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Redesigning the traditional food kiosk based on local knowledge, case study: Siwalankerto District

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Abstract

Siwalankerto Sub-District in Surabaya. Siwalankerto was developed rapidly, influenced by educational facilities development. This further created a demand for sustainable food markets/ food kiosk. On the other hand, the unregulated development of traditional food hawkers along the Siwalankerto road existed. Therefore, Architecture Program Study, Petra University proposed a redesigning strategy for the food kiosks in Siwalankerto Sub-district. The strategy not only would provide healthy-affordable foods for all Siwalankerto's residents, but also would generate income for residents with entrepreneurship and culinary skills.

The literatures reviews on sustainable neighborhood, commercial provision, food production and inclusive design were conducted. Furthermore, observations and interviews were conducted to meatball-selling restaurant and food hawker. Secondly, the locational analysis was conducted to determine possible food kioks. Additionally, the participatory design was conducted based on inclusive design principles.

The seven (7) food kiosk would be proposed for Siwalankerto. The designs would be developed from a typology of food kiosk design (3m-by-3m module). The food kiosk was designed considering the person with disability, such as: wheel chair users, crutch users and persons with vision disability. On the other hand, the layout were designed with proper kitchen and accessible toilet design. Lastly, the culture exploration could also enriched the functional design such as the food kiosk.

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1. Introduction

Siwalankerto was a Sub-District in Surabaya. Siwalankerto was developed rapidly, influenced by internal activities such as: Petra Christian University and St. Carolus Catholic Secondary School. It was also affected by surrounding external activities, such as development of public and governmental, commercial and services buildings in Ahmad Yani Corridor and Jemur Andayani-Kendangsari Corridor. Lastly, it received impact from the development of Surabaya Industrial Estate in Rungkut (SIER). The locational analysis, zoning analysis and commercial – educational facilities survey were conducted by Poerbantaoe (2008) . All those activities created the rapid growth of settlements as shown in Table 1.

The educational facilities development and rapid population growth in the Siwalankerto District created a demand for sustainable food markets/ food kiosk. On the other hand, the limited commercial facilities caused unregulated development of trading facilities such as: traditional food hawkers along the Siwalankerto road and other small roads. Because of rising number of food hawkers in, Architecture Program Study, Petra University proposed a redesigning strategy for the food kiosks in Siwalankerto Sub-district. The strategy not only would provide healthy-affordable foods for all Siwalankerto's residents, but also would generate income for residents with entrepreneurship and culinary skills.

Table 1 The Population Growth of Siwalankerto Sub-district and Surrounding Areas

Sub-District	Area (Ha)	Population Number (Persons)					Population Growth (Persons/ Year)	Percentage of Annual Population Growth (%)
		2004	2005	2006	2007	2008		
Kutisari	53.72	4885	4973	5054	5139	5224	85	1.66
Jemur Wonosari	26.81	3272	3273	3333	3362	3378	26	0.79
Siwalankerto	175.08	14712	15039	15047	15086	16011	325	2.09
Dukuh Menanggal	83.09	4372	4388	4424	4431	4451	20	0.44

Source: Siwalankerto Subdistrict Data quoted in Poerbantaoe (2008).

