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Community-Based Urban Kampong Design in Kelurahan Sorosutan, Kemantren Umbulharjo, The City of Yogyakarta

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Abstract

Participatory planning methodology is a method that is often used to develop urban areas, especially for low-income residential areas. Low-income community settlements, also known as urban kampong, are always exist in Indonesian urban areas, so participatory planning is very useful for developing urban kampong. In Yogyakarta, there are many urban kampongs in each sub-district area inhabited by low-income residents. One sub-district area that also has urban kampongs is Kelurahan Sorosutan, Kemantren Umbulharjo, the City of Yogyakarta. To carry out the development of urban kampong in Kelurahan Sorosutan, the KOTAKU program from Director General of Cipta Karya, Ministry of Public Works is implemented through collaborating support with several stakeholders including academics. The Urban and Residential Environment Laboratory, Faculty of Architecture and Design, Universitas Kristen Duta Wacana carried out community service in Kelurahan Sorosutan using community-based participatory planning methods. As a housing scheme, this method does not develop new houses for low-income people but carries out upgrading programs in existing kampong settlements. The involvement of students, teaching staffs, the sub-district government and the local community greatly supports the planning process. The most important stakeholder is the local community who clearly know the potential and problems they face on a daily basis. The purpose of the community service is to make a Master Plan that can be used as a reference to carry out regional development in some stages. The results obtained from this community service are the Master Plan for Regional Development Kelurahan Sorosutan, Kemantren Umbulharjo, the City of Yogyakarta.

***Keywords**: collaboration, kampong, low-income communities, participatory, settlement*

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Introduction

Based on the 2021 UN-Habitat Annual Report, approximately 357 Cities are implementing participatory planning methodologies and collecting spatial data to improve the quality and ownership of local plans, and to promote sustainable urban development (UN-Habitat, 2022). People migration to cities or urbanization is one of the main challenges faced by big cities in developing countries like Indonesia. Since the rapid population growth is not proportional to the development of the housing industry, many low-income people live in slum areas that experience high levels of poverty and disaster vulnerability. In terms of socio-cultural and political participation, these slum communities are marginalized: they lack full integration with various urban systems; and they are highly dependent on the human, socio-cultural capital they possess (Bawole, Wiyatiningsih, Harefa, & Rodriguesa, 2020).

Like in other developing countries, almost all big cities in Indonesia have kampong settlements inhabited by poor people. In all kampong settlements (slum areas or 'kampung' in Indonesian) some residents live without having land certificates and valid building permits for their houses. However, there are still many families who pay retribution to the head of the neighbourhood in relation to their living in the area. Therefore, they refuse and disagree if the government or other institutions say that they occupy empty areas in the city illegally because they feel that they have already paid retribution and actually, the head of the neighbourhood recognizes that the poor and their settlements are in his area.

Based on the National Action Plan – Sustainable Development Goals (SDGs) 2021 – 2024, access to liveable and affordable housing has gradually been identified as relatively good (Bappenas, 2021). Figure 1 shows an increase in the percentage of households with decent and affordable houses. In 2015 the percentage of families with liveable houses was 47.99%, then it increased in 2020 to 59.54% (see Figure 1). This increase shows that there is a process of developing residential areas carried out by the Indonesian government with certain development schemes. Even so, cumulatively, there are still not many achievements for the 2030 target. In the Medium Term Development Plan *(Rencana Pembangunan Jangka Menengah*, RPJM) of 2020-2024, several issues exposed (Bappenas, 2021) are:

- limited access to housing finance, especially for low-income and non-permanent income groups of resident;

- land management for housing that is not yet effective and not integrated with the public transportation system and basic settlement infrastructure;
- guidance and supervision in the field of housing and residential areas that have not been optimal

