The innovative landscape design on the old dense area based on community participation

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Abstract. *Kembang Jepun* area on the east side of the *Kali Mas* extends to the edge of the river. Along with the development of the city, *Kembang Jepun* denser, and these districts are facing some issues with limited landscape elements such as land and water elements, lacking in vegetation element in the settlement and services area, and non-optimal streetscape arrangement in the historic town and make the old city less attractive. In the other side, this historic section of the city has the great potential to be developed in order to support the economic developments of the city. Large Scale Intervention is the method of collaboration in developing area which possesses the meaning in the sustainable urban development. So community involvement is an important key factor in the design process and implementation as well as the type of participation and the technique of the process. The expected result of this paper is how to develop the innovative landscape design in the developing old dense area of *Kembang Jepun* based on community participation**.**

1. Introduction

1.1. Background

As a part old town area, *Kembang Jepun* has an important role in economic activities in Surabaya. The economic activity began to flourish in the 1870s and still is developing to this day. This economic area was supported by the main mode of transportation at that time, namely the river transportation. The *Kalimas* River was the main river channel used for the effective distribution of goods. With the development of *Kembang Jepun* for almost 150 years, it undergo a lot of changes, especially on land use. *Kembang Jepun* today is used for commercial and services area, housing, place of worship, and offices [1]. The commercial and services area forms a linear pattern following the road network and a concentric pattern around *Kembang Jepun* Street as shown in figure 1.

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Figure 1. Streets in Kembang Jepun area.

There are several old buildings located in the *Kembang Jepun* and other street corridors around the area. With the increasingly crowded commercial and service area, the green open spaces and landscape features needed by local residents decreased. The *Kembang Jepun* Area therefore is facing some issues especially in the scope of limited urban landscape elements namely land, water element in landscaping as well as unoptimal streetscape arrangement. In addition, *Kembang Jepun* area also experienced a rapid development in building density resulting in some roads not to have adequate pedestrian way as an environmentally friendly access in the densely populated area.

In urbanized areas, human activities cause changes either directly or indirectly to the physical condition of the city. Urbanization has been shown to affect condition of the vegetations and the elevation of the surface of the soil. An adequate urban infrastructure, particularly waste water and artificial drainage systems, also cause significant change mechanisms through their effects on water-borne nutrition. When the intensity of human land use reaches a certain point, the effects will directly affect the quality of air and water needed by humans in urban environments (Hope et al., 2003)[2]. In research conducted by Peter Schatnz, it is mentioned that green features help humans to perform outdoor activities, such as walking or cycling. Green features such as trees and urban rooftops also reduce urban heat island effect [3]. It is also stated by Buyadi (2014) that small green open spaces such as cluster tree or trees along the road in the neighborhood or residential areas might help to modify the microclimate by providing shading and by evaporation and transpiration process [4].

Sustainable urban development is the result of a process and people participation is a key factor in the sustainable development and important aspect for the process of design and implementation, which is the type and techniques of participation should be considered [5]. In other hand sustainable landscapes are responsive to the environment, re-generative and can actively contribute to the development of healthy communities and create value through the economic, social and environmental benefits such as sequester carbon, clean the air and water, increase energy efficiency and restore habitats. Sustainable landscape projects could range from large-scale housing communities and master plans to small-scale private yards, parking lot, and green streets. Landscape architects, planners, architects, engineers, horticulturalists, and others work in interdisciplinary teams are together in creating innovative sustainable models, and landscape architecture is described as the art and science of creating and conserving outdoor environments by respecting to cultural values and ecological

sustainability. To effectively manage landscapes, it requires adaptability and resilience, with purpose on creating landscape condition that can sustain multiple ecosystem [6].

Memluk (2012) pointed out some essential principles of urban landscape design as such: adaptability and sustainability, coherence and legibility, equity and accessibility, and community involvement [7]. Green space around blocks and houses, as weil as neglected spaces in the city, help to improve the physical climate because vegetation can help to increase humidity, lower temperatures and introduce more pleasant odors' to the city; capture dust and gases from polluted air through deposition and capture by the foliage of plants and trees, and soils, also help break wind and intercept solar radiation, creating shadow and protected places, also appropriating the climate elements as a system with the nature of the edible media is must. Agricultural activities in cities can indirectly improve urban water management, because green spaces with permeable land surfaces allow rainwater and runoffto drain through the soil Landslides. The need for water sewers and drainage can be minimized when enough green space is available. Amin (2012) stated that sustainable landscape should emphasize more on critical issues such as aesthetic, functional and environmental [8]. Aesthetically, sustainable landscape should be visually appealing although it may looks more natural and less polished. The landscape also has to meet healthy and safety criteria and functional aspects (cost effectiveness and maintainability). Environmental issue focuses on increasing biodiversity, enhancing micro - climate and maximizing reuse of resources.

Vertical Green is a descriptive term used to refer to all vegetated wall surfaces. There are several descriptions of the surface of vegetated walls: Green facades and green walls, depend on the classification of their growth method: by using "support" system, where multiple structures help to support the plants and "carrier" where a security system is mounted on a vertical surface. Support systems are usually referred to as "green facades" and carriers are called "green walls" [9].

