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Sustainable Fisherman Settlement Arrangement Concept for Improving Slum Area in Bangkalan Regency

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Abstract— Coastal area has an important role in the economy of the community and as a source of fulfillment of basic human needs in Indonesia, especially food, energy source, liaison media, industry activity media, etc. In general, the problems faced by coastal community, especially fisherman community related to the issues of poverty, so fisherman settlement area is identical with slum. Bandaran fisherman settlement is an urban slum area in Bangkalan. The purpose of this reaserch is to identify the factors that cause slum in Bandaran fisherman settlement and to formulate the concept of sustainable fisherman settlement arrangement in Bandaran, Bangkalan, in an attempt to improve the fisherman slum settlement.

This research utilizes a qualitative descriptive method in identifying the factors that cause slum by applying Delphi analysis tools and formulate the concept of sustainable fisherman settlement arrangement in Bandaran by utilizing triangulation analysis tools.

The research result show, that sustainable fisherman settlement concept includes physical factors (physical conditions of housing and infrastructure): rehabilitation and reconstruction of uninhabitable houses and those not facing the river with waterfront concept, supply and rehabilitation of fisherman settlement infrastructure; economic factors (level of the community income): counseling of the fisherman cooperatives, communities institutional strengthening such as the existing fisherman community, providing side jobs for the fishermen family; social factors (level of the community education): counseling about the importance of education for the fishermen's children, scholarships for those who will continue their education, especially in marine/fisheries vocational schools; and cultural factors that include a sustainable counseling to build community care for the environment, developing open space for fish drying, an organizing clean coastal village competition.

Keywords—Bandaran; Slum; Arrangement; Sustainable Fisherman Settlement.

I. INTRODUCTION

Bandaran fisherman settlement is an urban slum area in Bangkalan. The occupancy in Bandaran fisherman area is highly congested, the close distance of buildings, the road is largely damaged, bad sanitation and environmental quality degradation due to community bad habit of littering to river, fishpond, and drainage channels, that cause puddle when it rains and high tide of the river. It can be stated that the community in Bandaran fisherman settlement live in a bad environmental condition physically, economically, and socially. Therefore, we need the concept of sustainable fisherman settlement arrangement in an attempt to improve the fisherman slum settlement, preceded by indentifying the factors that cause slum in Bandaran. Finally, it can create a proper, healthy and safe fisherman settlement. Also, it can improve the welfare and the life quality of the community in fisherman settlement.

II. LITERATURE REVIEW

A. House as a Process

The meaning of home according to Turner (1976), not the physical results at once but an evolving process and related to socio-economic mobility of the occupants within a certain period, in addition Turner argues that home of some approach namely physically, economically and socially. Intent of the statement is the development of the home has a process, this is in line with the state of the occupants, which is usually a household will build houses with their circumstances at the time, but in the course of time, the house will continue to develop in accordance with the level of economic and socio-economic circumstances of the occupants. This causes the feeling of belonging of each occupant, so that changes in physical, economic, and social of the occupants is very closely linked to the state of the house.

According to Turner (1976), the most important thing in each house is not what the house but its influence in the lives of the occupants. Each occupant must be able to establish their own decisions in terms of housing, because basically only those who understand what they need most and the best choice in certain situations. Problems often occur in the provision of housing that is a mistake in understanding the needs of society, especially low-income people and the supply of housing by the government. According to Turner, the public should have the freedom to determine housing in accordance with the requirements and standards of life.

B. Slum

Slums according to CSU's Urban Studies Department in Hariyanto (2007), is an area that has a poor environmental conditions, dirty, dense population and limited space (for ventilation of light, air, sanitation, and open field). Existing conditions often lead to harmful effects on human life (eg, fire and crime) as a result of a combination of various factors. High population growth in a region directly require a settlement as a dwelling. Residential areas are not growing as

fast as population growth, so that it appears uninhabitable settlements or slums.

