

論文の内容の要旨

論文題目 Transformation of Industrial Cities and Sustainable Urban Development
(工業都市の変遷と持続可能な都市発展に関する研究)

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A long history of industrial city development shows the common trajectories of its growth and urban issues. More recently, the decline of industrial cities has been evident in numerous cases from advanced industrialized countries in Europe and the US. Due to the termination or outmigration of manufacturing industries in the local area, the city population decline, and physical urban decline problems occur. Moreover, the cases of industrial city decline are found from the latest top manufacturing producers such as Japan and the Republic of Korea. This globalized trend is bringing new challenges for the past and current industrial cities to overcome the structural deficit and remain resurgent during de-industrialization. Although the problem is common, it is a relatively new phenomenon for national and city government that the responses vary in its approach. Many researchers also try to capture the dynamics of industrial city transformation and vision its future with planning and development strategies. This research is likewise an attempt to find common aspects in the transformation of industrial cities by identifying the patterns of industrial city development in Japan and Korea.

This research aims to identify the common trend and issues of industrial city decline and strategies for the transition. Based on the specified objectives, the research is structured into three main parts. The theoretical review of the literature conceptualizes the industrial city specific urban transformation phases including the process of decline and transition. Based on the transformation framework, the analysis provides empirical evidence to the theories. The first part of analysis illustrates the common trend of industrial city decline at the national level in global comparative perspective. Through the process, the study identifies the relevant factor for industrial city decline and transition amongst different national and cultural context. Then, select a specific city case to examine the detailed process of transformation by overview historical development. The city-level analysis captures the complex process of city transformation by using various indicators and determined the stages with a synthesis of each critical turning point. Lastly, conducted case studies to identify the current status of decline and evaluate recent urban planning and strategies towards new transition. In this context, the research consists total six chapters.

Chapter one explains the research background, clarifies objectives and questions, and

show overall research flow and the structure of the thesis. Also clarified expected outcomes and significance. Lastly explained the terms and abbreviation often used in the study.

Chapter two introduces two major areas of study as the theoretical background. One is from industrial city discourse, and the other is urban transformation theories. By giving the limited definition of the industrial city, the chapter explains factors, process, and problems of the industrial city decline. Urban transformation theories recognize transformation as the stage of development and characterize each phase with relevant indicators. The outcome shows conceptualized transformation of industrial cities and determined phases of growth, peak, decline, and transition for post-industrial development. The study categorized the variables in sustainable development dimension economic, social, environmental, and physical aspects. Finally, explains the application of the conceptual framework in following chapters.

Chapter three identifies the common trend of industrial city decline in the US, Japan, and Korea. Based on national industrial transition theory, the chapter finds a relation between de-industrialization to population change patterns of the cities and identifies the relevant factors for decline and transition. Statistical data are collected for two major variables, manufacturing employment and population, from the 1960s to 2010 at the city level in each country. The study created typology from industrial dominance, type, structure and population size and change. The study categorizes cities into six types of industrial characteristic: Light Singular, Light Diverse, Heavy Singular, Heavy Diverse, Mixed, and High-tech. Also, seven types of population change are determined: Continued Growth, Peak, Recent Decline, Continuous Decline, Slow Down, Recovery, and Steady. Correlation and cross tabulation analysis are used to identify the relevance of industrial characteristics to population change. Trajectories of cities are shown in each country and described by comparison.

The findings show that there is a common decline of industrial cities in three countries within a different time frame, over 20 years of gap. The relevant factors of decline are industry type, population size, and location of the city. The decline in the US heavy industrial city is massive and also a few cases in Japan and Korea. Heavy industrial cities in Japan and Korea are at the Peak, or Recent decline stages that result implies the upcoming challenges for the future decline of local heavy industrial cities in Japan and Korea. The national population trends are also relevant for industrial city transition. The majority of cities in Japan having Recent Decline patterns during 1990-2010 due to national population decline and aging. The location of cities is also relevant showing that industrial city decline is broadly a regional and national problem. Moreover, in Japan and Korea, the trend of population concentration in the capital metropolitan region gives unfavorable conditions for local cities to maintain its growth in the future. The results from the three countries give empirical evidence for the common aspects of industrial city decline.