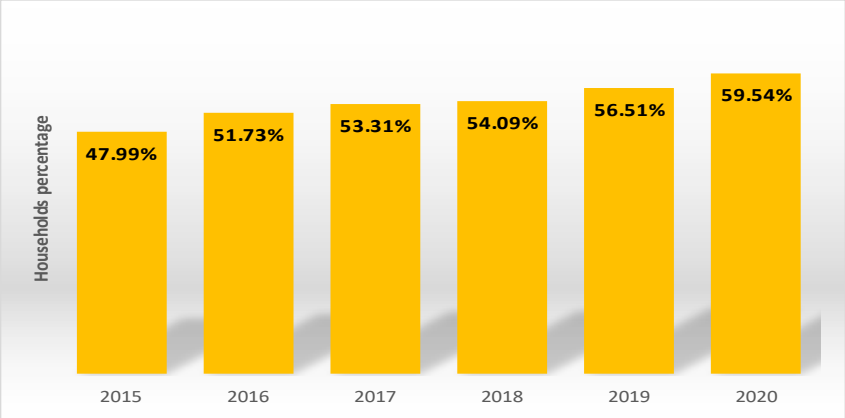

Fig. 1. Percentage of Households Having Liveable and Affordable Houses
Source: BPS processed by Kementerian PPN/Bappenas, 2020

A slum area is a residential environmental condition with very poor quality and has characteristics such as very high building density in a limited area, prone to social and environmental diseases, very low quality of buildings, inadequate environmental infrastructure, and its conditions endanger life and the livelihood of its inhabitants. Many cities in Indonesia are crossed by rivers and their riverbanks are filled with houses developed by low-income communities which are commonly called slums. In 2014 the Ministry of Environment of the Republic of Indonesia released the results of a study that 60-70% of rivers in Indonesia have been polluted by untreated domestic wastewater (Sutanto & Bawole, 2021).

Based on housing research in several parts of the riverbanks in the City of Yogyakarta, many families work in the informal sector. According to the statistical data obtained from the questionnaire, the largest percentage of the average population living by the river are those who earn less than 1 million rupiahs per month. The second largest percentage is people who earn between 1 million and 1.5 million rupiahs per month. Most of them, both husband and wife, work in the informal sector. With limited knowledge of economics, education, and information, the community develops residential areas along the riverbanks. Because the quality of the riverside settlement environment is very poor, the local government is trying to improve the quality of their settlement environment (Resa, Saam, & Tarumun, 2017). The

development program implemented in several parts of the riverbank area in this city is known as the City Without Slums (Kota Tanpa Kumuh) Program or the KOTAKU program for short.

Based on field observations in several urban kampong settlements in Yogyakarta, public open space within these settlements is very important for the social life of the community. All community members such as children, teenagers, women, and men, always perform social interactions in public spaces (Ayyubi, Wijaya, & Purnamasari, 2017). Specifically for children, public open spaces have a special meaning for them to play and express their creativity. Sometimes if there is no informal public space in the settlement, they carry out their activities on kampong roads or pathways (Bawole & Sutanto, 2018). In addition, open space is very necessary for settlements with dense built-up areas, because it serves as a place for air circulation.

The characteristics of urban kampong settlements are the high density of buildings and the position of one house to another is quite close (Purwanto, Sugiri, & Novian, 2017). Sometimes sunlight cannot penetrate the house, because the roofs of the houses are interconnected. There are certain paths that are often passed by residents. There are certain paths that are often passed by residents. Other small lanes such as alleys or alternative small roads called “rat lanes” can connect one small lane to the main road or even directly to the main road. The shape of the roof is dominated by the simple forms of *"kampung"* and *"panggang pe"* roofs. Other forms, such as *Limasan*, *Tajuk*, and *Joglo*, are only found in a few houses.

The development planning approach applied in urban kampong settlements in the City of Yogyakarta is a development approach that empowers the community (Bawole & Sutanto, 2018). This approach is carried out by inviting the community together to identify problems and find solutions as outlined in the urban kampong settlement development plan. In this planning process, the community is assisted by facilitators who are experts in the technical, social, and economic fields. Because the local community has been involved since the beginning of the process, it is expected that after the program is completed, the community will independently maintain the facilities that have been built and also continue the construction process that has not been implemented. Case study in Tanzania shows also that the possibility of people willing to participate in development programs, if the methods used do offer opportunities for empowerment and supportive (Naku, Kihila, & Mwageni, 2021).