Judohusodo(1991), stating that the slum is a form of irregular occupancy, there is no facility (infrastructure settlement is good), and the physical form of the building is not feasible. Settlements with the condition of the house as well as the existing infrastructure is not in accordance with the applicable standards, both standard requirements, high density buildings, homes that do not heed the requirements of the rules of health, the needs of clean water is insufficient, inadequate sanitation and poor road infrastructure, as well as completeness of facilities that do not support is the hallmark of slums.

So it can be interpreted, slums is a settlement inhabited by people who are mostly low-income, high-density buildings and irregular, residential conditions that have a low environmental quality and unfit, and facilities such as clean water, sanitation, drainage channels, waste , inadequate road environment and a lack of public awareness of the environment.

C. Slum Fisherman Settlement

The essence of sustainable development according to Brundtland in Budiharjo (1999), is a development that meets the needs of today's society without undermining the ability of future generations to meet the needs of as a process of change in which the utilization of resources, direction of investments, the orientation of development and institutional change are always in balance and synergy mutually reinforcing potential of the present and in the future to meet the needs and aspirations of human beings.

Agenda 21 Rio explained that the construction of settlements on an ongoing basis in an effort to improve the social, economic, and environmental quality as a place to live and work for everyone. The point is that the development of a sustainable settlement is to improve the quality of life in a sustainable manner and the need to improve the quality of housing itself (UNDP, 1997).

There are three important pillars in the implementation of sustainable development, as declared in the meeting of the Rio + 10, namely the need for coordination and integration of natural resources, human resources, and the resources made in each building with the approach of population, development and environment through interaction aspects social, economic and environmental (Karim, 2012)

Sustainable settlement is one of the main issues in the Habitat Agenda II in 1996, which is a sustainable settlement:

- Community development efforts that can conserve resources and environmental responsibility with an emphasis on the precautionary principle
- Efforts equalization against the chance of getting a healthy life, safe, and productive, and in harmony with nature and the local environment, as well as cultural and spiritual values applied.

D. The Arrangement of Slum Fisherman Settlement

The forms of handling slum that has been carried out there are several forms, including:

1. Repair Settlement

Village housing conditions classed as marginal housing, does not meet the applicable standards. However inhabitants, in fact is not passive towards the living environment. Consciously or not, residents responded to the residence by mobilizing all the resources (physical, social, economic) to meet the housing needs suitable norm. No attempt to do the occupants of the house, namely:

- Attempts to meet the needs when the occupants feel at home deficiencies. Forms of action might be moving house can also be changes or additions to their homes. So the inhabitants of actively result in changes to the state of his home or termed as housing adjustment (Umbara, 2003)
- Enterprises occupant in response to pressure from various deficiencies in the home, by way of a change in him without changing his home. In this case the occupant passive or termed as the housing adaptation (Umbara, 2003).

2. Improved Settlement Environmental Quality

According to Law No.1 of 2011 on Housing and Settlement Region, improving the quality of housing can be activities, repair or restoration, rejuvenation and management / maintenance of sustainable. The program to improve the quality of housing and settlements that have been the government's attention is the area of housing and settlements belonging to the category of slum areas, which is characterized among other things by the condition of infrastructure and facilities are inadequate both in quality and quantity. Socio-economic conditions of society are low, social conditions cultural, and environmental conditions are prone to disasters, diseases and security.

In addition, the concept of handling slum issued by the DPU Settlements, 2015 includes components in handling, among others: the components of buildings, roads, drainage environment, drinking water, waste water, waste, and fire management. Activities in improving the quality of rejuvenation, among others:

a. Building Components

- Rehabilitation of the improvements or additions to the building components in order to meet construction standards and technical requirements of the building.
- Reconstruction of the dismantling and rebuilding of buildings or facilities, infrastructure, and public utilities with the addition of a component or function.
- Structuring the region with the setting of the building plot
- Addition and Provision for settlement (open space, public toilets)
- Provision of temporary shelter for affected communities

b. Roads

- Rehabilitation of roads to increase road capacity by adding width, material change, the addition of supplementary building.
- Improved road structure

c. Drainage

- Improving the quality of the drainage system unit
- Provision of drainage system
- Addition of a network segment that is connected to the drainage system

d. Drinking water

- Rehabilitation SPAM unit with the addition of the pipeline, the supply of non-pipeline network, installation of additional drinking water management

e. Wastewater

- Provision of local or centralized sanitation systems;
- Improved sanitation component of wastewater management.

