

## MARGINALIZED COMMUNITY EFFORT TO IMPROVE ENVIRONMENTAL QUALITY OF POOR SETTLEMENT ALONG RIVERBANK

### UPAYA MASYARAKAT TERPINGGIRKAN UNTUK MENINGKATKAN KUALITAS LINGKUNGAN PERMUKIMAN MISKIN DI PINGGIRAN SUNGAI

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#### ABSTRAK

Saat ini, banyak orang tinggal di daerah perkotaan dan lebih dari 30% dari mereka tinggal di daerah kumuh atau permukiman liar. Urbanisasi merupakan salah satu tren paling transformatif yang terjadi di seluruh dunia, terutama di negara-negara berkembang seperti Indonesia. Saat ini, lebih dari separuh populasi Indonesia tinggal di daerah perkotaan. Dominasi populasi perkotaan menunjukkan urgensi untuk membuat lingkungan perkotaan inklusif, aman, tangguh, dan berkelanjutan seperti yang dimaksudkan untuk direalisasikan melalui Tujuan Nomor 11 - SDGs 2030. Kota membutuhkan ruang yang luas dan merupakan sumber kekayaan dan pusat inovasi, budaya, dan politik. Area perkotaan telah menjadi arena yang paling penting bagi masyarakat, termasuk komunitas berpenghasilan rendah yang tinggal di ruang perkotaan informal yang berkembang secara spontan. Artikel ini akan membagikan pengalaman penelitian tentang permukiman masyarakat terpinggirkan. Dengan bantuan beberapa lembaga, komunitas tersebut berusaha untuk meningkatkan kualitas permukiman mereka agar menjadi inklusif, aman, tangguh, dan berkelanjutan. Metode yang digunakan dalam penelitian ini adalah metode deskriptif-kualitatif yang mengeksplorasi potensi dan sumber daya di dalam kampung perkotaan untuk meningkatkan kualitas permukiman miskin perkotaan. Dengan penemuan pola ruang perkotaan informal dan upaya masyarakat untuk meningkatkan kualitas permukiman mereka, strategi pembangunan berkelanjutan dapat dikembangkan untuk meningkatkan daerah perkotaan yang dihuni oleh orang berpenghasilan rendah.

**Kata kunci:** *Informal; Terpinggirkan; Pembangunan berkelanjutan; Berpenghasilan rendah; Inklusif.*

#### ABSTRACT

Currently, many people live in urban areas and more than 30% of them live in slums or squatter settlements. Urbanization is one of the most transformative trends occurring worldwide, especially in developing countries like Indonesia. At present, more than half of the total population in Indonesia lives in urban areas. The dominance of the urban population shows the urgency to make the urban environment inclusive, safe, resilient, and sustainable

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as it is intended to be realized through Goal No. 11 - SDGs 2030. Cities require large spaces and are a major source of wealth and centers of innovation, culture, and politics. The urban area has become the most important arena for people, including low-income communities that live in informal urban spaces that develop spontaneously. This article will share research experiences on the settlements of marginalized communities. With the help of several institutions, the communities are trying to improve the quality of their settlements to become inclusive, safe, resilient, and sustainable. The method used in this research is the descriptive-qualitative method exploring the potential and resources within urban kampung to improve the quality of urban poor settlements. With the discovery of informal urban space patterns and community efforts to improve the quality of their settlements, a sustainable development strategy can be developed to improve urban areas inhabited by low-income people.