The green facade is a pattern of vegetation planting in a vertical shape on the vertical surface of the building facade. The planting pattern uses growing media to create a vegetation cover on the facade, They are also known as 'living wall', 'bio wall' or 'vertical garden'. Green facades can increase the city's aesthetic value, improve the health and welfare of the people, reduce wind speed, reduce rainwater flow, modulate ambient temperature, and also reduce energy use and carbon sequestration [10].

Green Facades is a container system where a plant grows propagating over a support structure with a free standing application system or mounted on an existing facade. There are a variety of modular green facade planting systems as shown in figure 2 to facilitate plant growth irrespective of conventional soil surface (horizontal soil), allowing for more forms of plant variation on building facades. The selection of application system affect the success of green facade with maximum application height is 24m. There are some materials that are used, namely: trellis, spacer, steel cable, and additional equipment, with application system pattern are: direct, indirect, planter box, foam and felt layers [11].

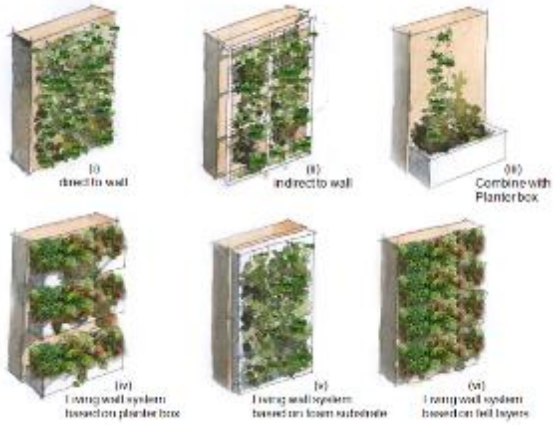


Figure 2. Typical of vertical greenery application.

The Biophilic Urban Neighborhoods give some key attributes (Beatly T, 2011) such as connected streets and pathways throughout, abundant green areas to explore, play in and gather in, a remnant creek or stream to visit, abundant nature throughout such as sidewalk gardens, yard farm,backyard woodlots, edible trees and bushes, a neighborhoodnature center as well as a neighborhood meandering pathways connecting major destination [12]. Specifically the role of the sustainable urban landscapes elements in dense old city in Surabaya such as *Kembang Jepun* is not only to support the environment but also to develop healthy communities and the equity of economic, social and, environmental aspects.

1.2. Precedents

1.2.1. Main roads. The main road concept uses several kinds of pathways that utilize wide length of the track. This utilization is used to distinguish transportation modes that pass through the main road. Moreover, the addition of landscape elements lower the air temperature and utilize designs that enliven the main road at night.

1.2.2. Business area. The business area utilize the concept of maximizing the pedestrian way in front of the business building and slow the pace of motorize vehicles as shown in figure 3. Good pedestrian way helps to attract more visitors and pedestrians around the shops.



Figure 3. Business area.
Source: Pinterest (2017)

1.2.3 Riverside area .Riverside concepts used to make the riverside into a livable and green space are the addition of applied landscape elements to add green paths and create a new open spaces that can be used as social space and recreational facilities with the natural concept as shown in figure 4.



Figure 4. Riverside.
Source: Pinterest (2017)

1.2.4. Residential/settlement area. In a dense residential building, the concept is utilization of vertical garden that is applied to the walls of the house as shown in figure 5. Vertical garden helps to improve the micro-climate and visual quality in the dense are where open spaces for greenery are limited.



Figure 5. Residential/settlement area.
Source: Pinterest (2017)

2. Method

This research applies explorative and descriptive qualitative method with consideration of people participation in deciding the concept design. Primary data have been collected through observation and focus group discussion (FGD) among stakeholders. Stakeholders participating in the FGD are coming from different background yet similar in topic of interest. They are including government, expert, academia, students and also local inhabitants. FGD is organized twice, the first FGD aims to gather information and issue from people's perception, and the second FGD disseminates the recommendation by authors. FGD as public meetings is an urban planning and design tool by involving public in the decision-making process and it can be used to disseminate information.

Research process comprises the following stages: assimilation, general study, development, and communication. At the first stage, researchers collect the information regarding the dense old district in Surabaya city and its phenomenon of urban landscape. Authors decided the most suitable district as area of research that fulfills the criteria. The second stage is conducted by investigating the potentials and problems in the research area, and searching the innovative solution from case studies. To achieve the research objective, investigation of potentials-issues is divided in three dimensions of sustainability: environmental, social and economic. The third stage is to develop a design concept from authors' point of view. Since the research aims to obtain innovative planning, the role of authors as key person is highly significant. The last stage is to hold FGD and disseminate the concept of innovative planning in before-after presentation form. At this final stage, advices and recommendations from various stakeholders are the valuable input for the research. The major interest of the research is to combine between authors' idea and community's perception in creating sustainable urban landscape in Surabaya old district.