One area that is quite densely populated is the *Kelurahan* Sorosutan with an area of 175 Ha and a population of 13,334 people, with a total of 3,966 households. The relatively high density can be seen in the land usage map for the *Kelurahan* Sorosutan which shows a high dominance of dense settlements (See Figure 2). With a relatively high density, this area has many problems related to settlement development. The problems faced, besides the density of buildings, are drainage problems, irregular roads, garbage, and the problem of rainwater puddle which often stagnates in several areas of the kampong areas. One of the strategies implemented to deal with settlement problems in the Kelurahan Sorosutan is via community service in collaboration with a government program on kampong improvement known as the KOTAKU (*Kota Tanpa Kumuh* = City Without Slum) program.

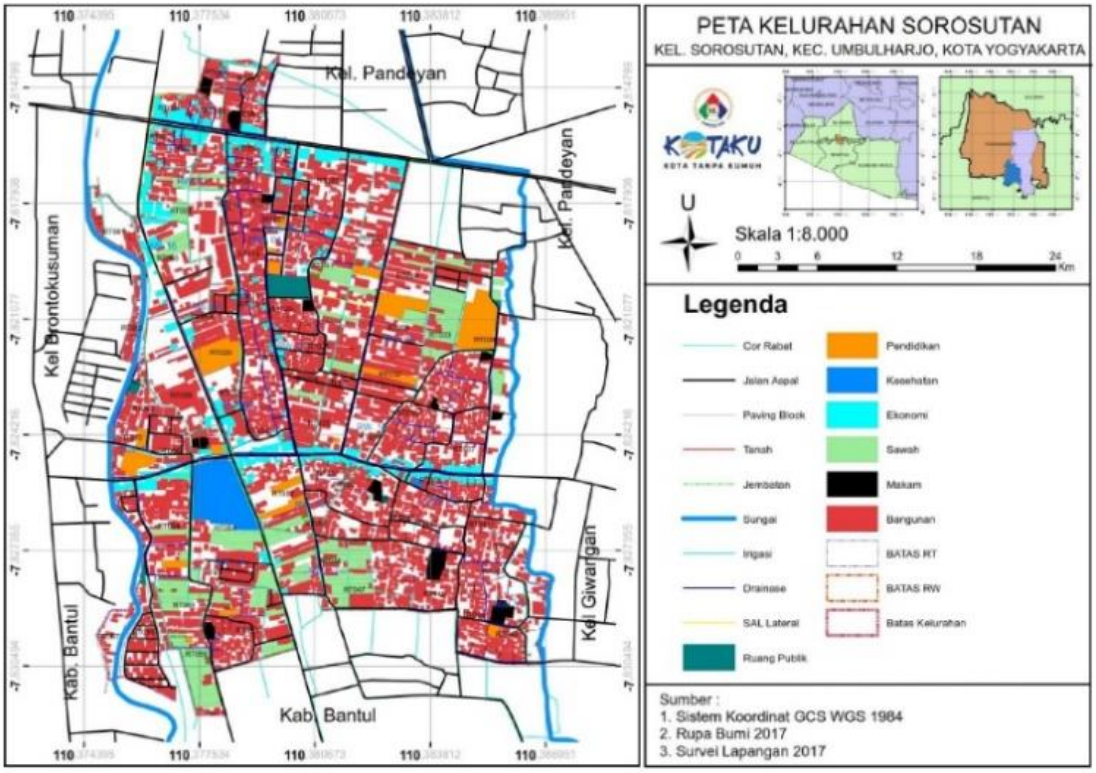

Fig. 2. Land Use Map of the Kelurahan Sorosutan which is dominated by buildings
Source: Unpublished report on the 2017 Kelurahan Sorosutan Settlement Environmental Management Plan

This article will discuss how the community service program implemented by the academician from the Faculty of Architecture and Design, Duta Wacana Christian University is collaborating with the KOTAKU program which was previously initiated by the central and regional governments. The community service process (carried out by students and lecturers) was performed together with the community to identify problems and potential that exist in the *Kelurahan* Sorosutan. Afterwards, the planning process was carried out together with the

community to complement the planning that had been carried out by the KOTAKU program. The purpose of implementing this community service is to provide knowledge (transfer of knowledge) to the community about development planning in the area where they live. In principle, the idea of empowerment being carried out is to complement the existing planning, especially related to the arrangement of infrastructure facilities that need further development.