f. Waste

- Development of Solid Waste Facility
- Rehabilitation Solid Waste Facility with improvements and additions to the building components Solid Waste Facility.

g. Handling Fire

- Construction of fire protection means
- Improved quality means fire protection system

3. The Concept of Waterfront Settlement

Waterfront district (waterfront) is an area or region bordering with water that has a physical and visual contact with sea water, lakes, rivers or other bodies of water. According to Breen and Rigby (1994), the waterfront is a dynamic area of a city, a meeting place for land and water. Where water bodies may be oceans, rivers, lakes, bays, creek, or the canal. Dynamic area in question here is an area or region is always moving, even though in certain cases such as in swamps, the movement is very minimal. The stand point of understanding related to the waterfront area can be interpreted as follows:

- Land or riverbank, the harbor or the city amid such land with pier.
- Edge sea or part of town bordered by water, the area - the harbor area.
- Land or area that is located adjacent to the water, especially the city facing towards the water, either the ocean, rivers, lakes or the like.

From the meaning that has been described above, it can be concluded in the context associated with urban, understanding waterfront area is an area that is bordered by water that has a physical and visual contact with sea water, rivers, lakes and other water bodies. Functionally, all areas that have physical boundaries between water and land areas may be referred to the waterfront area. In the context of the wider area include the marine waters and the river which is the container activities of people living in the vicinity.

Waterfront development globally is very useful to increase the attractiveness and strengthen the economy of a region. The basic reason is the thinking of water as an attractive place in various human cultures, a universal, quiet, at once dynamic and become the cosiest place for special occasions. Changes shape does not always mean a large waterfront. Transformation is an expression that describes the wishes and aspirations of the citizens. In this case, they combine many facilities such as ports, shopping, leisure, office, education, and others in it. The existence of this waterfront gives a sense of pride in where they live. Moreover, the existence of waterfront strongly associated with environmental problems. In this case can include water pollution due to waste or household waste, industrial and domestic wastes other cities, so that appropriate solutions should be sought to produce natural state clean and safe.

III. METHOD

This research is descriptive qualitative. Descriptive research is research that describe, write, and report an event. Descriptive research goal is to find a detailed factual information, search for existing symptoms, to identify the problems or to get a justification of the circumstances and practices that are taking place. According to Travers (1978) in Klee (2009), descriptive study aimed to describe the nature of a state while running at the time the research is done and examine the causes of a particular symptom. Data collection techniques are observation, interviews, and documentation.

Bandaran fisherman settlement is a traditional fishing settlement located in the Village of Pejagan, District Bangkalan with Pejagan Village area is 134 Ha. Here is an administrative boundary area of research:

- North : Java Sea
- South : Kelurahan Kraton
- West :Kelurahan Pangeranan and Kelurahan Demangan
- East : Kelurahan Bancaran

Fig 1. Place of Research, Source: google map, 2015

IV. RESULT

A. *Identification of the Factors that Cause Slum in Bandaran*

Results of stakeholder interviews through the Delphi analysis of the factors that led to the squalor in the Bandaran fisherman settlement as follows:

1. Delphi analysis of the Phase 1 / Exploration

At this stage it does is get the information / exploration opinions of the respondents about the factors that cause slum in Bandaran fisherman settlement. Below is a recapitulation of the exploration Delphi presented in Table 1.

