

SUSTAINABILITY OF KAMPUNG HIJAU KEPUTIH TEGAL TIMUR TO THE CONCEPT OF SUSTAINABLE DEVELOPMENT

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ABSTRACT

Surabaya as one of the cities in Indonesia that is developing towards a smart city. One of the supporting parts in sustainable urban development is settlement, both formal and informal. Kampung Hijau Keputih Tegal Timur, is used as the object of a case study to discuss the sustainable development of residential cities in Surabaya. This kampung was chosen because it has implemented several aspects of sustainability. This research was conducted to identify and assess the condition of Kampung Hijau Keputih Tegal Timur based on the sustainable development goals (SDG), and environmental & urban settlement concerns which are used as indicator. The results showed that Kampung Hijau Keputih Tegal Timur has fulfilled almost all aspects of the indicators of sustainable development goals and environmental concern & urban settlements. However, there are some unfulfilled indicators between "no poverty" and "life on land". So that a follow-up is needed to Kampung Hijau Keputih Tegal Timur in order to create a green kampung.

Keywords: *sustainable development, smart environment, environmental concern*

INTRODUCTION

Surabaya is one of the cities in Indonesia that is preparing itself for the concept of smart city development in 2020. One form of implementation is the construction of parks as public facilities and a place for people to unwind and socialize. In addition, support is needed to realize the concept of sustainable city development not only in the commercial property sector but also in both formal and informal settlements. There are several non-formal residential areas in the city of Surabaya, namely "Kampung" concept settlements, one of which is Kampung Hijau Keputih Tegal Timur. Kampung Hijau Keputih Tegal Timur, is the object of study that will be discussed in this study. Kampung Hijau Keputih Timur Tegal, is on the Eastern side of Surabaya City, adjacent to Keputih general places of disposal (TPU Keputih). The problems that arise in this kampung include the water crisis due to the unorganized condition of the kampung and the minimal availability of clean water. In addition, the

location of the kampung which is close to the garbage dump makes this kampung has poor air quality for health.

Kampung Hijau Keputih Tegal Timur, is a kampung that was chosen as a place for implementing the "green and smart city" in the city of Surabaya, where this kampung is one of the green kampungs fostered by PT Astra. Residents with PT. Astra is trying to develop the kampung behind the former Keputih Landfill (TPA) area. In the stages of development, Kampung Hijau Keputih Tegal Timur has three stages. 2013-2014 development towards a clean and beautiful kampung, motivating the community to keep their environment clean and in improving the environment. In the following year 2015-2016, this kampung was declared as an educational tourism kampung, which is currently in the development and repair stage, and for 2020 it is hoped that the Kampung Berseri Astra (Kampung Hijau Keputih Tegal Timur) will become a tourism icon for the city of Surabaya. As for several programs implemented for the realization of Kampung Berseri Astra, include; water treatment plan, namely processing river water into clean water; a productive garden where residents can plant flowers and fruits in polybags; greenhouse or compost plant; garbage bank; smart home as a place for housewives to manage handicraft businesses and children's play facilities.

THEORY / RESEARCH METHODS

Sustainable Development Goals

The SDGs consist of 17 objectives related to sustainability aspects and include the steps toward sustainable development (Central Statistics Agency, 2015).

1. End poverty.
2. End hunger, food security, improve nutrition and sustainable agriculture.
3. Ensuring a healthy life & improving the prosperity of people.
4. Ensuring quality education that is fair, inclusive and enhances lifelong learning opportunities for all.
5. Achieving gender equality, empower women and girls.
6. Ensuring water availability, sustainable water management and sanitation.
7. Ensuring the access of energy to affordable, reliable, sustainable, and modern.
8. Encourage equitable & sustainable economic growth, provide maximum & productive employment opportunities, and decent work for all.
9. Build strong infrastructure, encourage inclusive and sustainable industrialization, and promote innovation.
10. Reducing dissimilarity within and between countries.
11. Making cities and settlements fair, equitable, secure, resilient, and sustainable.
12. Ensuring sustainable production & consumption scheme.
13. Take emergency action to resolve climate change and its impacts.
14. Conserve oceans, seas, and marine resources in a sustainable manner for sustainable development.

