴史博物館, 2003.7, 32p (Shinjuku remains: Remains found breaking new exhibition)

Shinjuku i-Land public art project, supervised by Housing and urban development corporation, Tokyo branch/ 住宅・都市整備公団東京支社 / 日本設計/ ナンジョウ アンド アソシエイツ (Nanjo and associates)/ パラダイ ス・カフェ (Paradise café)/東京: 日本設計, 1996, CD-ROM

巷 (ちまた)の目撃者 - 絵はがきがとらえた明治・大正・昭和:新宿歴史博物館特別展 / 新宿区立新宿歴史博物館編/ 佐藤, 健二/東京:新宿区教育委員会, [1999.10], 135p (Witness: Meiji Taisho Showa captured by postcard: Shinjuku Historical Museum Special Exhibition / Chapter History Museum, Shinjuku, Shinjuku Ward) 内藤新宿: くらしが創る歴史と文化:特別展 / 新宿区立新宿歴史博物館編/東京:新宿区教育委員会 1998.10, 99p (Naito Shinjuku: Creating the Life History and Culture: Special Exhibition / Chapter History Museum, Shinjuku Ward)

**大名屋敷**- 儀式・文化・生活のすがた:新宿歴史博物館開館5周年記念特別展 / 東京都新宿区立新宿歴史博物館編/ 東京: [東京都]新宿区教育委員会, 1993.10, 103p (Daimyo's mansion: ritual and cultural life: Shinjuku Historical Museum opened a special exhibition anniversary 5 / Chapter History Museum, Shinjuku, Shinjuku Ward, Tokyo)

新宿内藤町遺跡に見る江戸のやきものと暮らし / 新宿区内藤町遺跡調査会編/東京:東京都建設局 / 新宿区内藤町遺跡調査会, 1993.3, 95p (Life and remains of Edo Noh Naito-cho Shinjuku / Hen Commission remains Naito-cho Shinjuku-ku)

**東京都市計画物語: 越澤明著 / 越沢, 明**/ 東京: 筑摩書房 2001.3 (Monogatari Tokyo City planning / by Sawa Akira- Tokyo: Chikuma Shobo, 2001.3)

進化する複合再開発:新宿アイランドの全記録 / 彰国社編/東京: 彰国社, 1995.8, 179p (Redeveloped complex evolution: Shinjuku Island all recorded / edited Shokokusha. - Tokyo: Shokokusha, 1995.8)

新宿:1965-97 / 渡辺克巳著/ 東京: 新潮社, 1997.11 (Shinjuku: 1965-97 / by Katsumi Watanabe. - Tokyo: Shinchosha, 1997.11)

**アトラス東京:地図でよむ江戸~東京/正井,泰夫/**東京:平凡社, 1986.10, 160p (Atlas Tokyo: Edo-Tokyo through maps. - Tokyo: Heibonsha, 1986.10)

新宿区景観基本計画:新宿:歩く人にやわらかな都心景観をつくる / [東京都]新宿区都市整備部管理課[編]/東京都新 宿区/東京: [東京都]新宿区都市整備部管理課, 1991.3, 111p (Landscape Plan Shinjuku: Shinjuku: create a soft landscape in downtown walker / Tokyo, Shinjuku Management Division, Ministry of Urban Development- Tokyo, Shinjuku Urban Development Department of Management, 1991.3)

わが超高層都市宣言:「三角ビル」と新宿新都心 / 山田宏一著/ 東京: サンケイ新聞社, 1979.2, 262p (Declare our city skyscraper: "Triangle Building" and Shinjuku Shintoshin / by Yamada Hirokazu. - Tokyo: Sankei newspaper, 1979.2)

新説東京地下要塞: 隠された巨大地下ネットワークの真実 / 秋庭俊著/ 東京: 講談社, 2006.6, 237p (Bastion Tokyo underground new theory: the hidden truth of a huge underground network / by Akiba Takashi. - Tokyo: Kodansha, 2006.6)

**日本の都市環境デザイン / 都市環境デザイン会議著; 建築思潮研究所, クッド研究所編集** / 東京: 建築資料研究社, 2002.11-2003.11 (Japan's Urban Design / Urban Design Conference by; Institute of Architecture of thought, editing Institute Kood, Tokyo: Kenchiku Shiryo Kenkyusha, 2002.11-2003.11)

新宿・街づくり物語:誕生から新都心まで 300 年 / 河村茂著/ 東京: 鹿島出版会, 1999.10, 222p (Shinjuku district story building: 300 years from birth to a new city / by Kawamura Shigeru. - Tokyo: Kajima Institute Publishing, 1999.10)

新宿区の歴史 / 新宿の歴史を語る会文;東京にふる里をつくる会編/東京:名著出版, 1977, 244p (History of Shinjuku / Shinjuku statement meeting to talk about history; Tokyo, 1977)

進化する複合再開発:新宿アイランドの全記録/彰国社編/東京:彰国社,1996.6,179p

(Redeveloped complex evolution: Shinjuku Island all recorded / edited Shokokusha. - Tokyo: Shokokusha, 1996.6)

**東京市史稿 / 東京市編/ 東京市役所/ 東京都廳/** 復刻版/京都:臨川書店, 1973.8- (Manuscript Tokyo City History / City Guide: Tokyo, Kyoto: Bookstore Linchuan, 1973.8)

**江戸空間:一**○○**万都市の原景 / 石川英輔著** / 東京: 評論社, 1993.8, 334p (Space Edo: Hajime Hara urban landscape 100 million / by Eisuke Ishikawa, Tokyo's critics, 1993.8)

**トータル・ランドスケープ&ペーブメント / グラフィック社編集部編;中島幹夫,都田徹監修**/東京: グラフィック社, 1990.4, 239p (Landscape Total & pavement / Hen's Editorial Graphics; Nakashima Mikio, supervised by Miyakoda Tetsu. - Tokyo: Graphic, 1990.4)

**丹下健三 / 丹下, 健三/SD 編集部**/ 東京: 鹿島出版会, 1980.7-1994.5 (Kenzo Tange / SD Editorial hen; 1991. - Tokyo: Kajima Institute Publishing, 1980.7-1994.5)

新宿御苑 / 金井利彦著/ 東京: 郷学舎, 1980.11, 94p (Shinjuku Imperial garden / by Kanai Toshihiko. - Tokyo: Campus Township, 1980.11)

## > Films

YAMADA Y., Otoko wa tsurai yo, 1969.

> Maps and main graphic supports

ZENRIN maps, Shinjuku ward, Setagaya municipalities, 1967, 1976, 1989, 1999, 2008, 2010
AUTOCAD ZENRIN MAP from 1989, showing the following elements: topographical lines, buildings delineations, public space (streets and official alleys).
HISTORICAL maps from Shinjuku municipality
MASTER PLAN from Shinjuku ward
Diverse touristic maps from Shinjuku ward