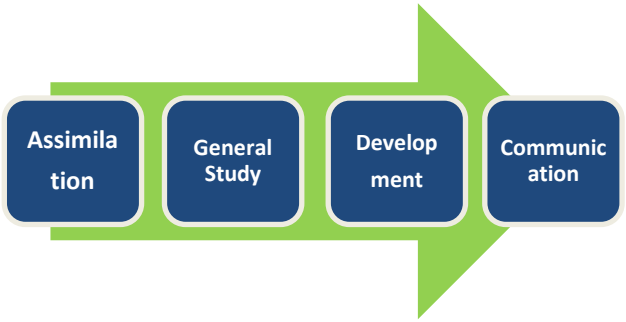
The city of Surabaya served as the center of Java's plantation economy, industry and was supported by its natural harbor. The city was growing from Jembatan Merah in the north to Tunjungan, Darmo and Wonokromo in the south. Early settlement appeared in major rivers such as Kalimas, Pegirian and Jagir. From many old districts observed, the determined area of research is the northern part of Bongkaran sub-district in the northern Surabaya.

Involving the community in a process design is a very important thing to do considering the community is the subject and object of the undertaken design process. Community involvement consisting of several stakeholders is chosen based on the expertise they have. Stakeholder engagement is conducted using Focus Group Discussion (FGD). FGDs are conducted by gathering the stakeholders in one event, and each of them give their opinion to the issue based on their knowledge. FGD groups are generally conducted with small groups of four to twelve selected participants who represents particular communities and community interest. In a facilitated session that last from hours to around two days, ideas are presented to the participants, after which professional facilitators will ask for people's reactions to the proposals that have been shown to them (The local agenda 21 planning guide, 1996)[13]. The advantage of FGD is by providing an open discussion among the participants, it will results in generation of new and useful ideas that can be very helpful for decision-making. FGD is not static since the moderator can bring changes to facilitate the discussion process better. This dynamism

will allow better results in information derived by the group. Other expressions (not the verbal form) such as stimulated activities and gestures can offer the researchers many useful insights.

The central of the study of urban design is man, his values, aspirations and power or ability to achieve them. Therefore the method of this research based of the people in solving the problem of dense old city namely people's spiritual and physical culture.

According to the RIBA practice and management handbook divides the design process into four phases as shown in figure 6 (Moughtin, 1999).



Phase 1 Assimilation: the accumulation of general information and information specially related to the problem,
Phase 2 General Study: the investigation of the nature of the problem: the investigation of possible solutions.
Phase 3 Development: the development of one or more solutions and
Phase 4 Communication: the communication of the chosen solution/s to the client

Figure 6. Urban design process (based on RIBA practice and Management Handbook in Moughtin, 1999).

In developing urban area, the participation of stakeholders such as landscape architects, planners, architects, engineers, horticulturalists, and others work in interdisciplinary teams are very important. One of the tools in urban design and planning is Focus Group Discussion (FGD) by involving public in the decision-making process and it can be used to disseminate information. Focus Group Discussion is done by gathering the different local stakeholders in one event, and each of them give their opinion to the issue based on their knowledge. FGD groups are generally conducted with small groups of four to twelve selected participants who represents particular communities and community interest. Based on Nagle, B., Williams, N.(2013) the advantage of Focus Group Discussion is not only finding out about an important issue from the target population, asking members of the target population what types of activities they would enjoy (program development), collecting in-depth data on specific research questions (systematic research) and but also collecting in-depth data on specific evaluation questions to determine program success or progress (evaluation) [14].

This research applies explorative and descriptive qualitative method with consideration of people participation in deciding the developing the design. Primary data have been collected through observation and focus group discussion (FGD) among stakeholders as shown in figure 7. Stakeholders participating in the FGD are coming from different background yet similar in topic of interest. They are including government, expert, academia, students and also local inhabitants. FGD is organized twice, the first FGD aims to gather information and issue from people's perception, and the second FGD disseminates the recommendation by authors. The expected result of this research is to determine the design criteria and developed the concept of designs based on people participation



Figure 7. The FGD was held to gather people's participation.

3. Result and Discussion

3.1. Generating design criteria

This research applies explorative and descriptive qualitative method with consideration of people participation in deciding the developing the design. Focus Group Discussion (FGD) as community involvement in design process created an opportunity to share innovative ideas between authors, city experts, academia, mass and social media, and local inhabitants. Primary data have been collected through observation and focus group discussion (FGD) among stakeholders, which are coming from different background yet similar in topic of interest. FGD is organized twice, the first aims to gather information and issue from people's perception, and the second disseminates the recommendation by authors. The innovative planning come from the people's ideas who were at the FGD. During the FGD, authors also presented the draft of visual rendering of some location to provoke people's ideas. Innovative planning as recommendation is also needed to be adjusted with design a criterion which is mentioned on theoretical review. Results of FGD as accumulation of general problems is the identification of potentials and problems in the area of Kembang Jepun as shown in table 1.

Table 1. Problems and potentials based on community involvement (FGD).