15. Protect, rehabilitate, and enhance the sustainable use of ecosystems, manage forests, combat desertification, stop the loss of biodiversity and restore land degradation.
16. Encourage an inclusive & peaceful society for sustainable development, provide justice for all, build effective, accountable institutions at all levels.
17. Reinforce the implementation and revitalize the global partnership for sustainable development.

Four main problem dimensions need to be considered for micro-housing in the concept of sustainability, which is described in table 1.

Table 1. Four Dimension of Sustainability in Micro-Housing

No.	Dimension	
1.	Environmental	- Ensuring energy efficiency, resource and generation.
		- Eco-friendly design, local material construction.
		- Sanitation, preventing dangerous materials and pollution.
		- Affordable use of resources.
		- <u>Improve home endurance & adaptability</u>
2.	Social	- Empowering communities & ensuring public participation.
		- Ensuring health, secure and prosperity.
		- Built togetherness, 'sense of place', and identity.
		- Fulfilling special needs and wants in settlements.
		- <u>Provide infrastructure access and public spaces.</u>
3.	Cultural	- Resilience responsive to local culture and housing plan.
		- Increase the aesthetics, diverse culture of the built environment, and place of residence.
		- Build social creativity.
		- Help people move from rural & slum areas to adequate housing for multiple families.
4.	Economic	- Ensuring the affordability of housing for all.
		- Provide adequate housing to increase labor productivity and ensure housing is integrated with employment.
		- Support domestic economic & business activities.
		- Promote small landlords & self help housing.
		- <u>Housing management & maintenance.</u>

Source: UN Habitat, 2011

Research Method

This study uses a qualitative approach because this approach is considered more appropriate for analyzing the existing conditions of the Kampung Hijau Keputih Tegal Timur based on the concept of sustainability. Its consists of 4 RW in 24 RT which has an area of about 60,976 Ha. Qualitative evaluation is applied to eliminate the subjectivity of analysis on understanding complex relationships. Therefore, a qualitative approach makes it possible to see the subject's perceptions of reality, avoiding pre-formed analyses (BAUER and GASKELL, 2000). This research aims to explore different opinions and what to base and justify different points of view. Qualitative researchers use three main modes in collecting participant observation

data (experiencing), interviewing (asking), and studying material prepared by others. (WOLCOTT, 1994). The data engineering was carried out by using theoretical studies regarding the principles of sustainable architecture, sustainable development goals (SDG), environmental awareness, and urban settlements obtained from literature studies. Besides, a direct survey was conducted to the study location, namely Kampung Hijau Keputih Tegal Timur, and interviews with residents and local officials. The stages of research analysis were carried out in several stages of making data about the existing conditions of the research object by looking for information about Kampung Hijau Keputih Tegal Timur. Analyze the initial description of the physical condition of the kampung to form an initial hypothesis. The results of the analysis are then compared based on indicators related to sustainable development. The following are some of the variables used in the study. in Table 2. Indicator variables are used to analyze the linkage of research objects with the suitability of sustainable development.

Table 2. Indicator Variables Are Used to Analyze the Linkage of Research Objects with The Suitability of Sustainable Development

Indicator Of Sustainability Development Goals	Environmental	Social	Cultural	Economic
1. No Poverty				1.Ensuring the affordability of housing for all.
2. Zero Hunger				2.Provide adequate housing to increase labor productivity and ensure housing is integrated with employment .
3. Health & prosperity		1.Empowering communities and ensuring public participation .	1. Resilience responsive to local culture and housing plan.	
4. Education	1.Ensuring energy efficiency, resource and generation.	2.Ensuring health, secure and prosperity.	2. Increase the aesthetics, diverse culture of the built environment , and place of residence.	
5. Gender Quality	2.Eco-friendly design, local material construction.	3.Built togetherness, 'sense of place', and identity.	3. Build social creativity.	3.Support domestic economic & business activities.
6. Clean Water & Sanitation	3.Sanitation, preventing dangerous materials and pollution.	4.Fulfilling special needs and wants in settlements.	4. Help people move from rural & slum areas to adequate housing for multiple families.	4.Promote small landlords & self help housing.
7. Affordable & Clean Energy	4.Affordable use of resources.	5.Provide infrastructure access and public spaces.		5.Housing management
8. Proper Work & Economic Growth	5.Improve home endurance & adaptability.			
9. Industry, Innovation & Infrastructure				
10.Reduced Inequalities				
11.Sustainable Cities & Communities				
12.Responsibilities Consumption & Production				
13.Climate Action				
14.Life Below Water				
15.Life on Land				

Indicator Of Sustainability Development Goals	Environmental	Social	Cultural	Economic
16. Peace, Justice, and Strong Institution				and maintenance
17. Partnerships for the Goals				.