**Keywords:** Informal; Marginalize; Sustainable development; Low-income; Inclusive

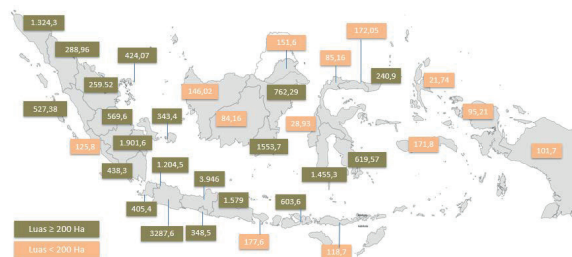
## INTRODUCTION

The phenomenon of urbanization is a challenge facing the world today because it affects the development of cities which causes the growth of slum settlements with poor people. Marginal communities with lower middle income develop their houses in slum areas, especially those that develop along riverbanks. This phenomenon generally occurs in developing countries, including Indonesia. The poor settlements that occur in the middle of the city are generally caused by the lack of residential infrastructure facilities. The bad and minimum infrastructure facilities available are drainages, clean water supply, domestic sewage treatment, electricity facilities, etc. In addition, transportation infrastructure in the form of roads, hallways, and open spaces also looks minimal and is of very poor quality. This is because the facilities were formed spontaneously due to the growth of the house which also developed spontaneously.

The Sustainable Development Goals (SDGs) carry five fundamental principles that balance the economic, social, and environmental dimensions. The five principles are People, Planet, Prosperity, Peace, and Partnership. Achieving Goal 11 of the SDGs

2030 requires providing access to all basic services and housing that is inclusive, safe, resilient, sustainable, and affordable. For many cities, this means repairing and upgrading the slums, in which many of the poor live. Achieving Goal 11 of SDGs 2030 requires providing access to all basic services and housing that is inclusive, safe, resilient, sustainable, and affordable. For many cities, this means repairing and improving the slums, where many of the poor live. Realizing goal No. 11 of SDGs 2030 requires hard work from low-income communities living along riverbanks, governments, and other stakeholders aiding the poor [1].

Indonesia is committed to implementing the 2030 Agenda with the aim of promoting efforts to end poverty, tackle inequality, promote human rights, and pay attention to the linkages between social and economic progress and environmental protection. Indonesia is the largest democratic country with 250 million people distributed in 34 provinces and 514 cities/districts. Since 2000, Indonesia has implemented a decentralization policy that gives local governments autonomy to plan development in their regions [2]. In 2013 it was recorded by the Central Bureau of Statistics, that there were 21 areas with areas of more than 200 hectares of slum area, while 11 areas with a slum area of fewer than 200 hectares. This situation reflects the life of low-income communities that mostly live in the Riverbank areas which develops spontaneously (see Figure 1).



**Figure 1.**

Distribution Map of Slum Areas in Indonesia (Ha)  
 Source: Unpublished Presentation Directorate of Urban, Housing and Settlements, Ministry of Public Works (2016): "Kebijakan dan Strategi Penanganan Permukiman Kumuh Perkotaan 2015 - 2019"

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With the development of big cities in Indonesia due to the high flow of urbanization, many riverside areas are the target of migrants to settle without having to pay expensive fees, because there is quite a lot of empty riverside land that is not utilized. Slum settlements that develop along the riverbanks generally place the river as the back of the house, so that the back of the house becomes a place to pile up all unused goods and the riverbank becomes a place to throw garbage, even the river becomes a big trash can for people who live along the riverbank [3]. Figure 2 shows the quality of the Barito

riverside environment in the sub-district of South Alalak, North Banjarmasin District, Banjarmasin Municipality. In addition, technical infrastructure facilities such as clean water facilities, drainage, and wastewater treatment are not available properly.

In 2016 there was still 35,291 ha of urban slum settlements spread across almost all parts of Indonesia according to the results of the calculation of the reduction in urban slums carried out by the Dirjen Ciptakarya. This condition is expected to continue to increase if there is no action of handling that is innovative, comprehensive, and on target [4].



**Figure 2.**  
Slum Settlement Area in the South Alalak Kampong Area, North Banjarmasin District, Banjarmasin City  
Source: Unpublished Report: Settlement Environmental Arrangement Plan (RPLP)(2020)

The KOTAKU (City Without Slums) program is a central government program, in this case, the Directorate General of Human Settlements, which was carried out in 2015 - 2019. This program is a continuation of the Urban PNPM (National Program for Community Empowerment). The purpose of the Kotaku program is to organize environmental facilities and infrastructure, to improve the community's economy [5]. In its implementation, the Kotaku program takes an approach that combines a bottom-up approach in a participatory manner by the local community and a top-down approach that

involves local and central governments and involves several existing stakeholders [6]. In 2016 there was still 35,291 ha of urban slum settlements spread across almost all parts of Indonesia according to the results of the calculation of the reduction in urban slums carried out by the Directorate General Cipta Karya. This condition is expected to continue to increase if there is no action of handling that is innovative, comprehensive, and on target [7].

