The concept of community poverty reduction in coastal area of Surabaya based on sustainable livelihood approach

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The concept of community poverty reduction in coastal area of Surabaya based on sustainable livelihood approach

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Abstract. Multidimensional poverty becomes a trademark of fisherman community including the community in Surabaya. The fishermen in Surabaya belong to a society with quite apprehensive welfare in all aspects covering economy, social, and environment. Therefore, this research aims to organize poverty reduction concept in coastal area of Surabaya based on sustainable livelihood which assesses poverty through 5 (five) livelihood assets i.e. human asset, natural asset, social asset, physical asset, and financial asset. This research is a qualitative research using rationalistic approach with explorative, descriptive, and perspective nature. Primary data collected using Participatory Poverty Assessment (PPA) and secondary data collected through agency and literature survey. Purposive sampling was employed in getting the sample. Then, the data were analyzed using content analysis, statistics descriptive analysis, and delphi analysis. The results show that sustainable livelihood level in coastal area of Surabaya indicates the human asset is 65% at the SLA level and the lowest is social asset which is 20%, and financial asset is the most affecting factors of poverty in coastal area of Surabaya since the expense for fuel cannot be compared to the fish catched. Community empowerment is the concept proposed to overcome the poverty problems in coastal area of Surabaya.

1. Introduction

A never-ending discussion about poverty is essentially inseparable from environmental management issues since poverty and environment are two crucial phenomena that should be discussed as one unit. The reality of social, economic, and ecological problems in coastal area and the poverty in fishermen community occurred in Surabaya as well. The fishery profile described that most fishermen in Surabaya belong to low-level welfare category. Besides that, coastal area of Surabaya has limited access to education, which is reflected on the high number of fishermen who only graduated from elementary school and even no education background at all (around 45 %) [1], moreover, their partners were only elementary school graduates as well [2].

The low quality of human resources in the coastal area of Surabaya lead to low productivity, in which the income was 29.30% below the average income in Surabaya, with the living expenses over IDR 1,200,000. In addition, the fishermen's houses were 34.80% semi-permanent with 49 % of the houses having incomplete assets due to the high cost of usage and maintenance, for instance for boat and motorcycle fuel, electricity bill, and cell phone credits [2].

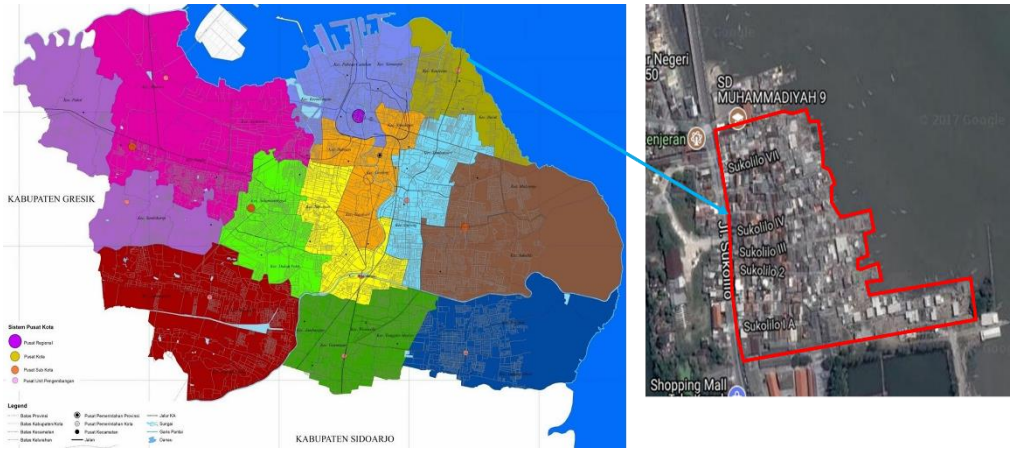

Figure 1. Coastal area of Sukolilo, Bulak District, Surabaya.

Realities of poverty, vulnerability, and environment degradation require comprehensive concept in overcoming the coastal area condition of Surabaya. The concept that needs to be developed should accommodate the needs of the coastal society in every aspect of their life and support welfare improvement and sustainable livelihood.