Source: The Results of the Author's Synthesis, 2018

In the comparison process between the existing conditions of the research object and the theory related to sustainability, the results of the analysis of the suitability and the things that are not following the indicators of sustainability in the research object of Kampung Hijau Keputih Tegal Timur will be obtained. The purpose of this research is to evaluate the sustainability and problems that exist in the object of the case study. In this sense, a qualitative approach is considered more appropriate for evaluation. The aim of qualitative research itself is to explore different opinions and grounds that justify different points of view. The data collection techniques used in the study were:

1. A theoretical study of the principle of sustainability, SDGs indicators obtained from literature studies.
2. Study-related objects, by finding and tracing information through newspapers and social media as well as several sources who know the background of Kampung Hijau Keputih Tegal Timur.
3. Survey / direct observation of the object of study.
4. Interview

After the data is collected, the next stage is the analysis stage, with the following explanation:

1. Data collection. The data needed in identifying Kampung Hijau Keputih Tegal Timur include; building physical data, UKM data, and occupation of the residents of this kampung.
2. Analyze the data. The analysis conducted includes the existing conditions, physical and non-physical aspects of Kampung Hijau Keputih Tegal Timur. The data analysis method used is descriptive qualitative.
3. Identification of problems that exist in Kampung Hijau Keputih Tegal Timur, including; There are physical differences between semi-permanent and permanent buildings and economic disparities between residents (some are scavengers, laborers, or entrepreneurs).
4. The results are in the form of data synthesis, namely by concluding the research results in the form of descriptions and the results of the assessment of the object of study on the sustainable principle indicator analysis and SDGs.

To facilitate the analysis phase of Kampung Hijau Keputih Tegal Timur, the kampung is divided into two zones, namely the initial zone and the second zone, as shown in Figure 2.

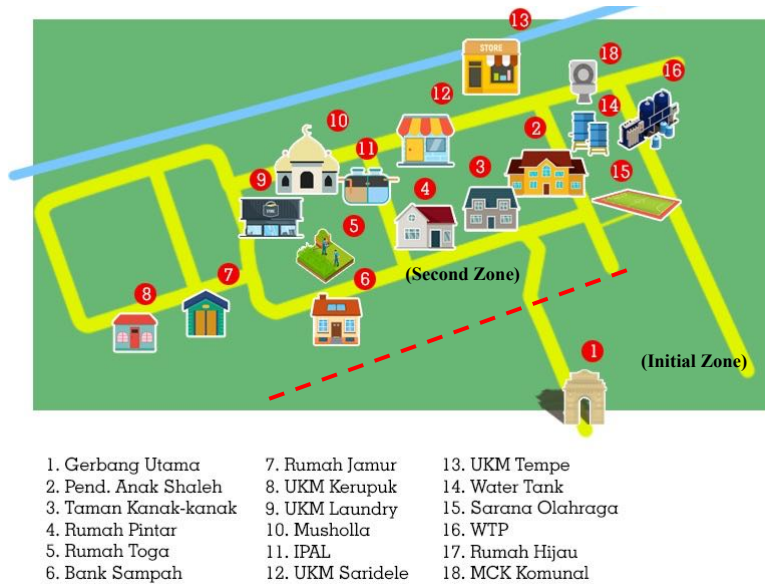


Figure 2. Zone of Kampung Hijau Keputih Tegal Timur
Source: Field survey (2018)

RESULTS AND DISCUSSION

Kampung Hijau Keputih Tegal Timur

Surabaya is a city that implements the Green and Smart City program, one of the programs is “Kampung Hijau”. Keputih, is one of the places on the east coast of Surabaya, which has a high population density with 400 families. The Keputih area is surrounded by several integrated facilities belonging to the Surabaya city government, one of which is the City Forest which was formerly a Keputih Waste Disposal Site. In the 1990s several marginalized communities were given a place to live by the city government of Surabaya, to be precise in the Keputih Tegal Timur Baru area, which is a landfill area in Surabaya. In 1992 pedicab drivers, beggars, homeless people, and scavengers were given free land to live on. Based on recognition from residents, they obtained land for a house from the Mayor of Surabaya at that time. It is recorded that there are about 23 heads of families who live and are now claimed by the Surabaya City Government.