Aspect of sustainability	Problems	Potentials
Environmental	a) Lack of lighting making people feel uncomfortable and unsafe b) Lack of open spaces are built in almost in all areas as well as dirty environment	a) The riverbanks as the edge of the area can be strengthen and developed with a theme that matches the characteristics of the historical area
Social	c) Lack of lively social communities and other activities to liven up the area d) The once residential area has been transformed into shops and warehouses causing the decrease of local residents and partly responsible for *Kembang Jepun's* deserted condition at night. e) Lack of government's role in controlling, providing direction, and disseminating related improvement program to the people leads to the misuse of	b) The plan of the neighborhood built since the Dutch era is already good and never flooded, so that it can be maintained c) *Kembang Jepun* has a unique character that can not be found anywhere else, such as unique buildings, beautiful view of the riverbank, located near Kampung Arab and Kampung Cina, and has a rich history d) Parking area for the shops near *kampung* can be used as a public open space and entertainment venues in the holidays

	open spaces as illegal settlement area f) Lack of traffic safety, particularly at night	e) Young adults' (especially cyclists) activity around *Kembang Jepun* can be found at night, most likely triggered by the existence of food stalls
Economic	a) The riverbank area that had been cleaned from illegal settlements is now misused as parking space for trucks b) Old buildings' status of ownership is unclear and difficult to trace c) There are many legal issues related to cultural heritage status of old buildings d) There are some abandoned land and stalled building development e) Traffic jam happens at certain time, notably after work hours f) There have been several attempts to revive Kembang Jepun, but failed due to several factors, such as big amount of illegal charges for parking, most of the sellers are not local resident, g) The image of Kembang Jepun as a Chinese district affects visitors' impression of the area, causing them to be reluctant to visit.	a) Old buildings can potentially attract tourists (local and foreign) because of its unique shape and rich history b) Kembang Jepun can be developed not only as a trade and service but also a tourism area to increase the local and government's revenues while also increasing the value of the area c) Kalimas can be developed into a water tourism spot and some points along the Kalimas in Kembang Jepun have the potential to be be a terminal and the center of the craft / gift / specialties

The problems and potentials of the area can be divided into three dimensions: environmental, social, and economic. The environmental problems are related to the lack of quality of the environmental aspects such as greenery, streetscape, storm water management, and the misuse of riverbank area. The environmental potentials are mainly limited to the existence of old buildings, trees, and the river as landscape assets. Socially, the area has a high value, unique identity and character that can be strengthened. Social problems arise around the lack of social space and streetscape elements and therefore obstructing social interactions. Economic problems concern the cost to maintain old buildings and the limited land area while the potentials are the fact that the research area is the center of economic activity and it has big opportunity to take advantage of the existing landscape elements and buildings.

The problems of the are mainly related to the poor condition of the environment and lack of open spaces that leads to lack of social or community activities to liven up the area. Numbers of visitors are few and people are reluctant to visit the area. The area of research is also said to be particularly grim and quiet during the night, making people feel uncomfortable and unsafe. The misuse of remaining open spaces such as the riverbank as parking lot for trucks is seen as wasting the limited land area. The stakeholders also emphasized on the importance of the development of riverbank as an improvement aspect to raise the value of the area.The riverbanks and old buildings along the riverbanks and the river view basicly can be developed suited to the unique characteristics of the area as heritage tourism area to attract local and foreign visitors to increase the local and government's revenues while also increasing the value of the area. The development of economic aspects in this area and surrounding tends to changing of settlements to the use of shop houses and decreases the limited urban landscape elements such as land, green open spaces and vegetation. The original inhabitants should be potential in developing livable city by making the area safer and more secure day and night. The above conflict should be considered because through the economic, social and environmental benefits, the sustainable urban landscape elements can contribute to the development of healthy communities and support its values in dense old city in Surabaya such as *Kembang Jepun*. From the general information and identification of problems such general criteria of planning and design or solutions in developing the urban dense old city can be explored. The general criteria is shown in table 2.

Table 2. General criteria.

Aspects	General Criteria
Environmental/ Ecology	a) Design elements (e.g. plants, water elements and construction material) have to be appropriate and suitable for conditions of the site b) The design should be visually appealing and has to fulfill healthy and safety criteria and increase biodiversity, enhance microclimate, and maximize the reuse of resources as well as able to keep the functions of the elements of water and soil quality.
Social	a) The open spaces can be set for various activities for different groups of people. b) The design must possess the identity, local character and sense of place and should be able to serve the needs of different groups in the community or community involvement must be implemented c) The design should promote healthy lifestyle, make people comfortable and improve social interaction as well as give opportunities for working, learning and mental emotional development.
Economic	a) The design must complement cost effectiveness and should be easy to maintain.

The design criteria is a requirement in developing one or more solutions from different criterion such as from general criteria and FGD as shown in table 3.

Table 3. Design criteria.