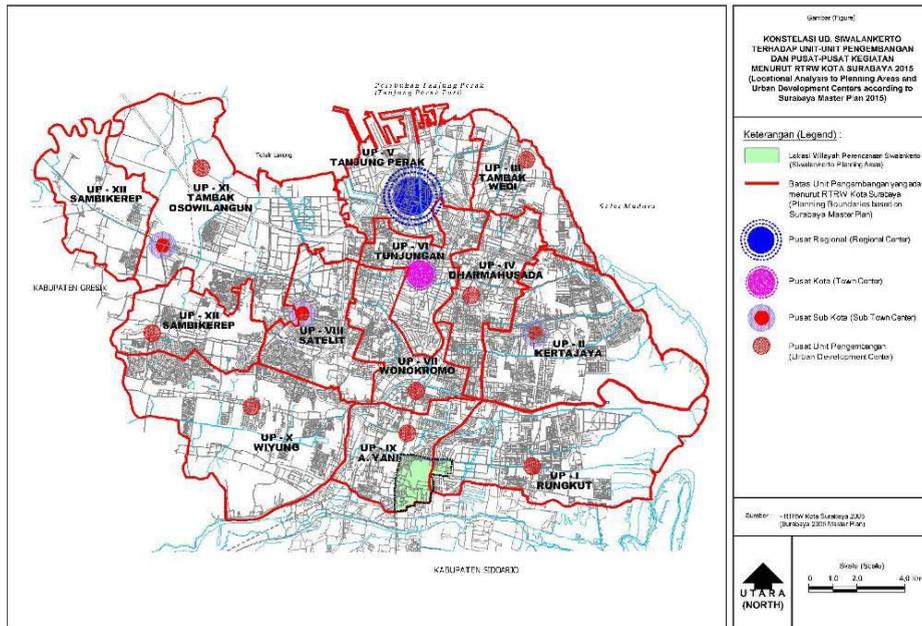


Fig. 1 The Context of Siwalankerto in Surabaya (Sources: Surabaya Master Plan 2005, quoted in Poerbantaoe, 2008).

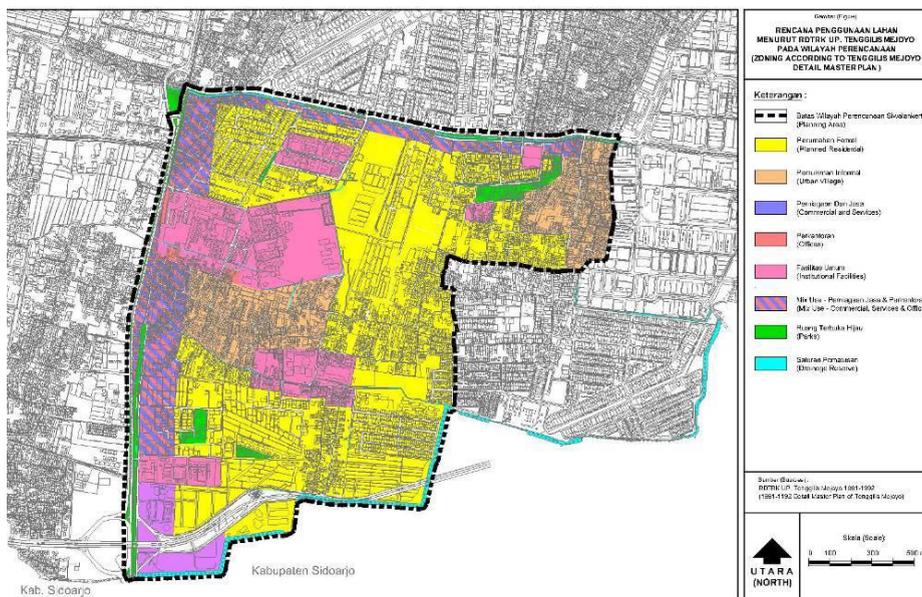


Fig. 2 The Detail Master Plan of Tenggilis Mejoyo 1991 – 1992 (including the Siwalankerto District) (Source: 1991-1992 Tenggilis Mejoyo Detail Master Plan, quoted in Poerbantaoe, 2008).

Meanwhile, further literature reviews [Le Corbusier (1973), Calthorpe (2004) in Watson et.al. (2004), Bhatt, & Rybczynski (2004) in Watson et.al. (2004), Jacobs, (1961), Garvin, (2002)] were conducted to prescribe the feasible food kiosk revitalization strategy.

Le Corbusier, (1973) stated the four functions of urban development such as inhabiting, working, recreation (in leisure time), and circulation. So, food kiosk was so important because of supporting the inhabiting, working and also recreation.

Ideally the Transit Oriented Development should be adopted in the sustainable sub-district development such as Siwalankerto. Calthorpe, (2004), in Watson, et al. ed). (2004) recommended The Transit-Oriented Development (TOD) concept for the sustainable areas. The TOD was proposed with a moderate and high-density housing, equipped with public buildings, workplaces, retail and services. The development was concentrated in mixed-use developments at strategic points along the regional transit system, based on several principles, like:

- organize growth on a regional level to be compact and transit supportive.
- place commercial, housing, jobs, parks, and civic uses within walking distance of transit stops.
- create pedestrian-friendly street networks that directly connect local destinations.
- provide a mix of housing types, densities, and costs.
- preserve sensitive habitat, riparian zones, and high quality open space.
- make public spaces the focus of building orientation and neighborhood activity.
- encourage infill and redevelopment along transit corridors within existing neighborhoods.