TABLE 1. Results of Interviews Delphi Phase I

Factor	Variable	Sub Variable	Respondent										Total of Point
			R1		R2		R3		R4		R5		
			I/NI	Point	I/NI	Point	I/NI	Point	I/NI	Point	I/NI	Point	
Physical Factor	Housing Physical Condition	Building density	I	2	I	2	I	2	I	2	I	2	10
		House conditions	I	1	I	2	I	1	NI	0	NI	0	4
	Facilities and infrastructure	Water Infrastructure	NI	0	NI	0	NI	0	I	1	I	1	2
		Sanitation infrastructure	I	2	I	2	I	2	I	2	I	2	10
		Channel drainage infrastructure	I	1	I	1	I	2	I	2	I	2	8
		Waste infrastructure	I	2	I	2	I	2	I	2	I	2	10
		Road Condition	I	1	I	1	I	1	I	2	I	2	7
		Green Open Space	I	2	I	2	I	2	I	1	I	1	8
		Firing Extinguishing System	I	2	I	2	I	2	I	1	I	1	8
Economic Factors	Income level	Income of the Communities	I	2	I	1	I	1	I	2	I	2	8
Social Factor	Level Of Education	The level of public education	I	2	I	2	I	2	I	2	I	2	10
Cultural Factors	Custom	Community's activities	I	2	I	2	I	2	I	2	I	2	10
	Comunity's behavior	Comunity's care	I	2	I	2	I	2	I	2	I	2	10

Information:

I : Influential
NI : Not Influential
R1 : Head of Transportation of Cipta Karya and Spatial, in Bappeda of Bangkalan Regency
R2 :Head of Settlements, Drink water and Healthy Environment of Settlements, Dinas PU Cipta Karya dan Tata Ruang in Bangkalan Regency
R3 : Head of increasing physical Building and Spatial, Dinas PU Cipta Karya dan Tata Ruang in Bangkalan Regency
R4 : Fishing Association in Bandaran
R5 : Head of RW.11, Bandaran
0 : Not Influential. These factor was not influencing the dinginess in Bandaran Fisherman Settlements Area
1 : Influential sufficiently. These factor was influencing the dinginess in Bandaran Fisherman Settlements area sufficiently
2 : Very Influential. These factor was very influence in Bandaran Fisherman Settlement area

:Is a factor that causes slum in the Bandaran fisherman settlement

:Is a factor that is not consensus (inequality opinion) that require repetition questionnaire (iteration process)

Based on the exploration of stakeholder opinion, it can be concluded that the results of exploration of the factors that led to the squalor in Bandaran others:

a. Physical Factor

- Variable Physical Condition of Settlements (Sub variable building density)
- Variable Infrastructures (Sub Variables sanitation infrastructure, Drainage pipeline infrastructure, Waste Infrastructure, road condition, green open space, and Extinguishing System firefighters)

b. Economic Factor

- Variable income level with sub variable community's income

c. Social Factor

- Variable levels of education with sub variable community of education's income

d. Cultural Factor

- Variable Custom (sub variable community's activities) and behavior variables community's behaviour (community's care)

2. Delphi analysis of the Phase II / iteration I

From interviews of Delphi phase I, there are several sub-variables that have not agreed to be a factor that causes slum in Bandaran fisherman settlement. The sub-variables is the condition of the building and water infrastructure. Of the factors that have not yet reached a consensus and agreed upon by all respondents, conducted more interviews processing Delphi phase II / iteration I. So these factors can reach a consensus and agreed. Results of a phase II processing interview can be seen in table 2.

TABLE 2. Results of Phase II Delphi Interview

Factor	Variable	Sub Variable	Respondents										Total of Point
			R1		R2		R3		R4		R5		
			I/NI	Point	I/NI	Point	I/NI	Point	I/NI	Point	I/NI	Point	
Physical factors	Housing Physical Condition	House conditions	I	2	I	2	I	2	I	1	I	1	8
	Facility and Infrastructure	Water Infrastructure	NI	0	NI	0	NI	0	NI	0	NI	0	0

After did the Delphi analysis process phase II, reached a consensus in this factor. The final result of the factor which causing the dinginess in Bandaran fisherman settlement based on stakeholder's opinion and have been reaching the consensus which could be seen in table 3.