Aspect of Sustainability	General Design Criteria	Criteria from Focus Group Discussion
Environmental	a) Design elements have to be appropriate and suitable for conditions of the site b) The design should be visually appealing. c) The design has to fulfill healthy and safety criteria d) The design should increase biodiversity, enhance micro-climate, and maximize the reuse of resources. e) The design should be able to improve air, water and soil quality.	a) The evening atmosphere in Kembang Jepun should be improved and developed to remove the dark and grim impression of the area b) The design must be in accordance with local climatic conditions c) If necessary, there needs to be a change of direction of traffic flow to maximize the streetscape in the old town area d) Adequate number of street furniture should be placed along the road
Design Criteria: a) The design elements should be suitable and appropriate for local climate b) Traffic flow and street furniture should be able to improve the performance of the road and streetscape. c) The design should be visually appealing to improve the atmosphere and visual quality of the area.		
Social	a) Creation of flexible outdoor facilities can be used for various activities for different groups of people. b) The design must possess the identity, local character and sense of place. c) The design should be able to serve the needs of different groups in the community. d) Community involvement must be implemented. e) The design should promote healthy lifestyle, make people comfortable and improve social interaction. f) The design should give opportunities for working, learning, and healthy mental and emotional development.	a) Buildings chosen to be handled should be the ones that can serve as a landmark for the area b) The landmark buildings should be strengthened in identity c) Design solutions should pay attention to spirit of place d) The building should be able to be the background for activities or events e) The design of public spaces should consider its local content f) The process of the improvement of the area and the creation of public space should always involve local communities to create a sense of belonging
Design Criteria : a) The design should pay attention to landmarks and spirit of place to strengthen the identity of *Kembang Jepun* area. b) The design should be able to accommodate various activities for different group of people and utilize building as background for activities c) The design of public space should consider its local content and involve local communities		
Economic	a) The design must complement cost effectiveness. b) The design should be easy to	a) There should be spaces that could generate activities and attract people to come

maintain.	b) There should be a connecting link between the spaces that can generate activities, in form of existing or new link which is interesting and fun to explore c) The economic aspect, mainly related to the contemporary needs has to be addressed d) The image of the district should be strengthened according to its function as a trade and service area

Design Criteria:

a) The design of the linkage around the area should be able to connect spaces, generate activities, and provide fun and exciting links
b) The design should be able to maximize economic opportunity based on contemporary needs, district image management
c) The design must be cost effective, easy to maintain, and corresponds to the needs of the area

3.2. Design concept

The Design concepts are the solutions in creating the innovative landscape design in the *Kembang Jepun* area. The dominance of trade and services lies along the main road corridor, namely *Jalan Kembang Jepun, Jalan Bibis Tama I, Jalan Stasiun Kota* and *Jalan Gembong*. In addition to the office area is on the *Jalan Gula, Jalan Slompretan*, and *Jalan Cokelat*. For residential areas are on the *Jalan Samudra*. The map that indicates the zoning of the area can be seen in figure 8.



Figure 8. Zoning of the area.

3.2.1. Main road area. The dominance of trade and services as well as offices makes the movement of pedestrians in this region quite crowded. Especially on the main road corridors such as *Jalan Kembang Jepun*. Pedestrian path on this road already meets the standards. But there are some parts that have begun to damage the pavement. In addition, there are vehicles that not supposed to park on the pedestrian lane. In the business area, the condition of pedestrian way is still well, so that on some roads still do not have an adequate pedestrian way. The model for main road area is located at Jl. Kembang Jepun as shown in figure 9.



Figure 9. Main road area

The criteria for main road of *Kembang Jepun* is:

- Traffic flow and street furniture should be able to improve the performance of the road and streetscape.
- The design should be visually appealing to improve the atmosphere and visual quality of the area.
- The design should pay attention to landmarks and spirit of place to strengthen the identity of Kembang Jepun area.
- The design should be able to accommodate various activities for different group of people and utilize building as background for activities
- The design of public space should consider its local content and involve local communities

Vertical garden for ecological use and reduce the urban heat for *Kembang Jepun* Area. Vertical garden applied on the facade of the building is used to add a dynamic impression on the building by creating a curved pattern as shown in figure 10. The pattern using wiremesh for the media of vertical garden.

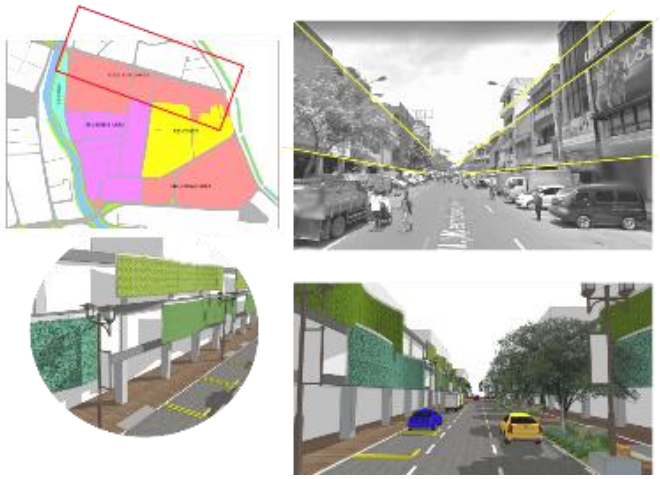


Figure 10. Proposed design of the vertical garden on main road corridor.