The implementation of the Kotaku Program has encouraged the establishment and implementation of collaborative governance

for slum management in the study locations. Technical support and control activities from provincial consultants and Central Management Consultants (KMP) to assistants in the regions during 2016 - 2018 played a role in the running of mentoring and capacity-building activities carried out by city/district facilitators to local governments and communities. Especially during the planning stage of slum settlement arrangement, and the maintenance of institutional performance as reflected in the Housing and Settlement Area Working Group or abbreviated as Pokja PKP which functions and empowers the Community Self-Help Agency (BKM) [8].

The efforts of marginalized communities along the riverbanks to develop the quality of their settlements cannot be done alone without the intervention of other parties who

have the heart to help low-income communities. The process carried out by the KOTAKU program with a combination of bottom-up and top-down methods becomes an alternative that is in accordance with the characteristics of the settlements of marginalized communities along the riverbanks. The keyword that is very relevant to this situation is "Collaboration". Collaborative implementation is carried out by all stakeholders who support the development of settlements for marginalized communities along the riverbanks such as Local Government, Pokja PKP, Universities, Associations, NGOs, etc. (See Figure 3) With the collaboration of stakeholders, the efforts of marginalized communities along the riverbank to improve the quality of their settlements can be well identified. The quality of their residential environment will slowly continue to develop a more sustainable.

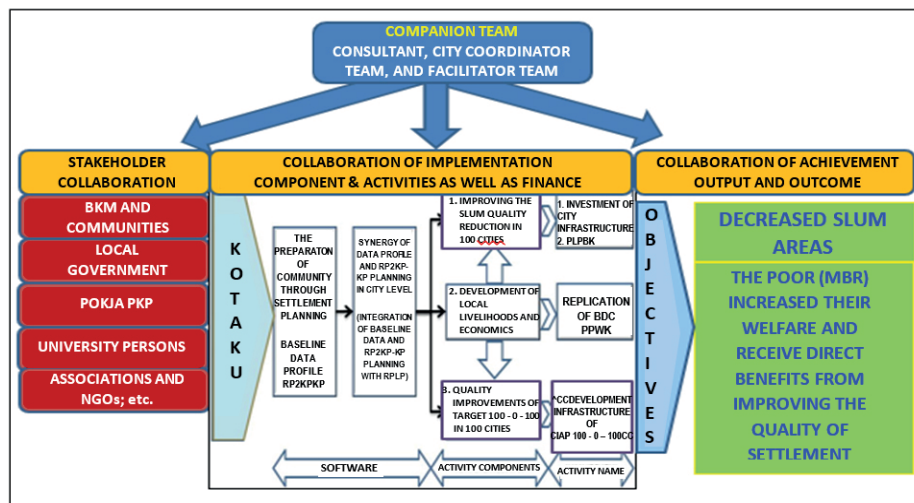


Figure 3.

Diagram of Cities Without Slums Collaborative Assistance

Sumber: Unpublished Presentation by Director General of Human Settlements – Ministry of PUPR: "Percapatan Penanganan Kumuh (Kotaku)" Berbasis Output & Outcome Serta Kolaborasi 2016 – 2021

In some cases, community empowerment must begin with the initiation of marginalized communities to build their settlements with their own resources. This society requires leaders who are firm, courageous, responsible, and broad-minded. Through this leadership, networks are opened with the government and other stakeholders such as academia, the private sector, and NGOs.

After that, collaboration to build settlements for marginalized communities that develop along the riverbanks can be carried out well.

The condition of the settlement environment which is completely limited requires a change both made by the community in the area and by the local government considering that urban Kampong settlements have potential that needs to be developed both from the



socio-economic field, as well as cultural tourism and as a traditional Kampong which certainly has value. high sales in the future.