Kelurahan Sorosutan

Kelurahan Sorosutan, an urban kampong settlement, is a part of the Umbulharjo District, the City of Yogyakarta, which has an area of 175 Ha. Kelurahan Sorosutan has a sandy soil type and the color of the soil is mostly black. The position of the Kelurahan Sorosutan is at an altitude of ± 114 m above sea level with a rainfall of 2,012.00 mm. The highest average rainfall occurs in February and the lowest one is in June. In addition, the average daily rainfall per month is 9.92 days. The average humidity in Kelurahan Sorosutan is 24.70° C with the highest humidity occurring in February at 83% and the lowest in September at 66%. The average air pressure is 1,010.3 mb and the average air temperature is 30.00° C.

The total population of Kelurahan Sorosutan is 13,334 people, with 6463 male and 6871 female residents. Based on the data, there are still 360 houses that are less than ideal in size, or around 74%. Meanwhile, 8.5% of houses have poor-quality building components. Based on interviews with respondents, this is because a building with a narrow area is inhabited by more than one household. Approximately 1,210 buildings or around 37.17% of the buildings in Kelurahan Sorosutan are classified as irregular which are spread over 18 RWs (See Figure 3). The standard for the liveability of a building is to have a comfortable living area of 7.2 m2/person and the quality of building components (roof-floor walls). From all the data it can be concluded that around 56% or 1,831 buildings in Kelurahan Sorosutan are still unfit for habitation.

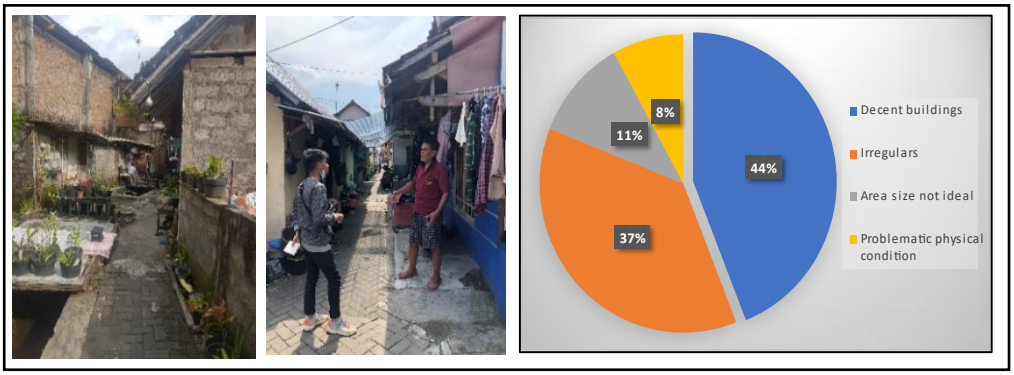

Fig. 3. Percentage of Physical Conditions of Buildings and Portraits of Slum Areas in Kelurahan Sorosutan
Source: Urban Laboratory Practice Work Report, Christoper Ate group (unpublished report, year 2021)

The typology of settlements in Kelurahan Sorosutan is urban settlement with a mixed character (heterogenous), consisting of mixed land-function units which are characterized by the presence of slum settlements in the city. Based on profile data for the Sorosutan Village, 49.48% of the total area of Sorosutan is irregular housing. Only 31.94% is regular housing, and the rest is used for dry and wet agricultural land, roads, educational services, places for social interaction activities and traditional cultural arts, etc.

The conditions of local roads in Kelurahan Sorosutan vary from those that are still made from earth, cast concrete, paving blocks, to asphalt. From the existing local roads in housing areas, there are 34,267 m or 32% of roads that are less than 1.5 m wide and have not been paved. Likewise, roads with a length of 34,485 m or 56% of roads have not been equipped with proper drainage channels according to technical specifications on the edges of the roads. Rainwater is still flowing on the surface of the ground and roads which results in cast rebates and the asphalt of the road becomes inundated with rainwater (See Figure 4.) From the existing conditions in the field, there are still 47% of the drainage conditions that are not suitable or the conditions are not yet proper, resulting in inundation in 1% of the area.

