

Service Learning Cultural - Inclusive - Design for Urban Migrants' Villages: producing Transportable Toilet

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Abstract. Adaptive - inclusive toilet design strategy was needed to respond the local unique toileting culture of Surabaya people, especially the urban migrant. The urban migrants of Surabaya live insecurely/ unsafely in the slum because of potential of Kampung eviction/ demolition. Because of the limited economic condition and anxieties about sustainable occupation of land, they constructed the temporary shelters from the recycled materials. To answer the need of migrants' sanitation, an inclusive portable toilet was produced based on toileting culture and design principles. The project involved steps such as: literature review, interview and photo documentation, socialization of healthy toileting culture, participative design workshop, and design development. The program was related to UNDK and supported by UBCHEA grant (<https://unitedboard.org/>). **Keyword:** Cultural, Toileting, Accessibility, Inclusive Design

1 Introduction

1.1 Introduction

The University Network of Digital [Local] Knowledge (UNDK) (<http://undk.asia>); a network of universities in Indonesia aiming to mainstream priority the local knowledge and equip them with digital tools & resources; is producing a mini project to explore local culture and supported by United Board of Christian Higher Education Association (UBCHEA) (<http://undk.asia/>). Toileting culture was found as interesting issue and affected the health of Surabaya people, therefore it was studied [1].¹

Urban migrant are found living in the Informal Riverside Kampung (Urban Village) of Surabaya. They are migrating from rural areas of East Java Province and work as the

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unskilled workers. Because the land value of the city of Surabaya is increasing and the urban migrants limited earnings, they do not have any more living options in the formal Residential nor the legal Kampung. Therefore, they are forced to live in the riverside slums. On the other hand, they play a very important role in the city as urban informal workers such as becak (tricycle) riders, street hawkers and train station/ market porters. This is the irony of urban migrants' phenomenon in Surabaya.

Furthermore, the urban migrants are living insecurely/ unsafely in the slum because of potential of Kampung eviction/ demolition. Because of the limited economic condition and anxieties about sustainable occupation of land, they constructed the temporary shelters from the recycled materials. It was the rationale of the transportable facilities, such as, toilets are needed for the Kampung residents.

1.2 Literature Review

Greed found the toileting as an important aspect in human live. The provision of public toilets had to be considered with issues, such as: crime and vandalism; sexuality; the environment, water conservation and sustainability; health, hygiene and medicine; women's issues, childcare, breastfeeding and sanpro disposal; disability and ageing; architecture, engineering and design; sewerage, drainage and plumbing; religion, culture and taboo. Therefore, the design should be started with social observation and later with participatory process [2].²

Meanwhile, Cummings described close relationship of the bathroom and the cross-cultural interaction, ethnographic experience, as well as cultural commensurability. In the bathroom, cultural background of the user would determine the acceptability of the toilet design [3].³

The portable toilet was prescribed by H. Factura, et al. [4]⁴ as the Terra Preta Sanitation system. Later on K. Kindstedt, adopted it for a Design of a Portable Ecological Sanitation Toilet for Disaster Relief [5].⁵ A portable toilet for disaster response was prescribed. The urine and the fecal were separated. The feces were treated with lacto-fermentation process. Further, Biochar was added them eliminating odor and changed the excreta as a soil additive. The paper actually showed possibility to create healthy and portable toilet design.

2 Methodology

Eight lecturers and three-hundreds-and-twenty-five students, from three Programs/Departments (Architecture, Visual Communication Design and English Literature), Petra Christian University were involved in the UNDK Mini Project, "Portraying the Toileting Culture of Surabaya People: People Perception and Toilet Design Diversity", in 2013

The Project goals were to find the toilet users of Surabaya in several locations (in the scope), to find and document the toileting behaviour of Surabaya people, to find types of toilets were available in Surabaya (in the Residential and Kampung Settlement, Public Toilets and Private Toilets), to produce comics or illustration for diverse healthy toileting for Surabaya, to find the design strategy to provide locally friendly toilets but also healthy and accessible,

Several products were produced in the program such as; documentation of Toileting Culture (interview, sketches, photo documentation, google-map and banner), video of Toileting Culture, theatre Performance symbolizing the Toileting Culture and design Model of Inclusive Toilet for Indonesian. With the outcome of project, a community outreach

program on healthy toileting program in several riverside villages in Surabaya in 2014-2015. And another need for portable toilet was found and designed.

