The Social Construction of Toilets and Identification of Sanitation Needs Using Self-Organizing Maps: the Case of Delhi Slums

47-106791 Maiko YAMAZAKI

Supervisor: Professor Masahide Horita

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1. Background

In India, 63.6% of the population overall still does not have latrines within their premises. Although there is so much pressure both from outside and inside India to achieve 100% hygiene and clean toilet coverage, the current situation in India is still behind the target.

Most of the literature focus on the bad governance. (Chapline, 1999; Sheikh, 2008) A lack of attention to the improvement of living condition in slums results in small allocation of funds (Ban et al 2011), the construction of unwanted or hard to use facilities, and maintenance problems (Burra et al., 2003). Therefore, Burra et al. (2003) suggests involving users with the process of planning, construction, and operation and maintenance to fulfill the needs and achieve the sustainable usage of toilet facilities.

2. Objectives

The objective of this study is to explore the socially constructed ideas and needs that people have for toilet by clustering people using the Self-Organizing Maps. It then analyzes some sanitation-related policies to examine whether those needs and ideas of toilets are considered by the government. It also examines the influence of the socioeconomic attributes on forming clusters.

3. Methodology

This study analyzes interview data collected from four slums in Delhi regarding toilets in a principal of discourse analysis. Instead of doing text analysis, this study first calculates word-value using the Term Frequency Inverse Document Frequency (TF-IDF) method and performing a cluster analysis with Self-Organizing Maps. It then compares the result of the cluster analysis with geographical location data and other demographic characteristics of interviewees to examine the correlation between people's needs and demographic and geographic traits. Finally, this study analyzes the city-development or toilet-related policies in India to examine the gap between what people want and what policy makers think people want.

4. Results and Discussion

i. Cluster Analysis

Most of the interviewees are clustered mainly into seven groups. Although there are some exceptional data within the groups, overall, groups are well-clustered by capturing the characteristics of each interview data.

Cluster 1
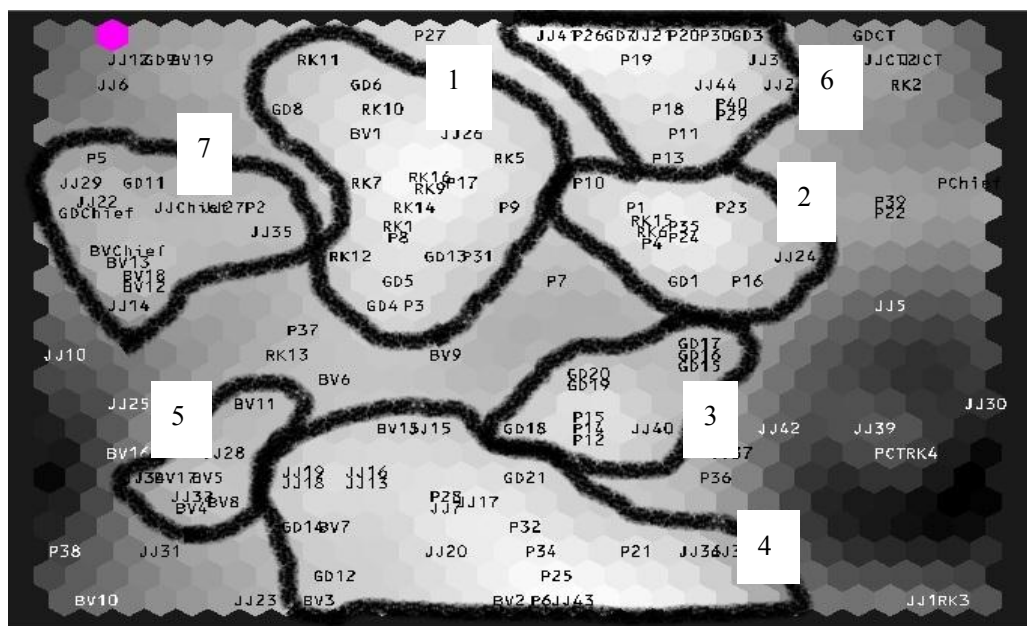
Gender and cleanliness conscious

Cluster 2

Safety conscious and unwillingness to pay

Cluster 3

Environment and time conscious

Cluster 4

Benefit oriented and space conscious

Cluster 5

Toilet owner and eager of sewer lines

Cluster 6

Indifferent and willing to pay

Cluster 7

Elitism and elimination of open defecation

ii. Needs Construction and Attributes

No significant results were found to support relationship between the social construction of toilet and needs, and attributes such as geographical positions, gender, and income.

iii. Comparison with Public Policies

Comparison analysis reveals that local needs are explicitly discussed in official documents. The only discrepancy this study found as far as Delhi slums are concerned, is that the reason people practice open defecation is not because they cannot give up old habits – as stated in the governmental document – but because the toilets available to them do not satisfy their needs (e.g., cleanliness).

5. References

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