Fig. 4. Picture of Drainage Overflowing to the Road and Puddles in Slum areas
Source: Urban Laboratory Practice Work Report, Christoper Ate group (unpublished report, year 2021)

The percentage of residential buildings in Kelurahan Sorosutan that do not have access to communal latrines (MCK) is 5%. Meanwhile, the percentage of occupants in Kelurahan Sorosutan that do not have a toilet (goose neck) connected to a septic tank is 7%. As much as 4% of household waste in Kelurahan Sorosutan is still mixed with the drainage channels. Only 3% of the households in Kelurahan Sorosutan or 66 families out of the total number of families

in Kelurahan Sorosutan have not met their standard drinking, bathing, and washing water needs of 60 liters a day. The majority of the population gets drinking water from private wells (See Figure 5). From the available data, there are still 52% of the households or around 1,706 households do not have access to clean water facilities in terms of proper piping and non-piping that are used for drinking, bathing, and washing.

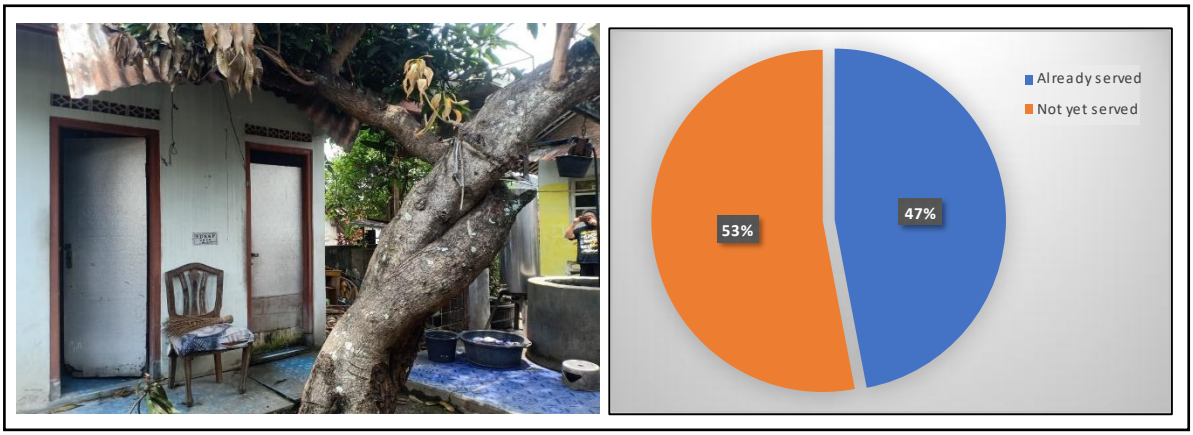

Fig. 5. Percentage of Clean Water Services for Families in Kelurahan Sorosutan and Picture of Dick Well Utilization for Clean Water
Source: Urban Laboratory Practice Work Report, Christoper Ate group (unpublished report, year 2021)

Garbage in Kelurahan Sorosutan is managed individually. There are still 27% or 842 residents who have not transported their waste to a landfill (TPS) at least twice a week. In general, residents put their garbage in the trash bin and these are collected periodically, but not all residents are served routine garbage collection. Residents would dispose of their garbage in the river, burn it, or bury it in holes dug in their yards. Some residents dump their garbage into the nearest TPS.

Disaster mitigation is a series of efforts to reduce disaster risk, through physical development, and also increasing awareness and capability in dealing with the threat of disaster. In residential areas, Kelurahan Sorosutan, as much as 31% of the households do not have fire protection facilities. Based on the Existing land-use map, there are still some unused lands in the form of dry rice fields and vacant land. Those areas can be used as a meeting point for the community around in the event of a natural disaster such as an earthquake.