Geographically, Kampung Keputih Hijau Tegal Timur is adjacent to the Jagir River and is flanked by TPU Keputih. District Keputih is in the eastern part of Surabaya which has a geographical location of 112°46'53 " - 112°50'48 " East Longitude and 7°16'14 " - 7°18'36 " LS (Dian, (2017). Kampung Hijau Keputih Tegal Timur consists of 4 RW in 24 RT which has an area of about 60,976 Ha. Figure 3 describes the map of the location of Kampung Hijau Keputih Tegal Timur.



Figure 3. Map of Location of Kampung Hijau Keputih Tegal Timur, Viewed On Google Maps
Source: Google Maps (2018)

The majority of the land in Kampung Hijau Keputih Tegal Timur is used for final disposal. This kampung has issues and problems, including garbage and air. This issue makes it interesting to be discussed in the concept of sustainability besides that this discussion supports the concept of Sustainable Architecture. Currently, the awareness of the surrounding community on environmental cleanliness has increased as seen from the physical condition of this kampung. The enthusiasm of the residents in maintaining the cleanliness of the environment was warmly welcomed by the government by receiving a green kampung award and receiving financial assistance for kampung development from PT Astra Tbk. This kampung will be used as an Iconic Tourism of Kampung in the City of Surabaya in 2020.

In the past, houses in this kampung were mostly semi-permanent buildings, which spread straight to form a row as described in Figure 4. On average, the residents of this small kampung work in the informal sector, such as garbage collectors, collectors, security guards, and selling food and drinks. Although it is a settlement that has been around for years, the existence of this kampung, which is inhabited by several residents, is not recorded. So that residents are not touched by public services, because administratively they are not registered as legal residents of the district.



Figure 4. Initial Conditions of Kampung Hijau Keputih Tegal Timur, Radar Malang,
Source: Radar Malang (2017)

Figure 5 describes the existing environmental conditions of Kampung in initial zone. The condition of the settlement in Kampung Hijau Keputih Tegal Timur, is not neatly organized, there are residual items from the development of residents that are left piling up. Besides, the land around this area is layered, it is not fertile. The air

quality in Kampung Hijau Keputih Tegal Timur, is also classified as low due to the smell of garbage that still piles up. The clean water crisis is also a problem in this kampung. Moreover, the settlement in Kampung Hijau Keputih Tegal Timur, is also included in a kampung that stands on illegal land, so that it does not receive clean water distribution.



Figure 5. The Current Condition of Kampung Keputih Tegal Timur
Source: Field survey (2018)

The results of the field survey describe the existing conditions in the early zone area of Kampung Hijau Keputih Tegal Timur which are unorganized and have a relatively low quality of life. Because the conditions of the soil, water, and air in the kampung environment have not yet met a healthy standard of living.

Built Environment in Kampung Hijau Keputih Tegal Timur

Kampung Hijau Keputih Tegal Timur, which has undergone development, is surrounded by several facilities such as a waste bank, toga garden, compost house, mushroom house, several UMKM (Usaha Mikro Kecil Menengah) owned by local residents, smart house (rumah pintar), kindergarten, mosque, temple, waste water treatment plant (WWTP), and water treatment plant (WTP). The average condition of the houses in this kampung is in the form of semi-permanent buildings that are less suitable for habitation with a minimum area. The building is far from healthy because it doesn't pay attention to the health aspects of people who live in it, seen in figure 6 (a).



Figure 6. Residential Building Conditions of Kampung Hijau Keputih Tegal Timur
Source: Field survey (2018)

Permanent buildings are often found in kampung areas that have been developed, namely in zone two, as shown in Figure 6 (b). The residents' concern for their health and environment can be seen from the use of outdoor space by planting in polybags. The difference between the initial zone and zone two lies in the type of house building (permanent or semi-permanent) and the concern for creating a green environment.