On the other hand, Siwalankerto had been developed informally such as described by Bhatt, & Rybczynski, (2004), in Watson, et.al., (ed). (2004). Bhatt, & Rybczynski explained the informal development process in the developing countries. The process was started with provision of “sites and services”, locating small land plots (built areas) along the roads (corridor development). On the other hand, many activities could be found in the built areas such as: house extensions, trees, access streets, workplaces, public structures, small shops and vehicles.

Workplaces according Bhatt & Rybczynski were easily found in the squatter settlements. The term “informal sector” described this phenomenon. The urban poor often provided self-built inexpensive, appropriate shelter, and also created their own economic activities. Some activities were, construction materials productions, cottage industries, etc. These informal workplaces were characterized by simple hand tools and primitive, without water nor electricity. As a result, they were mobile, movable in a fixed enclosure.

Bhatt & Rybczynski also revealed the presence of the small shops in the informal settlements, in addition to formal markets or public shopping streets. They were extremely small-sized, exclusive for local needs, and mixed in the living areas. The shops were often found next to streets with the exposures to passersby such as: along main streets, around squares and open spaces, at street corners, and least desirably, along smaller streets. And they were very vital for income generations, and goods distributors of local resources. The tea-shops were also found as the neighborhood meeting places and informal social centers.

Jacobs (1961) also agreed to generate sustainable district with diversity. The four principles suggested were:

1. The district, and its parts should serve more than two functions. This strategy should ensure the many visitors on different schedules, for different purposes, but able to use many common facilities.
2. Most blocks must be shorter and facilitating corners development.
3. The district must consist of mixed (in age and condition) buildings that vary in age and condition.
4. There must be a sufficient residential density.

An important realistic planning approach was prescribed by Garvin, (2002). Garvin recommended planning process to deal with public action and the private market reaction. Planners should collaborate civic leaders, interest groups, community organizations, property owners, developers, bankers, lawyers, architects, engineers, elected and appointed public officials. Therefore, planners must concentrate on increasing the chances that all parties agenda to be successful.

Food hawker design should be design with consideration of sustainable feeding strategy, food production, food processing and consumption. Furthermore, the food production consumption would affect also the harmonious relationship ecosystems and human cultures (Susanto & Suparlan, 1989 and Afifah 2005).

Lastly, Inclusive Design were defined as the design of products and / or services that can be accessed and used by as many people as possible. The process should be applied with a holistic approach and adaptive enough (<http://www-edc.eng.cam.ac.uk/betterdesign/>). And the design should facilitate the inclusion of each user with a wide range of social backgrounds - economic in Surabaya. The seven principles were (<http://www.universaldesign.ie/exploreampdiscover/the7principles/>) were:

1. Equitable Use
2. Flexibility in use
3. Simple and Intuitive Use
4. Perceptible Information
5. Tolerance for Error
6. Low Physical Effort
7. Size and Space for Approach and Use

All the literature reviews above actually supported the proper informal design with street-food-hawker design in street corridors of Siwalankerto.

2. Methodes

The literatures reviews on sustainable neighborhood, commercial provision, food production and inclusive design were conducted. Furthermore, observations and interviews were conducted to meatball-selling restaurant and food hawker. They were Dewandaru restaurant and the Mr Joko’s meatball stall in Siwalankerto. Further, the locational analysis was conducted to determine possible legal but strategic location. Lastly, the participatory design was conducted based on inclusive design principles.