Methods

The community service related to community-based design activities for the development of urban kampong areas in the Kelurahan Sorosutan was carried out by using a combination method of action research and descriptive-qualitative research (Samsu, 2021). Action research

integrates research and community service action in a series of flexible cycles that involve the community holistically, not as separate steps. The integration process of research and community service activities can be identified as follows:

- data collection on problem topics and area potential;
- analysis and interpretation of the data;
- planning and introducing action research strategies to bring about positive change;
- and evaluate those changes through further data collection, analysis, as well as interpretation of the data.

Action research was carried out by researchers involving a community service team in the process of implementing a community-based design approach for the development of the Kampung Kota area in the Kelurahan Sorosutan. In other words, the action research that has been carried out is following the implementation process of urban kampong development starting from the initial survey to the preparation of activity reports. According to Ugwu and Aruma, the community participation will build strong confidence and courage to address issues of common concern in their communities (Ugwu & Aruma, 2019).

Community service begins with conducting research preparations by holding discussions and workshops with the community regarding regional planning and design. Afterward, the process carried out was field observation in order to get the potential and problems that exist in the area of Kelurahan Sorosutan. Field observations with the community were done several times so that the physical data of the kampong area and community activities could be identified accurately. During the Focus Group Discussion (FGD) there were lots of questions and answers, because some of the results of field observations were incorrect. Therefore, the local community tried to revise the wrong interpretation of the community service team. After that, a serial workshop was conducted to cross check the results of field observations. The results of the serial workshop will become a reference for exploring the planning and design of urban kampong areas in the Kelurahan Sorosutan. Through this series of workshops, planning and design ideas for the development of the Kampung Kota area in the Kelurahan Sorosutan can be obtained from the local community. The next process successively made a proposal for planning drawings and designs for several spots in the urban village area in the Kampung Sorosutan.

Discussion

In accordance with the process described in the implementation method above, the discussion of the results of community assistance in the Kelurahan Sorosutan begins with an explanation during the field survey, conducting FGDs and workshops, and exploring the planning and development of the area Kelurahan Sorosutan.

Field Survey

The field survey is the first activity carried out after the division of work groups or teams to carry out field surveys. (See Figure 6) The activities in the field survey were conducting direct observations in the field, conducting interviews, or asking questions about the problems and potential that exist in each kampong in the areas of Kelurahan Sorosutan. The process of carrying out the field survey was done jointly by students, field assistants and lecturers from the Centre for Housing and Urban Environment, UKDW as well as local residents who became guides to find out what problems and potential existed in the area of Kelurahan Sorosutan (Ate, 2021).

Fig. 6. Field Survey Documentation of the Community Service Team from the Center for Housing and Urban Environment, U.K. Duta Wacana
Source: Urban Laboratory Practice Work Report by Community Service Team, FAD - UKDW at Kampung Wirosaban (unpublished report, year 2021)

This field survey aims to find out the conditions directly in the field according to the area that has been determined, as well as to dig deeper regarding the potentials and problems that exist in Kelurahan Sorosutan. In this survey activity, the team was also accompanied by representatives from local residents who helped provide explanations and directions to points where some potentials and problems existed within the RW in the Sorosutan Village area. The survey started from the closest points near the location where residents gathered before the

survey. At each of the points to be surveyed apart from making personal observations, the service team also tried to gather information from local residents who guide the course of the survey. Then the team began to record and documented what were the problems and potentials at each of the points found in each area.

Focus Group Discussion

Focus Group Discussion (FGD), is a discussion activity or forum which involves the participation of residents from the intended village to express their opinions or input related to the survey/observation results presented by the team (See Picture 7). In the FGD activities, because there were several different villages, the discussion was divided into several meetings to make it easier and more structured. During the FGD process, it was usually required to have a representative from each RW so that the discussions and information obtained were more numerous and varied. Because it was still in a pandemic condition, this discussion activity cannot be carried out on a large scale so participants were usually limited to only 16 people (Sundale, 2021).