Kampung Hijau Keputih Tegal Timur is equipped with several supporting infrastructures such as entrance gates, directions and area maps, public telephone services, paved road corridors, wastewater management installations, water treatment plants, public toilets, industrial areas (such as waste banks and UMKM). Also, in this kampung area, there is an agriculture zone in the form of a toga garden, mushroom house, and compost house. The educational facilities in this area are TK Bina Ana Prasa, smart house, Leadership and Communication Training for Supervisors. There are mosques and temples (pura) as religious facilities for local residents.



Figure 7. Entrance gate and directions in Kampung Hijau Keputih Tegal Timur
Source: Field survey (2018)

The entrance gate and direction map in Figure 7 are in the area of the entrance to the second zone of Kampung Hijau Keputih Tegal Timur. The existence of this information helps visitors who come to get information on existing facilities in the kampung area.



Figure 8. Corridor of Kampung Hijau Keputih Tegal Timur
Source: Field survey (2018)

The houses of residents in the second zone of Kampung Hijau Keputih Tegal Timur are mostly permanent buildings. The outdoor area is used for planting with potting media. The road corridors in Kampung Keputih Tegal Timur are quite neatly arranged with many vegetation elements such as vines that function as shade and are wrapped around a pergola (Figure 8). The road corridors material is paving blocks so

that it can maximize water absorption to avoid flooding. Beautiful and shady atmosphere envelops the Kampung Hijau Keputih Tegal Timur. This plant provides a cool atmosphere and helps absorb air pollution from TPU Keputih.



Figure 9. Public Facilities Centre for Water Distribution

Source: Field survey (2018)

The waste management infrastructure in this area is near the mosque. The results of the processing are used for watering plants (Figure 9) and foraging in the environmental area only, not for toilets or drinking. The WTP is located near sports fields and public toilets. This WTP (Figure 10) functions for processing river water into clean water which is used by residents to meet their clean water needs. Public toilets are located near the sports field and WTP.



Figure 10. A Place to Recycle River Water into Clean Water

Source: Field survey (2018)

The condition of the toilets is very neat and clean, as shown in figure 11. The existence of toilets really helps residents who do not have toilets in the house.



Figure 11. Public Toilet in Kampung Hijau Keputih Tegal Timur
Source: Field survey (2018)

Problems found during the survey were differences in house conditions between the initial zone and the second zone, such as types of buildings and residents' concern for greening the environment.

Socio, Economic, and Culture Environment in Kampung Hijau Keputih Tegal Timur

Based on the survey results, the Kampung Hijau Keputih Tegal Timur settlement is divided into two zones. The initial zone is in the front area after the entrance gate, while the second zone is more inward with less accessibility and denser settlements. From the two zones, there are gaps in terms of the physical visualization of the buildings. Apart from that, there are differences in the majority of the livelihoods of the kampung. In the initial zone most of the residents made their living as scavengers. Apart from being proven through data, it can also be proven by the existence of three garbage collector buildings located in the initial area of Kampung Hijau Keputih Tegal Timur (Figure 12).



Figure 12. Used Goods Shelter House
Source: Field survey (2018)

Political Environment in Kampung Hijau Keputih Tegal Timur

There are several kampung development programs designed to encourage residents such as; home industry area, waste and compost management, productive gardens, educational facilities, and health services.

1. Industry Area

Industrial areas were formed to improve the economy of local residents.

a. Waste bank

The existence of Waste bank (Figure 13) as a forum for creativity in managing plastic waste for residents of Kampung Hijau Keputih Tegal Timur. This activity can help in advancing the kampung.



Figure 13. Waste bank in Kampung Hijau Keputih Tegal Timur

Source: Field survey (2018)

b. Compost house

Local residents take advantage of the waste for recycling. The waste is converted into valuable goods, one of which is compost.



Figure 14. Compost house in Kampung Hijau Keputih Tegal Timur

Source: Field survey (2018)

c. Home Industry (UMKM)

UMKM is a program that is built by the government and the community of Kampung. Some residents use their houses to start businesses. The existence of this effort can help the community to boost the economy. There are several UMKM in this Kampung Hijau Keputih Tegal Timur such as; kerupuk, tempe, soymilk, and laundry (Figure 15).