TABLE 3. The analysis result of Identification of the Factors that cause Slum in Bandaran

Factors	Variable	Sub Variable	Point/Value
Physical Factor	Physical Condition of Settlements	Density of Building	10
		House condition	8
	Facilities and infrastructure	Sanitation Infrastructure	10
		Drainage pipeline infrastructure	8
		Waste Infrastructure	10
		Road Condition	7
		Green open space	8
		Firing Extinguishing System	8
Economy Factor	Income Level	Community's Income	8
Social Factor	Education Level	Community of Education's Income	10
Culture Factor	Custom	Community's Activities	10
	Community's Behavior	Community's Care	10

B. Formulation the concept of sustainable fisherman settlement arrangement in Bandaran

Sub Variable	Empirical Fact	Stakeholder's Opinion	Theory and Concept of Standard in structuring Fisherman Settlements	Preceding Research	Concept
Density of Building	The density of high building in research area	In general the house's layout in dirty settlements tends to stuck together and quite organized. Density of high building, and distance between other buildings densely/moreover there was no distance with Bandaran fishing settlements which causing the settlements looked more and more dirty.	1. Waterfront Concept was an Utilization area which could be applied for new settlements area in water side was the structuring building by giving space for public access into water building and orientation facing the water 2. Handling Concept of Slum area (DPU Ciptakarya , 2015) namely: - Rehabilitation with the reparation or the addition towards building component in order full fill the standard construction and technique criteria of built the building. - Reconstruction by wrecking and rebuilt the building.	Replotting soil to build which has not been proper to be built in border of river in order to be able to build green open spaces as long as the river side.	Rehabilitation and Reconstruction toward house that was facing yet into the river with waterfront concept in giving space to public access into water building and orientation in facing into the river and building green open space in along river side.
Sanitation Infrastructure	95% citizen in research area did not have toilet complete with septi tank in its house. Best part of society loosens the bowels in the river.	Bad Sanitation was the one type of dirty settlements. Citizen's Sanitation System was influenced by citizen's stay location and culture. In research area best part of sanitation infrastructure were unequal to. The society was accustomed to loosen the bowels directly into the river or embankment around the settlements.	1. Handling Consept of Slum area (DPU Cipta Karya, 2015) in handling sanitation infrastructure such as: • Supplying sanitation system in the same place or centrally. • The reparation sanitation component in waste water disposal.	The building of installation of waste water management to manage the waste	The involvement of society in the building of installation of waste water management communal
Waste Infrastructure	97,5% society did not have rubbish tools in their environment. Rubbishes were throwing into the river, embankment and empty place around the house.	Because the close location with the river and the sea, best part of the villager in Bandaran Fishing settlements accustomed to throw the rubbish into an empty space likes embankment even throw it into the river or the sea. Removal the rubbish by Live Environment agency only limited in main road of this settlements whereas in the houses of RW 11 and RW 09 which aimed to the sea was not handling in managing the rubbish.	1. Handling Concept of Slum area (DPU Cipta Karya, 2015) about rubbish management: • The building of Rubbish in Tools and Infrastructure (PSP) • Rehabilitation PSP by repairing and adding the component of PSP Building.	Integrated landfills tools available and cleanness officer	- Supplying rubbish tools like garbage box and waste truck in research area. - Increasing range of rubbish service by Live Environment agency - The citizen's care in managing the waste.
Education Level of Society	The low level of education, best part of the society only graduate from Primary and junior high school.	The lowest Education level of society could cause the dinginess in Bandaran. By the education level of society in Bandaran Fishing settlements who were graduate from primary and junior high school averagely, then caused less understanding by society in the importance of clean environment.	- Increasing the integrating of citizen's settlements condition, and could be utilized by everybody, including supply the healthy facilities and education - Increasing the quality of Human Resources	Provisioning against the younger generation of fishermen with a scholarship at marine schools	- Extension of the sense of the importance of education for the children of the fishermen in order to guarantee their future. - The awarding of scholarships to the fishermen's children who would be continuing their education in Marine or fisheries