Fig. 7. Documentation of Focus Group Discussion by Community Service Team
from U.K. Duta Wacana at Kampung Sidokabul
Source: Urban Laboratory Practice Work Report by Community Service Team, FAD - UKDW at Kampung Wirosaban (unpublished report, year 2021)

After completing the presentation of the survey results, then proceed with the main activity agenda, namely the FGD. Before starting, the community is divided into several groups in which there must be representatives of residents from each Neighborhood *(Rukun Warga/RW).* This is intended so that every resident can share information regarding the problems and potential of each RW. Both problems and potentials will later be written down in a note, which is then pasted as a marker on the map that has been prepared.

This stage was carried out after collecting data through direct observation/survey in the kampong area which was done several times in order to see the problems and potentials that exist. In this process, the Community Service Team and the local community will discuss to find out whether the potentials and problems are true or not. Afterward, they add a number of things that may not have been found during the field survey, then continue to discuss together to find the best solution.

After completing the discussion in each group, the results were then presented to all FGD participants by group representatives. Each group that has finished presenting the results of their discussion will usually get input or additional information from other groups or related parties, for example, heads of Kelurahan, RW, Sub-neighbourhood *(Rukun Tetangga/RT)*, etc. who may understand better the situation and have tried to provide solutions related to problems that occur in the field.

The results of the mapping of potentials and problems that existed during the FGD activities were then brought back to the studio on campus. In the studio, the team tries to group the information into one final map which contains a more detailed summary of information regarding the problems and also the potentials that arise stated by the community in each kampong (See Figure 8).

Fig. 8. Documentation of the results of the FGD with the Community Held
on the Universitas Kristen Duta Wacana Campus
Source: Urban Laboratory Practice Work Report by Community Service Team, FAD - UKDW at Kampung Wirosaban (unpublished report, year 2021)

Final Result of Community-Based Urban Village Design

As the final part of the community service process in the Kelurahan Sorosutan, several designs were made according to the results of discussions with the community. At this stage, the community service team works as a facilitator who illustrates ideas from people who are trying to improve their own settlement which has poor environmental quality. The ideas obtained from the Focus Group Discussion and Workshop are always cross-checked to ensure agreement with the community. Because the planning context is based on the RW area, there are many design solutions provided by the community service team that are tailored to the problems and potential of each urban kampong.

Fig. 9. Documentation of Spot Design Results for Open Space Areas in Kelurahan Sorosutan which was made by the Community Service Team

The process of determining the design was also carried out through several Focus Group Discussions. This participatory process is quite interesting for the community because they also determine the problems that must be handled and increase the potential that they have been determined. The participatory discussion must be limited because people's thinking continues to develop, so it is rather difficult to determine which are the wishes of the community and which are the needs of the community. Therefore, with the limitation of three discussions with

the community, it was jointly decided which design alternative to choose. In Figure 9, the final results of the community's joint decision to improve the settlement environment in the Kelurahan Sorosutan are explained.

Conclusion

Having a decent house according to standards is a basic need for every individual family. These basic needs include, for example, the right to education and health care, access to privacy in family life, and basic services such as water and electricity. The application of the community-based development concept to improve low-income community settlements through the “Local Community-Based Development Planning Process” enables poor communities to live in environmentally friendly settlements. If they had the opportunity to develop the house and its surroundings, they would be able to demonstrate their great ability to improve their settlement, because they themselves understood what they needed and understood the buildings they made that suited their financial condition.

In addition to creative urban forms and architecture developed by the poor in low-income settlements which will be considered as one of the potentials for improvement in settlements, conclusions and some advices can be given. Since the low-income settlements are special residential areas, the community must be involved in the planning and design process from the beginning of settlement development. Besides, a heart full of commitment to helping the poor in low-income settlements must be owned by every stakeholder. Their involvement will greatly assist the implementation of a community-based slum upgrading program.

The KOTAKU program will solve some problems of urban slum areas, but this program will also trigger the formation of new slum areas, if there is no properly controlled of maintenance of infrastructure facilities and empowered the inhabitants. Otherwise the infrastructure facilities which are already in good condition , will turn back into slums characters again. For the future housing development scheme in slum areas, the local community-based development planning process is a quite good method to enhance the quality of life of low-income people as well as their housing environment.

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