Sustainable Livelihood Approach is a method to improve the understanding of poor households. Unlike other methods, SLA is a multidimensional, integrated and rational approach to reduce poverty [3]. It attempts to fulfil the degree of social, economic, and ecological fulfilment fairly and balanced by combining activities and utilization of assets existing in the system of life [4]. This research was aimed to know the sustainable livelihood level and factors affecting poverty, and to develop a concept to overcome those problems in the coastal area of Surabaya.

2. Literature Review

Sustainable livelihood is a way of thinking about goals, scopes, and priorities of human development. Meanwhile, livelihood itself covers the ability, assets (including social resources), and activities needed as a means of survival. livelihood will turn into a sustainable livelihood when the community can overcome a destructive problem, recover from damages, sustain the condition, and even improve the ability and own assets in the present and future, by not relying on natural resources only [5, 6].

Livelihood concept is important in understanding coping strategies since it is a part of--or even considered the same as--livelihood strategies. Livelihood concept tries to define critical factors affecting vulnerability or the power to survive for individual or even families. This idea involves people's assets in activities that set proper standard of living to fulfil other goals, such as risk reduction, and factors that facilitate or inhibit people from getting easy access to assets and activities [7]. A livelihood covers income (cash and materials), social institutions, gender relation, and ownership rights needed to support and guarantee a life [8].

Development approach of sustainable livelihood is contemporary and it tries to correct the modern development approach that is well-known as unfriendly to the environment. Sustainable approach tries to reach the degree of fulfilment that covers social, economic, and ecological aspects fairly and balanced. Meanwhile, social welfare can be achieved through combination of activities and assets utilization [8].

There are five assets important for developing a system of a community reflecting conservatism and populism, which represents sustainable livelihood approach. Those assets are human asset, natural

asset, social asset, physical asset, and financial asset, all with equal status [9]. Furthermore, local asset consists of five different assets, namely human asset (including abilities, knowledge, and manpower), natural asset (i.e. environmental services), economic and financial assets (e.g. cash, credit, and saving), social asset (such as networking, social relation, and affiliation), and physical asset (for example, infrastructure). An assessment of people's access to the mentioned assets is a first step to diagnose a livelihood [10]. The following is the assets and their indicators table 1.

Table 1. Assets of sustainable livelihoods approach.

Assets	
Natural asset	Natural asset from useful resources for a livelihood (for instance, soil, water, wild animal, biological diversity, and environmental resources).
Social asset	Network, group membership, trustful relationship, wide access to social institutions; based on the people who are interested in pursuing livelihood.
Human asset	Ability, knowledge, manpower, and good health to pursue the strategy of having different livelihood options.
Physical asset	Basic infrastructure (transportation, residence, water, energy, and communication), and tools production that can be used in the related livelihood.
Financial asset	The financial resources which are available to people (whether savings, supplies of credit, regular remittances or pensions), and also providing them with different livelihood options.

Source: Bennett (2010), adapted from Scoones, 1998; in Carney, 1998, p. 7

Sustainable livelihood approach clearly shows that different stages of analysis are needed to understand the importance of micro and macro connections of livelihood. Furthermore, the understanding can be applied to develop a sustainable livelihood of rural areas, either in individual stage or family stage [11].

3. Methodology

To analyze the level of sustainable livelihood in the coastal area of Surabaya, descriptive statistics was used. Descriptive statistics is used for data analysis by describing or delineating collected data without any means for generalizing the conclusion [12]. Meanwhile, to analyze the factors affecting poverty condition in the research area, content analysis was used. Content analysis summarizes the quantitative analysis of messages that depend on scientific method (including objectivity attention, intersubjectivity, a priori design, reliability, validity, generalizability, imitation, and hypothesis testing), without being restricted only for countable variable or in a context of when the messages are made or given [13]. Content analysis technique is used to analyze categories that consist of data reduction by using coded and thematic organisation tools [14]. The steps involved are: determination of code, coded data classification, and data prediction [15].

To determine the poverty concept of the research area based on sustainable livelihood approach, Delphi analysis was used. Delphi analysis technique uses a systematic procedure to conclude a consensus of opinions from experts. This technique is based on data collection and knowledge filtering from experts through questionnaire, with opinions, as the feedback. This technique depends on subjective decision of a group that consists of professional experts in the related field [16].

4. Result and Discussion

4.1. Analysis of Sustainable Livelihood Level

The result shows that in the fisherman village of Surabaya's coastal area, there were imbalances on the livelihood asset achievement, or in other words, the household's access to the assets was very low (figure 2).