Sub Variable	Empirical Fact	Stakeholder's Opinion	Theory and Concept of Standard in structuring Fisherman Settlements	Preceding Research	Concept
					department.
Community's Activities	There was society's custom like throw the rubbish into the river or embankment around the settlements	The custom of the society who was not in favor of the environment was still conducted by the society around the coast, thereby making the settlements' conditions more and dirtier.	Create the environment, both internationally as well as domestically in the interest of economy, social development, and the protection of the environment	Educational and Environmental awareness	- The construction of the community aware of the environment carried out by local Government of a sustainable community has a high awareness about the importance of a good living environment and community could be self-employed - Implementing of these activities was the Department of environment - The construction of open spaces that could be used to do the kinds of fish together
The community's care	There was a community participation activity for the environment but still rarely carried out	The behavior of a society that is less concerned for the environment affect things in a region. The behavior of the people in the Bandran neighborhood frequently dump into the sea was the cause of those things in this settlement.	Equity against a chance gets a life that is healthy, safe, and productive and in tune with nature and the local environment, as well as cultural and spiritual values that apply.	Ongoing counseling on the health of the environment	- Public health was sustainable and could be done by utilizing the Posyandu activities or investigations or other community social event. - Clean hometown contested which held by local governments in which participants contest was the coastal villages which assessment criteria was different from the urban net in hometown
House Condition	- Based on respondents 45% of households were semi permanent and non permanent home is 17.5% - Most respondents live in cramped and residences are under the standard minimum building area	The condition of the buildings was not livable is one of those things cause in Bandaran, there were Some semi-permanent house that cause the impression of seedy and not livable could be seen at RW 11 adjacent to the beach or the sea	1. Handling concept of slum area (DPU Ciptakarya 2015) such as: - Rehabilitation with the reparation or the addition towards building component in order full fill the standard construction and technique criteria of built the building. - Reconstruction by wrecking and rebuilt the building. 2. The decision of the Minister of health No.829/Menkes/ SK/VII/1999, about healthy neighborhoods	Construction was carried out by community based organizations through the development fund loan facility to low-income communities	- Setup home with rehabilitating the semi-permanent houses were not habitable with healthy home standard, namely in the form of spacious building houses a spacious floor and its kavling with the number of inmates as well as adequate meet the health requirements of the house lived either in self help and assistance from Government
Drainage Pipeline of Infrastructure	Most of the drainage pipeline (72.5%) had not functioning	There was already drainage in the research area, but the pipeline still	1. Permen PU No. 12 in 2014 about Urban Drainage 2. Handling Concept of Slum area	The construction of a drainage system that is tailored to the	- The addition of a network segment in order to