Figure 15. UMKM in Kampung Hijau Keputih Tegal Timur
Source: Field survey (2018)

2. Agriculture

Narrow land is not a limitation for planting. The establishment of mushroom houses and toga gardens will help develop people's insight into the environment.

a. Mushroom Houses



Figure 16. Rumah Jamur in Kampung Hijau Keputih Tegal Timur
Source: Field survey (2018)

Mushrooms are one of the objects that are easy to cultivate because they grow in humid areas. Apart from being consumed by residents, mushrooms can also be sold and processed again to get additional income.

b. Toga Gardens

The residents' need for herbal medicine encouraged the formation of Toga Gardens or family medicinal plants (Figure 17). Not only as a condition of greening but also provides benefits to treat several minor ailments.



Figure 17. Kebun Toga in Kampung Hijau Keputih Tegal Timur
Source: Field survey (2018)

3. Education

Educational facilities in the local area are very important to increase the knowledge of citizens (Figure 18). There are several facilities such as, kindergarten, smart home, and training house.



Figure 18. Education Facilities in Kampung Hijau Keputih Tegal Timur
Source: Field survey (2018)

a. Kindergarten (TK Bina Asa)

The existence of TK Bina Ana Prasa is very important for the education of the children in Kampung Hijau Keputih Tegal Timur.

b. Smart House (Rumah Pintar)

Rumah pintar are used by residents to hone citizen creativity and also deliberation. This house is also used for posyandu and community associations.

c. Training Leadership & Communication for Supervisor

Leadership & Communication for Supervisors is very helpful for Kampung Hijau Keputih Tegal Timur residents who want to become leaders.

4. Health Services

There are no special health facilities in this kampung. Health services are provided in rumah pintar (Figure 19).



Figure 19. Posyandu in Kampung Hijau Keputih Tegal Timur

Source: Field survey (2018)

5. Security of Land

Night patrol activities carried out by residents are a form of concern for local security. The existence of a security posts in the area (Figure 20) greatly assists in monitoring the kampung from the possibility of unwanted things such as criminal activity. Night patrol activities are carried out every night on a rotating system.



Figure 20. Pos Kamling in Kampung Hijau Keputih Tegal Timur

Source: Field survey (2018)

Analysis of Kampung Hijau Keputih Tegal Timur Based On the Concept of Sustainability

Several indicators can help assess the feasibility of Kampung Hijau Keputih Tegal Timur based on the principle of sustainable development which will be explained in Table 3.

Table 3. Indicator Variables for Assessing Environmental Concern Urban Settlement Aspects in Case Study

Micro (Neighbourhood, Household)							
Environmental		Social		Cultural		Economic	
Ensuring energy efficiency, resource and generation.	Yes	Empowering communities & ensuring public participation.	Yes	Resilience responsive to local culture and housing plan.	Yes	Ensuring the affordability of housing for all.	Yes
Eco-friendly design and local material construction.	Yes	Ensuring health, secure and prosperity.	Yes	Increase the aesthetics, diverse culture of the built environment, and place of residence.	Yes	Provide adequate housing to increase labor productivity and ensure housing is integrated with employment.	Yes
Sanitation, preventing dangerous materials and pollution.	Yes	Built togetherness, 'sense of place', and identity.	Yes	Build social creativity.	Yes	Support domestic economic & business activities.	Yes
Affordable use of resources.	Yes	Fulfilling special needs and wants in settlements.	Yes	Help people move from rural & slum areas to adequate housing for multiple families.	Yes	Promote small landlords & self help housing.	No
Improve home endurance and adaptability.	Yes	Provide infrastructure access and public spaces.	Yes			Housing management & maintenance.	Yes

Source: Authors, 2018

The Application of the concept of sustainability is also assessed based on SDGs described in Table 4.