The number of motorized paths will be reduced to 3 lines. On the right side of the reduced path will be used as a pedestrian way and added with some softscape and hardscape elements as shown in figure 11. In addition to pedestrian way can also be used for street vendors at night, so installed some elements of street furniture to support economy activities at night.

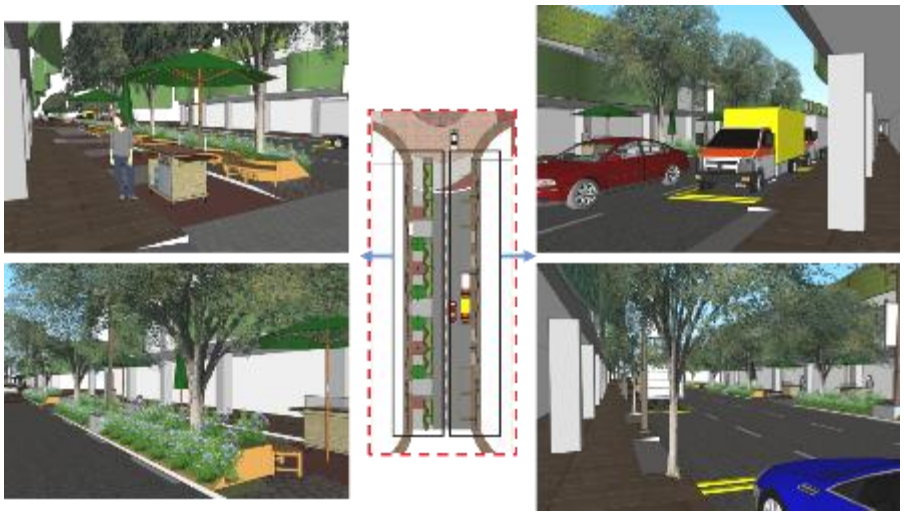


Figure 11. Detailed design of the 3 lines path on main road corridor.

At the junction of *Jalan Kembang Jepun*, there is a concept that aims to form the active outer space achieved by redesigning the surface of the road material, thus forming a distinctive outer space. The design of the intersections inspired by the oriental design with the aim of enhancing vernacular imagery from the study site as shown in figure 12. Road material uses surface material that has excellent absorption.

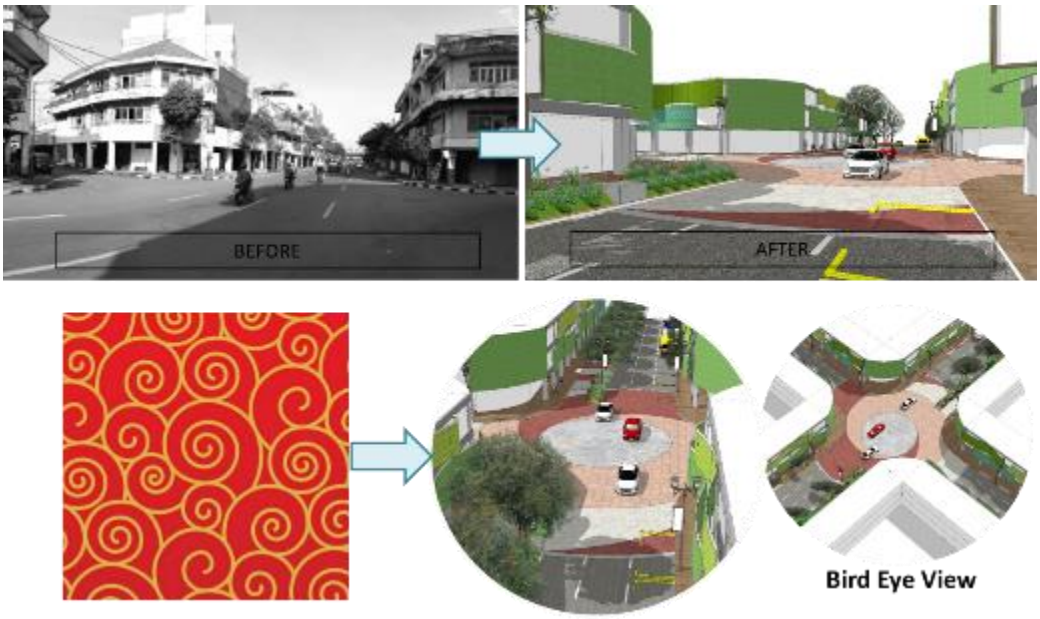


Figure 12. Design of the intersection area.

3.2.2. Bussiness area. The model for business area is located around the south-west region of *Kembang Jepun*, as shown in figure 13.



Figure 13. Business area.

The criteria for bussiness area of Kembang Jepun are:

- The design elements should be suitable and appropriate for local climate
- The design of public space should consider its local content and involve local communities
- The design should be able to maximize economic opportunity based on contemporary needs, district image management

The existing condition on the business area looks scattered, and a lot of waste is dumped on the road. For that the design is done on this area is to add street funiture. In addition to the business area installed vertical garden that is applied to the walls of the building. It is in addition to the needs of ecology, also serves as a visual aesthetics of buildings.