The project involved steps such as: literature review, interview and photo documentation, socialization of healthy toileting culture, participative design workshop, and design development.

The Literature Review was conducted to understand the importance of toileting culture and toileting need especially in the design aspect. Actually two toilet design projects were chosen, which were the toilet in the blind school and toilet in the riverside village. The paper discussed the portable toilet design for riverside.

Toileting culture exploration was conducted by students in places, such as: the university, the high school, the undergraduate students' hostel, the blind school, the riverside village, and the mall, using visual research methods.

An initial participative toilet design workshop was conducted in collaboration with C2O Library and Ayorek! It was conducted in the small group, guided by the lecturer, followed by resource persons, students, and common people. Therefore, the workshop enriched the knowledge of inclusive design students.

The toilet design was developed by the students and lecturer, considering five principles (compressed from the seven principles of universal design and three principles of inclusive design). The design was conducted within a month. To confirm the usability, a role-play using the design was conducted by suitable students.

A healthy toileting culture campaign program was conducted in migrants' kampungs (villages) in riverside areas of Surabaya. The program was conducted utilizing the video and comic produced by the initial program. After the socialization program another workshop was conducted to create a portable toilet design. The portable design responded to the context of urban's migrant context.

3 Results and Discussion

The Kampung Bratang Baru should be a clearest example of the informal migrant Kampung. The Kampung was created by the informal land lords in 2001 by reclaiming the riverside areas. The area was initially allocated for urban scavengers (pemulung), but later was converted in 2002 into the urban migrants' homes, because of the nature of temporary living of scavengers. The area was built with temporary and recycled materials such as wood, plywood, zinc, asbestos etc.

Because of anxiety by the eviction of the adjacent Riverside Kampung, Residents of Kampung Bratang Baru joined the JERIT organization in 2002. JERIT is the name of the Non-Government Organisation assisting four groups such as PPTS (Paguyuban Pembela Tanah Strenkali or Riverside Community Rights Defenders), PKL (the street vendors), PSK (the sex workers) and Anak Gelandangan (the homeless street children). PPTS broke away from JERIT in February 2005 to become PWSS (Paguyuban Warga Strenkali Surabaya or Riverside Kampung Residents' Organisation).

But because of some riverside demolition incidents, residents of Kampung Bratang Baru broke away from JERIT and joined the PWSS for stronger political support. After joining the PWSS, they started to reorganize their Kampung, adopting the concept of PWSS of "Jogo Kali" ("Taking Care of the River" Concept). The concept is implemented with rebuilding/ renovating their homes facing the river, while improving the Kampung's social – economical – environmental condition. Although the people were slowly renovating their houses, the Kampung Bratang Baru faced two partial demolitions during 2005-2006. Fortunately, they succeeded to stop the demolition by PWSS's rally and legal advocacy to the government. And they started rebuilding the demolished part of the Kampung. They showed great resistance of the urban migrants.

Finally in 2007, they accepted their partial legal protection from the Peraturan Daerah no 9 tahun 2007 tentang Penataan Pemukiman di Sempadan Kali Surabaya dan Kali Wonokromo (Provincial Regulation number 2007, on the Riverside Settlement Renovation in Surabaya's River and Wonokromo's River Setback). The Act number of regulation actually allowed the Riverside Kampung of Surabaya for limited settlements. The people of Riverside Kampung could have a right to live there, taking up to take care of the river and not to construct more homes. Furthermore, they have to prepare open public spaces and green spaces both. With the partial legal recognition, the people of Kampung Bratang Baru has continued to renovate their Kampung especially its infrastructures.

The need of bathing – washing – toileting facility is the main priority of residents of Kampung Bratang Baru. They usually used river for bathing, washing and toileting. This practice actually was driven because of lack of clean water supply, limited economic capacity as well as their original rural toileting behavior. The UNDK Petra (University Network of Digital Knowledge of Petra University) collaborated with PWSS in 2013 to document the toileting culture in Riverside Kampung including the Kampung Bratang Baru. [1] And a portable toilet design was proposed to answer for the migrating pattern of the people as well as the limited economic condition of them. Design of toilet was produced during the Healthy Toileting Campaign in several Riverside Kampung, including Kampung Bratang Baru. The toilet was reviewed and discussed in the meeting with lecturers and students from Petra University and residents of Kampung Bratang Baru, in June 2014.