Table 4. Indicator Variables to Assess the Aspects of the SDGs in Case Study

Indicator Of Sustainability Development Goals (SDGs)		Application of the SDGs Program	
		Yes	No
No Poverty	The economy in Kampung Hijau Keputih, East Tegal, is still in the development stage, judging by the occupational background of the residents.		✓
Zero Hunger	There were no residents who experienced hunger because of mutual cooperation.	✓	
Good Health and Well-Being	There were no residents who had infectious or chronic diseases, but the environmental conditions were considered to be poor in terms of air quality.	✓	
Quality Education	There are educational facilities that support local residents, including Bina Prasa Kindergarten, Smart House and Taman Baca (reading area).	✓	
Gender Quality	There were no problems related to gender differences.	✓	
Clean Water and Sanitation	In distribution and water treatment, the kampungrs apply the WWTP and WTP systems as a solution to conserving clean water needs.	✓	
Affordable and Clean Energy	The residents of Kampung Hijau Keputih, Tegal Timur, have a Renewable energy program in the form of WWTP, WTP and compost houses as well as at a waste bank that applies recycling concepts.	✓	
Decent Work and Economic	In its development, the community's economy is fostered by UMKM and Leadership and Communication Training to help them market their products.	✓	
Industry, Innovation and Infrastructure	The WTP and WWTP systems are the latest innovations applied in efforts to save and treat water. Concern for greening is also applied through reforestation programs to reduce the global effects of warming.	✓	
Reduced Inequalities	UMKM as the economic driver of the residents continues to be developed to achieve economic equality in the Kampung Hijau Keputih Tegal Timur.	✓	

Indicator Of Sustainability Development Goals (SDGs)		Application of the SDGs Program	
		Yes	No
Sustainable Cities and Communities	UMKM and Leadership Training which was formed to develop soft skills of citizens and insight into environmental sustainability.	✓	
Responsibilities Consumption and Production	Garbage banks, compost houses, toga gardens, and mushroom houses are forms of effort to meet residents' needs and increase people's income. Through recycling, activities can reduce household waste.	✓	
Climate Action	Greening that is carried out by residents and waste management is a form of community concern to reduce the impact of climate change.	✓	
Life Below Water	There was no tendency for residents to do activities on water.		✓
Life on Land	Residents occupy land that was formerly landfilled.		✓
Peace, Justice, and Strong Intitution	The mutual cooperation carried out by the residents creates comfort and justice in their area.	✓	
Partnerships for the Goals Quality and Sanitation	PT. Astra International Tbk is a sponsor in the development of Kampung Hijau Keputih, East Tegal. This kampung is an example of a kampung that can fight against garbage.	✓	

Source: Authors, 2018

From the analysis of environmental concern indicators for urban settlement, almost all aspects can be fulfilled by Kampung Hijau Keputih Tegal Timur. Then a more detailed analysis was carried out using the SDGs indicator and the results obtained from the overall observations were good, as evidenced by the number of points that had been applied.

CONCLUSIONS

Sustainable development is a measure of the suitability of housing and the environmental problems in the future. This concept has many indicators related to the environment and urban settlements. The results of the suitability of the indicators for environmental concern for urban settlements in Kampung Hijau Keputih Tegal Timur, have met the existing aspects. Meanwhile, almost all of the seventeen indicators in the SDGs were fulfilled. So that overall, the Kampung Hijau Keputih Tegal Timur has fulfilled the concept of sustainable development, and is able to provide an example for other kampung in creating green and clean environment.

There are two points that have not been achieved in fulfilling the sustainability aspects of Kampung Hijau Keputih Tegal Timur, including the following:

1. Life on Land

This point was not achieved because Kampung Hijau Keputih Tegal Timur stands on the land of the former city landfill where the fertility, density and cleanliness of the soil are still considered lacking. Because the garbage that is composed in the soil causes the soil to be less dense and stable, it is feared that it is easily threatened by landslides. From these problems, it can be responded by reducing waste by using an environmental cleaning system from soil contaminated by plastic waste and empowered again through the compost system, water from WWTP and WTP (Figure 21).