## LITERATURE REVIEW

The urban Kampong as a starting point in finding a new urbanity in Indonesia can be key in fostering a better urban life. However, the search for physical principles seems to be quite far because they still have to rediscover paradigms and ideologies in living in urban areas with local characteristics. Strengthening local character is not only an anticipatory measure but also a force that must be combined with the modernization process [3].

The factors that cause the settlement area of the riverside Kampong to become slums include: the absence of a regional spatial plan as a reference for the legality of development, the low purchasing power of the people, inadequate settlement infrastructure services, and not yet optimal enforcement of the rules. These factors are considered dominant as contributing to slums in riverside Kampong settlements. These factors are interrelated and have an impact on each other. In general, the arrangement of the slum area of the riverside Kampong is carried out with 2 strategies, namely prevention strategies and quality improvement strategies. The prevention strategy

consists of capacity building, supervision and control, and community empowerment. The quality improvement strategy consists of restoration (rehabilitation), rejuvenation (revitalization), and resettlement (relocation) [9].

Technically, the character of riverside settlements is very flexible and has unclear boundaries (See Figure 4). Public space, as the dominant composition, is owned collectively and used for several functions simultaneously. This situation is often called Public vs. Private, which means that many spaces that are public are claimed to be private spaces by extending the roof or expanding the floor of the room towards public spaces outside the house. With this spatial character, the tenure pattern of private ownership is not the right pattern because it will eliminate social slices and dependence on each other, which has been believed to be the village's energy. In theory, this cannot be realized with the current housing regulations, even though it uses the concept of a vertical Kampong. When a house/building cannot be managed independently or with social capital but relies on "services" which are managed based on a money economy, then its sustainability will certainly not be long, whatever the name of the scheme [10].



Figure 4.

Very Flexible and Unclear boundaries Space within a Spontaneous Settlement in Baranglombo Island (Sub-district, Makasar Municipality)

Source: Unpublished Presentation by Program Kotaku Makasar "Draft Review Rencana Penataan Lingkungan Permukiman Kelurahan Barang Lompo Kota Makasar, 2020."

The concept of environmentally friendly settlements is a concept toward sustainable development. Environmentally friendly settlements have three components that are used as settlement indicators, namely: physical, economic, and social. Sustainable settlements are found in Kampung settlements in Indonesia. Most of the open spaces within Kampung are path/corridor-type open spaces. Several combinations of encounters between these open spaces, especially path spaces, can be categorized as node points which usually become potential points both in character and in Kampung structuring efforts. The main factor forming the character of the Kampung is in the proportion and scale of the open space, supported by the appearance of several components, both in the building and in the open space. By determining the proportion of space, it can be determined the appropriate proportion of space which can be the basis for the arrangement of the Kampung, which will develop vertically. Detailed elements form the next character, as elements that fill the vertical and horizontal planes of open space. These elements can be used as a unitary and part of the formation of a Kampung that is more accessible, integrated, and has a good visual experience [11].

In downtown Kampung, not all public spaces are always used because space users have other activities such as work so they only use the space at certain times and public spaces that are commonly used have other functions at some time such as being used for drying clothes. Meanwhile, in suburban Kampongs, public spaces are only used for some time, according to space users because they are not attractive and there is an awareness that the main function of the space is not for daily activities and there is no obligation to carry out activities every time in the public space so that users of the space are free. perform activities as desired [12].

According to the perception of space users in downtown Kampung, the average condition of public space is good, but it has not been able to accommodate the various

activities and social interactions carried out. In general, users of public spaces in suburban Kampongs assess the quality of space in suburban Kampung as good, only needs to be improved provision of facilities so that public spaces become more attractive. Users of space in suburban Kampung settlements tend to have an awareness that the space used to carry out activities has the main function not as a space for community activities but more as a space for mobilization [9].

Despite the various positive impacts previously described organizational capacity and opportunities to transfer knowledge were only obtained by a few population groups who actively participated during joint activities or gotong royong. Groups that actively carry out joint activities in settlements are more commonly found among members of youth organizations and individual activists without a particular organization. Analysis of interviews with key informants also shows that this contemporary art festival also creates opportunities for this group to empower and develop themselves [13].