Chapter four identifies the process of industrial decline and transition with as case of Kitakyushu, Japan. The objective is to capture the complex process transformation at the city level by adapting the concept of multi-dimensional transitions. The study selects a case of Kitakyushu city as a representative case of an industrial city in Japan, and overview the timeline of historical urban development and visualizes the trajectories of changes by using both

quantitative and qualitative data. Statistical data are collected from 1963 to 2014 and utilized qualitative data such as city reports and interviews. Data and indicators are categorized in sustainable development dimension (economic, social, environmental, and physical) and specifying each turning point and synthesize to determine the stages of transformation.

As a result, the phases of Kitakyushu city are in growth, peak, decline, and transition by population and industrial development. The growth stage during 1960–1970 population peaks reaching in the 1980s. The Kitakyushu city follows the process of industrial, population, and physical decline. Industrial decline after the oil crisis during 1973–1976, the population decline from 1990, and physical deterioration started in 2000. The result also shows the relevance of social and environmental factors in each stage. The impact of industrial pollution, social security issue and suburbanization is relevant at the Decline stage. The major issue for transition identified as aging, consumption pollution, and unemployment. In the case of Kitakyushu city, the city planning and strategies are accordingly progressing with the critical urban issue. In the 1970s, the city government focused on improving environmental conditions from the pollution with a collaboration of private sectors and citizens. During from the 1980s and 1990s, physical redevelopment of the city center and brownfields started with Kitakyushu City Renaissance plan also aiming to establish advanced industries such as research and technology, an increase of commercial areas, and promote tourism. The city moves towards the environmental model city from 2008, utilizing the accumulated technology and knowledge from the historical development. Conclusively, the case of Kitakyushu city illustrates how industrial city transformation is breakdown to series of multi-dimensional transition and what issues and challenges remain for future development of industrial cities.

Chapter five analyzes the current status of industrial cities in Korea and transition strategies. The study first examines the current status of Korean industrial cities by the change of population, manufacturing industrial employment and value, and total GRDP as the indicator of the status of the city economy. Selected two cases cities in the phase of transition, Pohang City and Yeosu city, both cities are dominant local industrial center having mono- structural industries and experiencing population peak to decline. The analysis includes synthesis of multi-dimensional transition variables from Chapter four and review of urban planning and development for recent ten years. The chapter summarizes by giving a comparison of two cities and identifies the commonality and differences in development paths and transition strategies.

As a result, both cities had the issue of industrial pollution, social integration, and suburbanization or outmigration during the Growth and Peak stages. Also facing the challenges of economic restructuring, aging, and city center development for decline and transition. Due to high dependency on manufacturing industrial production, new industrial development for advanced high-tech research in Pohang city has been the key issue from the 1980s. Recent strategies also include promoting tourism as Yeosu city enforcing cultural resources after Expo in 2012.

The role of local partnership increased for the private sector and universities in Pohang city, on the other hand, Yeosu city has resident groups as the main actor of transition. City Center decline is mainly due to suburbanization in the case of Pohang city, and Yeosu city shows the outmigration to neighborhood city. The key for transition for both cities is the role of local stakeholders, government support, and regional and global network. The outcome of this study increase the awareness of decline issue in Korea and changes the growth-oriented mindset.

Finally, Chapter Six concludes with the whole summary of the research, the findings of the analysis and case studies, and makes suggestions for the past and current industrial city for its transition. The study has its contribution to identifying factors, process, and strategies for industrial city decline and transition in case of Japan and Korea. The results imply the importance of the issue of industrial city decline and preparing for the upcoming transition. The implication for current and future industrial cities is to consider long-term development to overcome the disconnection of industrialization period and increase utilization of local natural and human resources which will be the key for future sustainable development.