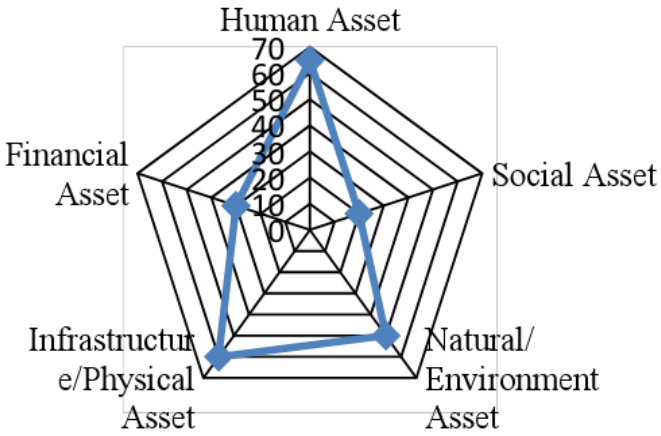

Figure 2. Level of Sustainable Livelihood in the fisherman village of Sukolilo, Surabaya.

Fishermen in Sukolilo, in fact, had not been able to reach the level of sustainable livelihood. Most of them could only optimize each asset one at a time. Figure 2 shows that: (1) human asset reached 65 %, (2) social asset reached only 20 %, (3) natural/environment asset reached 50 %, (4) infrastructure/physical asset reached 60 %, and (5) financial asset reached 30 %. Based on the analysis, human asset reached the highest level in sustainable livelihood approach, and the lowest level was achieved by social asset. Nevertheless, this condition needs a serious concern.

4.2. Analysis of factors affecting poverty based on Sustainable Livelihood Approach

4.2.1. Structured interview to the fishermen community in Sukolilo on factors affecting poverty

Based on structured interview, the researcher obtained information on factors affecting poverty of fishermen community in the coastal area of Surabaya. The structure of the interview was organized based on literature study of related variables. The interview questions asked to obtain characteristics of the community were:

Table 2. Characteristic aspect in the structured interview.

No	Asset	Indicator
1	Human	Frequency of Patients with Severe Disease
		Education Level
		Skills
		Work Ability
2	Social	Membership of Organization
		Level of trust among residents and within organization
		Networking of society to increase efficiency
3	Natural / Environmental	Environmental Health
		Water Production
		Land Ownership
		Fisheries Production
4	Physical	Amount and type of seafood production
		Accessibility
		House Condition
		Clean Water Availability
		Vehicle Ownership
		Sanitation Condition
		Drainage Condition
5	Financial	Income per Day
		Expenses
		Amount and type of saving
		Debt

4.2.2. Content Analysis on Identifying the Factors

Content analysis process was adapted from Martadwiprani [15] with following steps:

1. Finding the code

Based on the interview transcripts, several codes were made that showed congruency between the collected data and the research variables. Coding process was adjusted with the theme and indicators of research since the content analysis was employed to identify the factors affecting poverty in the coastal area of Surabaya. The code used can be seen in figure 3.