After understanding some of the problems above, it becomes very important to interpret the identity of a Kampung in a city, because, with the recognition of the identity of a Kampung within a city, it is hoped that the order of living needs of its citizens will be clearer and more focused, and the quality of the Kampung environment can also be well maintained and sustainable. By understanding the level of residents' needs and environmental quality conditions, it will be easier to interpret the identity of the city. In other words, if the identity of a city to be developed is not understood comprehensively, of course, the development process and the lives of Kampung in the city will be increasingly uncertain, and the physical condition of the city will be chaotic which results in environmental quality degradation. Therefore, it is important to understand the meaning of the identity of a Kampung within the city properly, so that things that result in the unclear orientation of the function of Kampung life in the city to meet the needs of the

residents and the decline in the quality of the city's environment can be anticipated. Urban Kampongs in Indonesia has a unique spatial character [10].

## METHOD

The research method uses a descriptive qualitative method by describing things related to the physical elements in Kampong along the riverbank in the middle of the city. The study described in this article uses a qualitative descriptive method whose data were obtained through in-depth and open-minded interviews; direct observation (direct observation); and written documents (written documents). The interviews resulted in direct quotations from the community about their experiences, opinions, feelings, and knowledge in receiving the KOTAKU program implemented [14].

The process of observing the implementation of the KOTAKU program on a regular basis in several areas of the city since 2016. The process of implementing the KOTAKU program begins with the process of building a participatory vision and mission with the Kampong community and continues with several processes as described in the explanation in the introduction. After the implementation process of the KOTAKU program is completed, several changes can be identified to improve the quality of the settlement environment, both physically, infrastructure, socio-cultural and economic activities of the people who live on the banks of the river [15].

The zone was chosen based on the location where residents often carry out activities based on the results of interviews. At several points, interviews were conducted to find out the pattern of activities that are often carried out by residents in the zone. Physical elements are one of the data needed for research including the variables of alleys/small roads, kiosks/*warung*, public toilets, social facilities, fields, and open yards, as well as riverside. These physical elements affect the nature of the created urban Kampong along the riverbanks.

## RESULTS AND DISCUSSION

To understand the character of the marginal settlements along the riverbank, there are many aspects that can be observed. Some aspects that can be explained from the results of field observations that have been carried out can be explained as follows:

### Socio-cultural Character of Society

Considering the socio-economic conditions of low-income people living in riverside settlements that cross the city, it can be understood that they are hard workers trying to earn a living to meet the basic needs of their family life. Not only husbands work, but wives also work to help their husbands to earn additional income. Their dependence on the hustle and bustle of the city center is very strong, because from the city center, they earn their living every day.

Even though the residents of the settlements along the riverbank come from various regions, they can live together in harmony. This can be shown when one family needs help, so many other families reach out their hands to provide help. The relationship between people living in riverside settlements is very close and this is not limited to different ethnic relations, but also different religions and races.

According to field observations carried out in several riverside settlements, many young people and adults are not in settlements during the day, because most of them work outside settlements in the informal sector such as *becak* (three cycles) drivers, used goods collectors, side sellers' roads, parking guards, etc. They leave the house at 07.00 and return home in the afternoon between 16.00 and 18.00. Mothers stay at home more, because they must look after their young children and also manage household activities such as cooking, washing clothes, taking care of their children and cleaning the house, etc.

### Settlement Patterns and Marginal Architectural Characters

The position of informal settlements usually cannot be seen directly from the main road because these settlements develop



behind shops or houses that are built formally. Often the pattern of informal settlements formed from circulation looks very sporadic and does not have a specific pattern. The patterns on the inside of the settlement (secondary circulation) look like a grid while on the outside (primary circulation) they are usually linear following the flow of a river or main road.

The density of buildings in several riverside settlements is very high and the positions of the houses are very close to each other. In relation to informal public spaces which are formed spontaneously because of the composition of the building mass, there are many small open spaces that have a special character and are used intensively by local residents.