Fig. 1 and Fig. 2 The Healthy Toileting Campaign in Riverside Villages



Fig. 3 The Discussion of Portable Toilet Design in Kampung Bratang Baru, Jagir.

The portable toilet design in Kampung Bratang Baru is proposed using the recycled steel scaffolding that commonly found in the urban area. The scaffolding is covered with cement-based board – framed with wood that could resist the water splash of the bathing and washing activities. The toilet was also provided from recycled toilet. Meanwhile, a clean water tank is going to be proposed for water provision, supplied by clean water pipeline and rainwater harvesting. And the bio septic tank (from fiber resin) is going to be provided for processing the feces and dirty water.

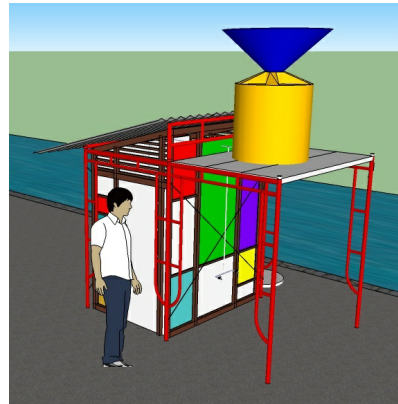
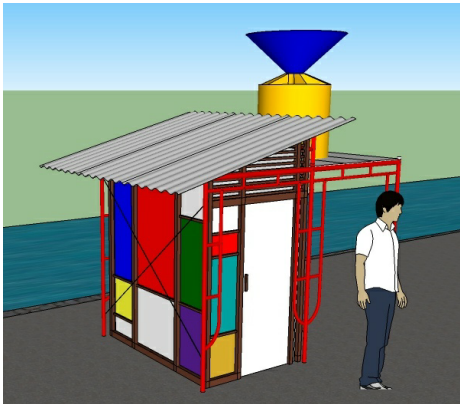


Fig. 4 and Fig. 5 The Portable Toilet Design for Urban's Migrants' Kampung



Fig. 6 The Sectional-Perspective of The Portable Toilet Design for Urban's Migrants' Kampung

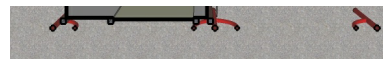


Fig. 7 The Plan of the Portable Toilet Design for Urban's Migrants' Kampung

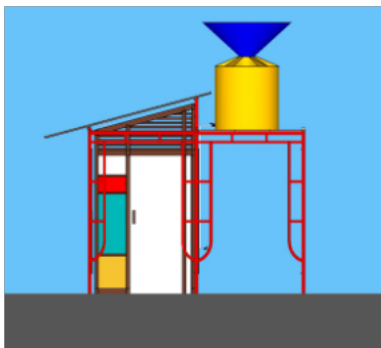


Fig. 8 The Front Elevation Portable Toilet Design for Urban's Migrants' Kampung

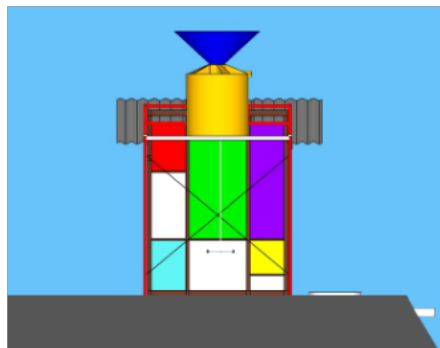


Fig. 9 The Side Elevation Portable Toilet Design for Urban's Migrants' Kampung

The design was proposed to the Private Company to support. Unfortunately, because of limited funding and illegal land status, the project was cancelled to continue. The Bratang Baru Village also was later on evicted by the Government in 2016 because of aesthetic reason.

4 Conclusion

The future vision of Kampung Bratang Baru is to create a healthier Riverside Kampung, supported by water-related tourism, creative small-scale recycling industry and creative art performances. The migrants of Kampung Bratang Baru would like to improve their living condition especially the toilets and would like to have a full legal protection for their lands. They also hope that urban migrants were taken care and treated as a normal human being, not to be afraid anymore by demolitions of Kampung. As well as, they hope to the city could provide creative facilities to support their livelihoods such as traditional markets, informal open spaces, tricycle and bicycle pathways, etc.

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