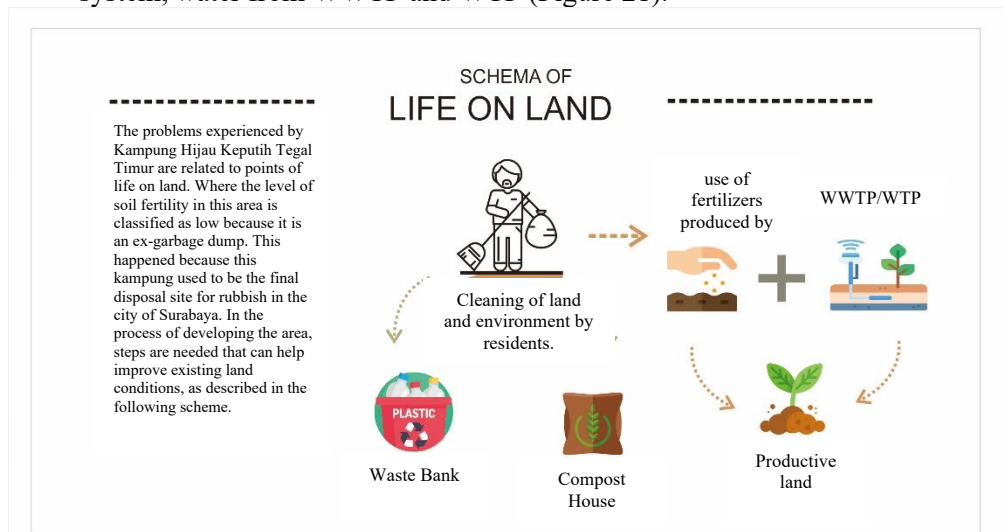


Figure 21. Scheme of Life on Land Survey Design Results and Redevelopment of Kampung Hijau Keputih Tegal Timur

Source: Authors (2018)

2. No Poverty

Community problems that arise are in the form of economic disparities that are visible from a visual and non-visual perspective. From a visual perspective, it can be seen from the difference in the formations and building materials used in residential areas. Where in the initial zone most of them use wood and plywood

as the main material for the walls, while in the second zone, the residents' settlements are built with stronger materials, such as concrete with a brick wall covering. From a non-visual perspective, what was found during the research process was that the economic activities of the residents were quite different. The residents of the early zone have the majority of their livelihoods as scavengers and in the second zone the majority of residents are entrepreneurs (Figure 22).

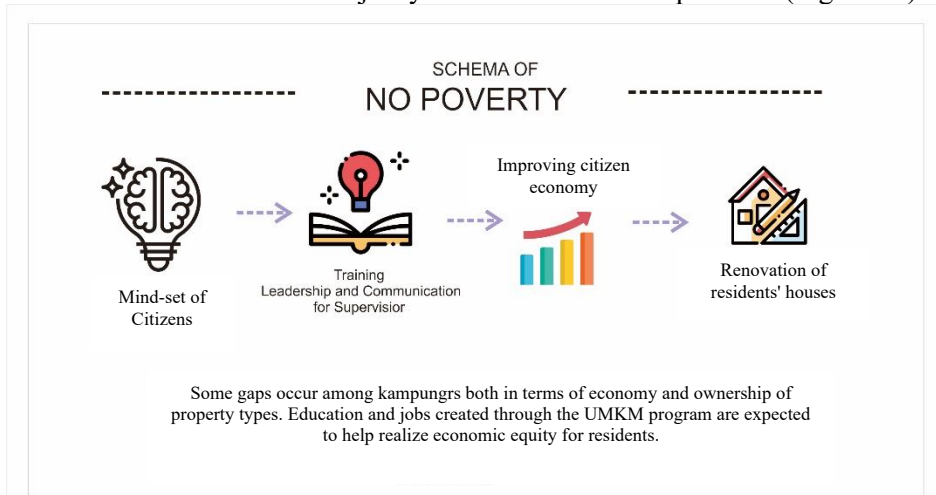


Figure 22. Scheme of No Poverty Survey Design Results and Redevelopment of Kampung Hijau Keputih Tegal Timur
Source: Authors (2018)

In this problem, two methods can be responded to, namely:

1. The behavior of the residents
Participation of the residents in Leadership and Communication Training is expected to be able to change the mindset of residents in the initial zone to further improve the economy and flatten the residents' economy so that there are no gaps.
2. From the observations, existing fostered facilities, such as UKM, make residents more productive and improve their quality of life. The Leadership and Communication Training can be applied to UKM in Kampung Hijau Keputih Tegal Timur to deepen their business knowledge in UKM practice.
3. After the residents participate in the UKM activities, the economy of the early zone residents will experience a change for the better. With this, it will have an impact on housing, which can be renovated into a permanent and comfortable building.

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- Note :
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