On the road used paving block material that is useful as water absorption. The existing paving blocks are also designed using a pattern to assert the main function of the path is for pedestrian. It is useful to reduce motor vehicle pollution in the business area. On the facade of the building on the building of cultural heritage will be maintained. On certain sections need to be revitalized to add to the beauty of cultural heritage buildings so as to attract tourists, as shown in figure 14.



Figure 14. Proposed design of the business area.

3.2.3. Riverside area. The riverside area is located along the west side of *Kembang Jepun*, as shown in figure 15.



Figure 15. Riverside area.

The criteria for riverside area are:

- The design should be able to accommodate various activities for different group of people and utilize building as background for activities
- The design of public space should consider its local content and involve local communities
- The design should be visually appealing to improve the atmosphere and visual quality of the area
- The design of the linkage around the area should be able to connect spaces, generate activities, and provide fun and exciting links
- The design should be able to maximize economic opportunity based on contemporary needs, district image management

For the riverside area is transformed into an open space that can be used as a social function and aesthetic function. Social function is to maximize existing open space by adding public space to the assembled areas and interacting areas as shown in figure 16.

While the aesthetic function is to make the riverside area has an attraction in some spots so that the area that was originally shabby and unkempt can attract people to visit the riverside area. In the riverside area there are several buildings that are located directly opposite. It can also be one of the visuals highlighted on the riverside area



Figure 16. Proposed design of the riverside area.

The design criteria and concept for the riverside area are:

- The design elements should be suitable and appropriate for local climate: suitable and appropriate design elements for instance the using of grass block
- Performance improvement of the road and streetscape: circulation , street furniture
- Atmosphere and visual improvement: remove the dark and grim impression, visually appealing in the façade, groundcover and colorful vegetation.
- Identity, character: pay attention to landmarks and spirit of place. Creating the deck facilities in enjoying the old city and istorical red bridge (*Jembatan Merah*)
- Outdoor activities: various activities for different group of people, building as background for activities
- Local content: public space should consider its local content and involve local communities, alternative street

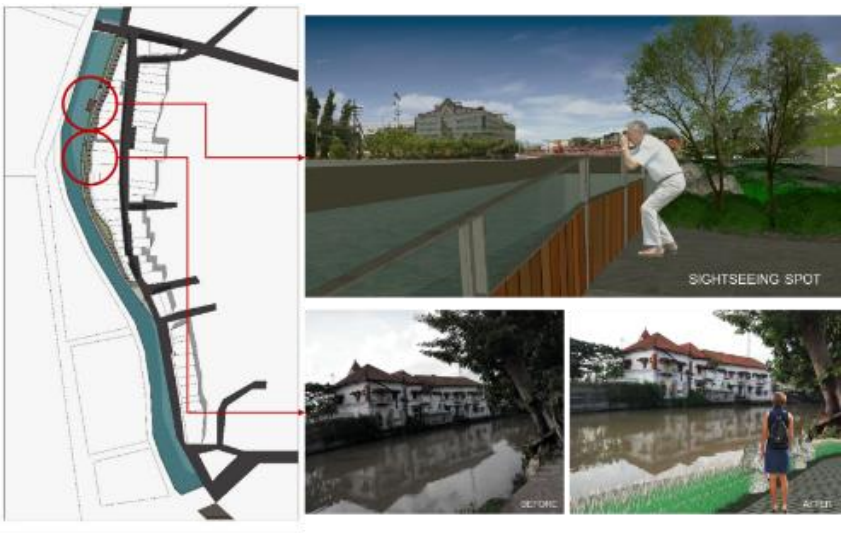


Figure 17. Detailed design of the riverside area.

For the riverside area is transformed into an open space that can be used as a social function and aesthetic function. Social function is to maximize existing open space by adding public space to the assembled areas and interacting areas as shown in figure 17.

3.2.4. Residential area. The residential area is located in the center of *Kembang Jepun*, as shown in figure 18.

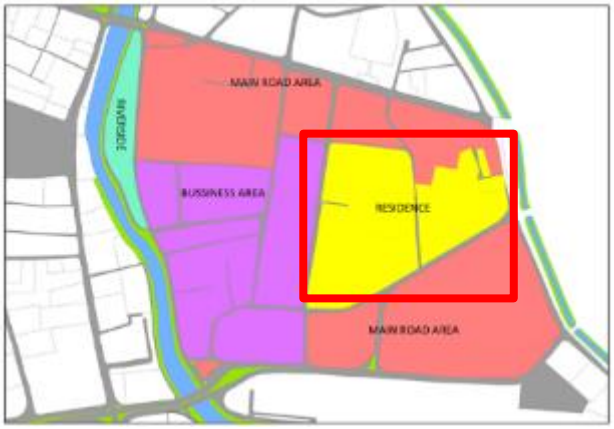


Figure 18. Residential area.