Houses in riverside settlements have different characters (See Figure 5), although in general they can be divided into permanent, semi-permanent, and non-permanent houses. The architectural typology of these houses

is relatively simple with a rectangular floor plan and the orientation of the building on Kampong streets or in public open spaces. In general, there are two entrances to the house: the main entrance and the side entrance. Because the land they have is very limited, the community builds their houses efficiently and adapted to their primary needs.

The shape of the roof is dominated by the typology of the simple roof shape of traditional Javanese houses of the “*Kampung*” and “*Panggung pe*” types. Other traditional Javanese roof forms such as “*Tajuk*” are generally used for religious buildings. Generally, houses built with complex roofs are owned by low-income people in the upper strata to middle-class people. The walls of the house are built with simple or used building materials such as zinc, woven bamboo, hardboard, and brick. While the floors are made of woven bamboo, cement, gray tiles, and ceramics, some are even made of the earth without finishing.



Figure 5.

Characteristics of Architectural Building and Settlement Pattern in Sub-district Karangwaru, District Tegalrejo, Yogyakarta municipality

Source: Unpublished Presentation by Program Kotaku Yogyakarta “Draft Review Rencana Penataan Lingkungan Permukiman Kelurahan Karangwaru, Kota Makasar (2020)”

The rooms in the house vary widely, from houses with only one room to houses with more than three rooms with complex spatial divisions. Generally, spatial planning is divided into public spaces such as terraces

and living rooms at the front of the house; semi-private rooms such as bedrooms, workspaces, and dining rooms are in the middle; private rooms such as kitchens, WC/KM, laundry rooms are in the back of the house.



Grassroots people, use the space in the house very flexibly, such as the use of living room which is also used as a work and dining room, and even used as a bedroom. For low-income people in the upper strata to middle-class people, also use the spaces in the house flexibly like in grassroots communities, if they have many family members.

### Patterns of Open Space and Circulation Characters within the Settlements

Open space in informal settlements is formed spontaneously following the pattern of house placement which is also developed spontaneously without any planning. The open spaces that exist in the riverside settlements do not have certain patterns, but the local residents use these spaces very efficiently and effectively. Based on field observations, there are several conditions that stimulate community activities in open spaces or on Kampong streets (see Figure 6). One of the stimulating conditions is the formation of an open space surrounded by residential houses. With the houses facing an open space, social interaction and communication between local communities will become more intensive. They use the open space for time sharing in the morning the mothers use it for socializing, during the day the children, and the youth in the afternoon and in the evening the fathers use the space to socialize. Another situation that stimulates community activities is the existence of technical infrastructure facilities such as public faucets/wells and Social Infrastructure facilities such as patrol posts, food stalls, prayer rooms, sports fields, etc. The infrastructure facilities above often stimulate the community to carry out social interactions.

Facilities located close to open spaces are the main Kampong roads or connecting roads in the middle of settlements. Like open spaces, Kampong roads are also formed spontaneously and in a sporadic pattern following the development of house construction. These streets have no particular shape or pattern. However, the roads that are often

traversed by residents can be categorized as main Kampong roads and secondary roads are often categorized as connecting roads or also known as rat roads. These rat roads (*jalan tikus*) usually connect the main Kampong Road to the main road or to other main Kampong roads. The width of the main Kampong Road is between 1.5 – 3 meters, while the rat road is less than one meter wide. In the case of Kampong along the river, the kampong streets are also developed following the pattern of housing along the river.



**Figure 6.**

Characteristics of Kampong Road Along the Housing Areas on the River in Sub-district Pahendut Seberang, Palangkaraya municipality, Kalimantan Tengah

Source: Unpublished Presentation by Program Kotaku Palangkaraya “Draft Review Rencana Penataan Lingkungan Permukiman Kelurahan Pebendut Seberang, Kota Palangkaraya, (2020)”

## Infrastructure Facilities within the Settlements

Although infrastructure facilities in informal settlements are minimal, many families have electricity in their homes. Only grassroots communities that do not have electricity facilities use oil lamps in their homes. Because many families have electricity facilities, many families also have electronic equipment such as radio, tape recorder, television, videotape, etc. For street lighting, each family usually installs a lamp in front of their respective houses.