3. Result and Discussions

The analysis of educational facilities and markets showed the potential locations of food-hawker center in Siwalankerto as described below:

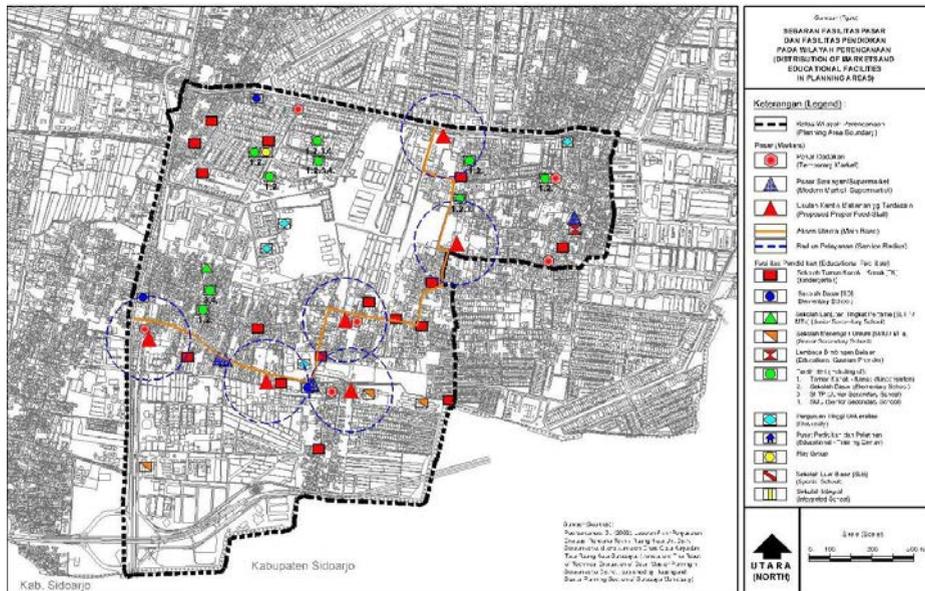


Fig. 3 The Analysis of Commercial and Educational Facilities in Siwalankerto in 2008. And seven (7) proposed food kiosks was proposed by Tanuwidjaja et.al. based on the analysis (Source: Poerbantano, 2008, modified by Tanuwidjaja in 2015).

The seven (7) food kiosk would be proposed for Siwalankerto. The designs would be developed from a typology of food kiosk design. The 3m-by-3m modular of kiosk was selected to achieve affordable and low-cost building structure. The structure of the module was supported by concrete-rigid-frame. Furthermore, the food kiosk was designed considering the person with disability, such as: wheel chair users, crutch users and persons with vision disability. On the other hand, the layout were designed with proper kitchen and accessible toilet design. Explanations of the food kiosk design were in Figure 4 - Figure 7 below.

A ramp with level of 1:12 was provided to facilitate the wheel-chair users accessing the food kiosk. The ramp was also equipped with 100-cm-height-steel-railing. The railing would also assist persons with vision disability to enter the place. On the other hand, crutch users and other walking users were facilitated with stairs (with 30 cm width and 15 cm height). The stairs were widened to cater the crutch users. These provision were to fulfil the first and second principles of inclusive design (the equitable use and flexibility in use).

The guiding path was provided on the main corridor to serve the persons with vision disability. The guiding path yellow colour was selected also to facilitate the low vision persons. This strategy actually fulfilled the perceptible information principle in the inclusive design principles.

The simple and intuitive principle was achieved with simple layout as well as application of guiding path. The 3m-by-3m grid could be multiplied or extended to the back of sites, if empty lands existed. The layout should be kept simple in order to facilitate users' wayfinding also the affordable design. Simplicity also was achieved by brick and con-wood application. The traditional atmosphere was also to be achieved with this prescription.

The accessible toilet (1.5m by 2m size) was also provided to fulfil the equitable use and flexibility in use principles. The toilet was furnished with anti-slip tiles and railings. These features were provided to satisfy the tolerance for error and low physical effort.

The size and space for approach and use principle also was achieved partially by provision of 100 cm space in the dining areas. Meanwhile, some areas might not be approachable by wheelchair users because of limited economical reasoning. This actually showed that accessibility aspect was sometime against the affordability of the design. But still some 40% of the dining areas could be accessed by wheelchair users.