Sub Variable	Empirical Fact	Stakeholder's Opinion	Theory and Concept of Standard in structuring Fisherman Settlements	Preceding Research	Concept
	properly resulting in inundation and flooding occurred in the rainy season and tide in the research area.	inadequate drainage (drainage systems not existing along the way) as well as many of puddle covered with garbage around the settlement	(DPU Cipta Karya, 2015) regarding the handling of drainage environment among others: • The improvement of the quality of the unit's drainage system • Provision of drainage system • The addition of a network segment in order to connect with the city drainage system	contours of the area on every road	connect with the city drainage system - There were parts of the pipeline needs to be rehabilitated, but there were also some sections that need new drainage pipeline constructed by observing the contours in the field - The making of the controller as well as the strainer so that the tub of garbage coming into drainage channels could be discarded quickly in order not to precipitate
Green open Spaces	There was no green open space in the form of garden to play or socialize	The availability of open green space in the research area in the form of cemetery, ponds, as well as mangrove forests, not the availability of the gardens as a gathering place of the citizens in the research area. Most of the ponds exist around the neighborhood residents as landfills so add those things in the research area.	Standard Provision Green Open Space (DPU Cipta Karya,2015) namely: 1. Garden environment supporting a population of 250 inhabitants 2. The playground population supporting 2500 inhabitants with an area of 1250m2	The availability of Green open space	- Green Open Space development such as environmental grounds and a playground as well as an increase in the quantity of private Green Open Space in the settlement - The construction of open spaces that could be used for drying out the fish
Fire Suppression System	The absence of tools of fire suppression systems	Yet the availability of tools of fire protections system in the research area as well as water hydrant or fire extinguishing tools more, as well as the narrow neighborhood streets (could not traversed four-wheeled vehicles or fire trucks) complicate the handling of fire	The concept of Handling slum area (DPU Cipta Karya, 2015) in fire fighting system: • The construction of a simple fire security • The construction of a hydrant water	-	- Do the road construction in order to it could be passed over a fire engine - Construction of a hydrant water
Community Income	72% of the community have an income below the UMR Bangkalan Regency	Low income levels lead to an inability of the community to repair or build their homes. The quality of the House was the last priority for low-communities, the most important was the availability of homes for shelter and rest		Procurement of cooperatives as a means of economy of fishing communities	- Guidance about the importance meaning of the fishing cooperatives for the welfare of the families of the fishermen. - Institutional strengthening of the community such as existing associations of fishermen in the region. - The provision of

Sub Variable	Empirical Fact	Stakeholder's Opinion	Theory and Concept of Standard in structuring Fisherman Settlements	Preceding Research	Concept
					job moonlighting for the fishing family
Road Condition	- 57,5% of the road environment was harder (paving or asphalt) but this condition was less well maintained or damaged - 5% of road environment harder yet and like soil	The narrow road conditions make matters in the fishing settlements of Bandaran increasingly solid. The width of the street environment in the research area about approximately 1 meter	1.The Concept of handling slum area (DPU Cipta Karya, 2015) in the construction of road infrastructure: 1. Rehabilitation of the road to improve road capacity with the addition of wide, material change, addition of complementary way. 2. Improvement of structure of the road	The procurement of a wide and paved road. The attainment of the path to each house provides convenience for the public.	- The construction and rehabilitation of roads with the addition of wide roads, a material change in the form of asphalt and paving

V. CONCLUSION

The fisherman settlement area of the setup is always related to the arrangement of the slums, where the fisherman settlement area was setup effort of Bandaran and most an effort in improving the quality of neighborhoods in slum seen from the slum or component factors.

In order to realize a viable fisherman settlements, healthy and safe as well as improving the well-being and quality of life of the community in the area of the fisherman settlement of Bandaran, then laid out the concept of a sustainable settlement setup include:

a. Physical Factor (The physical conditions of housing and infrastructure)
   Rehabilitation and reconstruction on houses that were not habitable and homes that were not yet facing the river with the concept of the waterfront, the provision and rehabilitation of fisherman settlements and infrastructure
b. Economy Factor (Community Level Income)
   Extension of the importance of the fishing cooperatives, institutional strengthening of the community such as existing fisherman associations, the provision of jobs for fisherman families moonlighting
c. Social Factor (The Level of community education)
   Counseling about the importance of education for the children of fisherrman, the granting of scholarships for the children of the fisherman who will be continuing in marine or fisheries department
d. Culture Factor (Habits and Community's Behaviour)
   The construction of the community aware of the environment and sustainable development conducted an open space that could be used to do the dry out of fish together, health counseling activities were sustainable and could be done by utilizing the Posyandu activities or study or community social events, and the procurement of village clean contest, where participants of the contest is the fishing villages of the assessment criteria that different with the hometown net in the urban areas.

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