Other infrastructure facilities in informal settlements are public faucets/wells, public toilets/KM, and sewers. Some families have private clean water facilities. If they do not have clean water facilities at home, they will take clean water at public clean water facilities. In some cases, sewage from the city flows into rivers through closed or open drainage. If informal settlements develop along the riverbanks, the dirty water automatically flows into the river through informal settlements. Thus, many people from outside the informal settlements think that the dirt in the river is caused by people with low incomes throwing garbage directly into the river. It is true that many people in informal settlements throw garbage into rivers, but urban communities in formal settlements also contribute to waste being dumped into rivers.

## The Effort of Marginalized Community to Improve Poor Settlement Through Collaboration Activities

The community empowerment process carried out in several urban kampong settlements is carried out simultaneously with making plans for the development of urban village settlements. This empowerment process is carried out through the Ministry of Public Works - Directorate General of Human Settlements under the name Neighborhood Development [PLPBK] which is followed by the KOTAKU program. This program involves all communities who are willing to work for the development of their own settlements. In this program, there is

no development assistance after completing the entire program. So, after implementation is complete, the community must independently maintain and develop housing areas without any assistance.

The main achievement to be achieved is community organizing which is described in 3 major terms, respectively: Financial and Social Marketing Support; Technical Assistance; and Legal and Management Assistance. Of the three major things, assistance and community empowerment are carried out in detail through Infrastructure Development, House Renovation, Developing Institutions, and Urban Renewal. In the four main activities conducted together with the community, the facilitator must be creative in outlining the four main activities into applicable programs and be able to encourage people living in an urban kampong.



Figure 7.

The Result of Collaboration Between Local Communities, Regional Governments, Central Government, Corporations, and Academics in Developing "Bendung Lepen" Tourism Area in Sub-district Giwangan, District Umbulharjo, Yogyakarta City

Source: Documentation of Kotaku Yogyakarta

The efforts of marginalized communities to build residential areas along the banks of the river are supported by the government through the KOTAKU program. By creating a Collaboration platform, all stakeholders will jointly support the improvement of slum settlements on the banks of the river (see Figure 7). The power of collaboration greatly helps low-income communities living along

riverbanks to improve their residential environment. With the improvement of the environment, many people began to develop the economy by opening kiosks and food stalls along the road. Thus, the effect of collaborative development can improve the welfare of marginalized communities living on the banks of the river.

## CONCLUSION

As a result of the discussion in the previous chapters, this last section will give some conclusions. First, it can be concluded that the Community Empowerment Method through Community Based Sustainable Infrastructure Development initiated by several stakeholders can motivate the community to live in a healthier and more sustainable environment. In addition, the shareholder collaboration process is useful in empowering the community so that their welfare level can slowly be increased.

From the survey results, it was found that not all communities as beneficiaries of the urban kampung community empowerment program with the City Without Slums (*Kota Tanpa Kumuh*) program experienced character changes in their daily lives, especially related to maintaining the quality of the environment around their settlements. By actively participating in the Kampung Community Empowerment program, the community is more aware of disaster risks that may occur after this empowerment program is implemented.

The quality of life of marginalized people living along the riverbanks can be identified as follows: The riverside area looks better with inspection roads on the riverbanks which are very useful for carrying out river maintenance so that it is clean and flows more smoothly; Technical infrastructure facilities such as drainage networks and clean water can be properly accessed by the community without fear of water pollution due to non-standard septic tanks and infiltration wells; Communal Wastewater Treatment Plants (WWTPs) are built for the community, so that all liquid domestic waste, both

black and grey water, which was previously directly discharged into the river, has now been treated first with WWTP, then the outlet from the WWTP is directly discharged into the river; Although many houses were cut down to open access roads by the river without compensation, the community was still happy because the quality of the environment around their houses was clean, and it allowed them to open businesses to improve the local economy.

Based on the results of the discussion above, the conclusion that can be given is that total participatory community involvement starting from the field survey process, planning, and implementation, to carrying out maintenance, can change people's bad habits to live healthily and live in a sustainable environment.

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