The criteria for residence area are:

- The design should be able to accommodate various activities for different group of people and utilize building as background for activities
- The design of public space should consider its local content and involve local communities
- The design should be visually appealing to improve the atmosphere and visual quality of the area
- The design of the linkage around the area should be able to connect spaces, generate activities, and provide fun and exciting links
- The design should be able to maximize economic opportunity based

The residential area of Kembang Jepun is a fairly dense settlement, thus causing the lack of vegetation. Responding to the issue, the design around the residential area is done by adding vertical garden as an ecological solution with an aesthetic function. Installation of vertical garden mounted on houses in the area is done on blank walls without windows to make it easier to maintain, as shown in figure19.

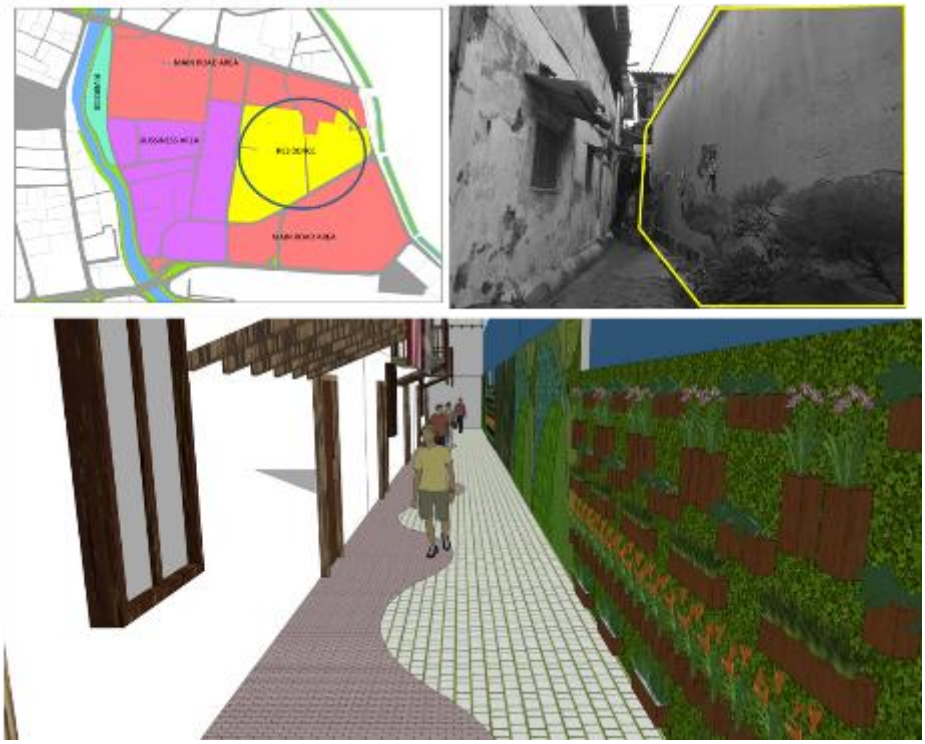


Figure 19. Proposed design of the residential area.

In sustainable urban landscape there are several application that can be done in research area. In addition to the greening done in available space at some spots, it is also utilizes vertical building as a form of maximizing green open space in densely populated areas according to the theory expressed by Beatly and Schatnz.

Essential principles of urban landscape design as stated by Memluk are applied to the design such as:

- Adaptability and sustainability: applied to main road design by adding street vendors zone to be able to adapt to people who use street vendor as their livelihood. The street vendors area are temporary and can be easily cleaned and maintained and provide easy access for pedestrian at day.
- Coherence and legibility: in some areas such as the main road and riverside there are several spaces used for pedestrians. The pedestrian way is designed using a clear boundary between the pedestrian path and the lane for motor vehicles.
- Equity and accessibility: these aspects are applied to ease of access to pedestrians and areas of activity centers such as main road, riverside and business area.
- Community involvement: FGD is one of the ways that is used to help to give idea for the designs in the research area so that the resulting design can accommodate people's desire. The results derived from the FGD which is a form of community involvement by considering the

idea of design generated from the community as the basis to determine the design criteria of this study.

4. Conclusion

Kembang Jepun area is the economic center of Surabaya that still survives to this day. But it's current existence is not maintained due to the heavy traffic that causes an increase in urban heat island as well as the quality degradation in heritage buildings scattered in this area. In contrast to the daytime, the condition of Kembang Jepun as an old district in Surabaya is rather gloomy at night, making this area like an uninhabited city. With the existence of the concept of sustainable urban landscape, the concept features a landscape aspect regarding social, economic and ecological to make this area to be able to keep maintaining the existing cultural heritage buildings, but also has a good environmental quality and able to attract tourists during the day and night. The Innovation of this concept involves the community through Forum Group Discussion so that people get involved in the design process. From this research and design activity, it is apparent that community involvement or public participation is indeed a key factor in creating an innovative and sustainable landscape design for the city.

Acknowledgment

I would like to acknowledge all stakeholders in Focus Group Discussions such as urban planner, architect, landscape planner as well as media and the people of *Kembang Jepun* Area for support and kindness.

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