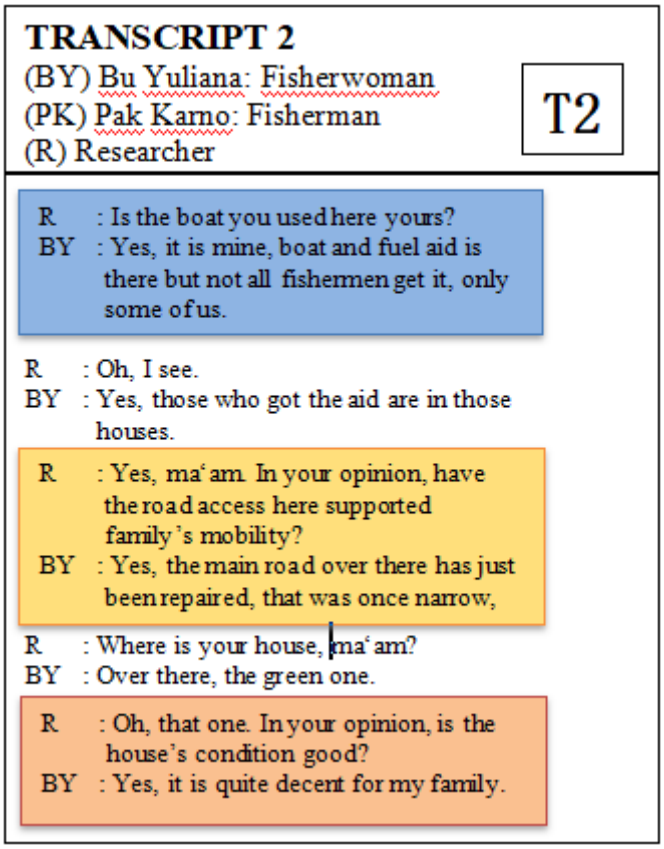

Figure 3. Quotation of codes in interview transcript.

2. Data Classification based on Codes

Several new variables were found in the field data collection process, one of those was the government's involvement in providing physical aid in the form of boats and fuel for all fishermen, but yet, distribution of the aid was uneven. Those variables served as input and supporting data that indicate factors affecting poverty. The indicator codes used in the interview transcript can be seen in table 4.

Table 3. The Coding of indicator and interview transcript.

Variable 1	Human	Source Text	Remarks
Indicator	Frequency of patients with severe disease	T1.2 , T2.1, T3.3, T4.1, T5.1	Confirmed
	Education Levels	T1.3 , T2.3, T3.4, T4.2, T5.2	Confirmed
	Skills	T1.4 , T2.3, T3.5, T4.3, T5.3	Confirmed
	Work ability	T1.5 , T2.4, T3.6, T4.4, T5.4	Confirmed
Variable 2	Social	Source Text	Remarks
Indicator	Followed organization	T1.6 , T2.5, T3.7, T4.5, T5.5	Confirmed
	Trust level between community and organization	T1.7 , T2.6, T3.8, T4.6, T5.6	Confirmed

	Community bonding networks improving community efficiency	T1.8 , T2.7, T3.9, T4.7, T5.7	Confirmed
Variable 3	Natural/Environment	Source Text	Remarks
Indicator	Environmental health	T1.9 , T2.8, T3.10, T4.8, T5.8	Confirmed
	Water production	T1.10 , T2.9, T3.11, T4.9, T5.9	Confirmed
	Land ownership	T1.11 , T2.10, T3.12, T4.10, T5.10	Confirmed
	Production and fisheries products	T1.12 , T2.11, T3.13, T4.11, T5.11	Confirmed
Variable 4	Physical	Source Text	Remarks
Indicator	Number and types of marine production equipment	T1.13 , T2.12, T3.14, T4.12, T5.12	Confirmed
	Government involvement	T1.14 , T2.13, T3.15	New
	Accessibility	T1.15 , T2.14, T3.16, T4.13, T5.13	Confirmed
	House condition	T1.16 , T2.15, T3.17, T4.14, T5.14	Confirmed
	Clean water availability	T1.17 , T2.16, T3.18, T4.15, T5.15	Confirmed
	Vehicle owned	T1.18, T2.17, T3.19, T4.16, T5.16	Confirmed
	Sanitation condition	T1.19 , T2.18, T3.20, T4.17, T5.17	Confirmed
	Drainage condition	T1.20 , T2.19, T3.21, T4.18, T5.18	Confirmed
Variable 5	Financial	Source Text	Remarks
Indicator	Daily income	T1.21 , T2.20, T3.22, T4.19, T5.29	Confirmed
	Expenses	T1.22 , T2.21, T3.23, T4.20, T5.20	Confirmed
	Numbers and types of savings owned	T1.23 , T2.22, T3.24, T4.21, T5.21	Confirmed
	Loans	T1.24 , T23.1, T3.25, T4.22, T5.22	Confirmed

3. Data Prediction

The results of identification process indicated that factors affecting poverty in coastal area of Surabaya were as follows:

a. Financial Asset
   - Expenses for boat's fuel were not comparable to the catches delivered to collectors.