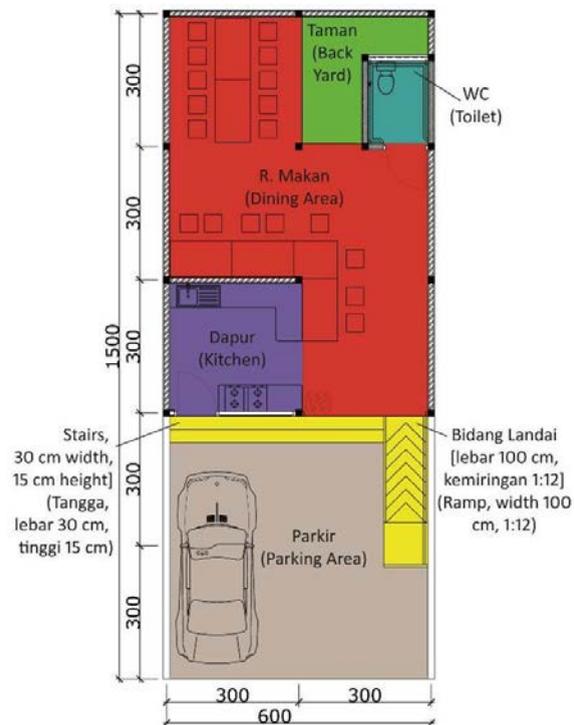


Fig. 4 The Food Kiosk Plan (Source: Tanuwidjaja, et.al. in 2015)



Fig. 5 The Front Elevation of Food Kiosk (Source: Tanuwidjaja, et.al. in 2015).



Fig. 6 The Perspective of Kitchen and Dining Area of Food Kiosk (Source: Tanuwidjaja, et.al. in 2015)

4. Conclusions

The affordable as well as accessible design of food kiosk could still be achieved with sacrificing some area accessibility. Meanwhile, the culture exploration could also enriched the functional design such as the food kiosk. Unfortunately, further research of client perception on the design should be done. This would ensure the sustainability of the food kiosk as well as sustainable food productions – consumptions in developing areas such as Siwalankerto.

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References

Books:

- Afifah, C.A.N. (2005). Kebiasaan Makan Onggok Singkong sebagai Makanan Pokok (English Translation: The Behavior of Eating Tapioca Stick as the Main Staple)
- Bhatt, V., Rybczynski, W., (2004), How the other half builds, in Watson, D., Plattus, A., Shibley, R., (ed). (2004), Time-Saver Standards for Urban Design, The McGraw-Hill Companies. Downloaded from Digital Engineering Library @ McGraw-Hill (www.digitalengineeringlibrary.com).
- Calthorpe, P., (2004), The Regional City, in Watson, D., Plattus, A., Shibley, R., (ed). (2004), Time-Saver Standards for Urban Design, The McGraw-Hill Companies. Downloaded from Digital Engineering Library @ McGraw-Hill (www.digitalengineeringlibrary.com).
- Garvin, A., (2002), The American City: What Works, What Doesn't, McGraw-Hill, New York.
- Jacobs, J. (1961). The Death and Life of Great American Cities. New York: Random House.
- Le Corbusier, (1973), The Athens Charter, Grossman Publishers, New York.
- Poerbantanoë, B., (2008), Laporan Akhir Penyusunan Evaluasi Rencana Teknik Ruang Kota Unit Distrik Siwalankerto, diterbitkan oleh Dinas Cipta Karya dan Tata Ruang Kota Surabaya. ((English Translation: Final Report of Technical Evaluation of Detail Master Planning in Siwalankerto District, published by Housing and Spatial Planning Section of Surabaya Municipality)
- Susanto, D. & Suparlan, P. (1989). Keanekaragaman Makanan Pokok di Indonesia dan Ketahanan Sosial Budaya, dalam Jurnal Widyakarya Pangan dan Gizi. LIPI, Jakarta. (English Translation: The Staples' Diversity in Indonesia and Social-Cultural Susceptive in Widyakarya Journal, LIPI, Jakarta).

Website:

- <http://www-edc.eng.cam.ac.uk/betterdesign/>
- <http://www.universaldesign.ie/explore&discover/the7principles>
- http://www.ncsu.edu/ncsu/design/cud/pubs_p/docs/poster.pdf