- Many expenses must be spent on household needs such as daily meals, children's school needs, and medication, so that there was no saving done by the fishermen household in coastal area of Surabaya.

b. Human Asset
- The fishermen's low level of education, especially those who went out to the sea who were mostly only Elementary and Junior High graduates.

c. Social Asset
- The low awareness and knowledge of the importance of intensive and comprehensive community involvement in improving community network that might lead to improvement of community efficiency.
- The low level of community involvement in the existing fishermen community organization.

d. Natural or Environmental Asset
- Prominent fishery products in the Fisherman Village were shrimp, sea cucumber (3 kg/day), mackerel (4 kg/day), tuna (6 kg/day), and bamboo clam (2 kg/day). Appropriate technology for fish drying, boat manuals, fumigation and burning, cultivation of milkfish and tilapia also still exists to improve the products. The stipulation and marketing were done through collectors and they were distributed to the customers directly. Environmental sanitation (e.g drainage or river) had been improved, average family size was three people, average income per fishing period was around IDR 100,000 to 160,000. Other types of business existed in the village were grocery kiosks, food stalls, food vendors, shell craftsmen, and *ojek* (motorcycle drivers). Fish processing methods performed were salting, fumigation, cracker making, and shrimp paste making. The fishermen in Sukolilo sometimes did not go to fish for two days. Local Fishermen formed a community called *Maju Makmur* where the fishermen can borrow money for their business. Another existing social activity was *pengajian*

e. Physical Asset
- Until then, fishermen in Sukolilo still used traditional fishing gear such as *waring* or black nets and wooden boats under 5 GT. The fishermen's catch in Sukolilo before the construction of a new bridge at the UPTD tourism area *Taman Hiburan Pantai Kenjeran* Surabaya was abundant. The fishermen who also worked as guide for fishing tours could take passengers. The bridge construction in the UPTD tourism area *Taman Hiburan Pantai Kenjeran* Surabaya had made most of people in Sukolilo experienced profit loss since their catch was less and they could not go to the beach anymore. The regulation given by the management of UPTD tourism area *Taman Hiburan Pantai Kenjeran* Surabaya to the surrounding community only covered a selling location in the tourism area. Meanwhile, the fishing tour guides were not regulated. The catch from fishermen in Sukolilo was sold to the collectors since the fish market in Bulak was already closed. Considering the minimum catch and profit, assistance from the Agency of Marine and Fisheries including fishing gear and boat machine could help the fishermen in Sukolilo.

4.3. *The Analysis of Poverty Reduction Strategy Concept in Surabaya Coastal Area based on Sustainable Livelihood Approach*

From the results of several stages (iteration) of Delphi analysis, factors agreed by all respondents were found. These factors would be recommended as the Concept of Poverty Reduction Strategy in the Surabaya Coastal Area based on Sustainable Livelihood Approach.

Systematically, based on the research variables, the results of merging some concepts of fishermen tourism area development as a means of overcoming poverty would be presented as follows:

a. Physical Asset
   - Utilization of local resources by optimizing local fish processing kiosks.
   - Regular infrastructure maintenance (e.g. roads) and existing facilities to support village development.
   - Improvement of fishermen village through the development of infrastructure and facilities for coastal village or fisherman village.

b. Financial Asset
   - Strengthening local or professional institutions in managing the opportunity for society's savings and business loans with or without village improvement program.
   - Establishing cooperation with various parties to support the fishermen village development in the form of capital investment, promotion, and technology.

c. Human Asset
   - Providing appropriate incentive for society to be more interested in participating intensively in programs and routine activities.
   - Improving society's skills in managing the catch and in fish processing by providing trainings that suit the needs of the fishermen, either formal or informal, in order to formulate policy for fishermen community development.
   - Improvement of human resources and quality of education in fishermen communities by utilizing other communities with higher education and more broad-minded members.
   - Empowerment of coastal women in handicraft production and marketing management of the products (development of processed shrimp, sea cucumber, mackerel, tuna, and *lorjuk*/bamboo clam).

d. Social Asset
   - Improving trust between citizens in terms of familial ties in the location.
   - Providing easy access to information for community members; (2) engaging the society in deciding the development planning related to their needs, (3) developing solidarity; (4) enabling the mobilization of community resources; (5) enabling mutual attainment; and (6) establishing community togetherness and community behaviour.

e. Natural or Environmental Asset
   - Counselling to the fishermen community in terms of condition and weather that can affect fishing activity and should be considered by every fisherman.
   - Providing knowledge for the fishermen community regarding location or where the fish are located or gathered at a particular time and season.

5. Conclusion

The fishermen community in coastal area of Sukolilo, Surabaya, had not been able to achieve sustainable livelihood. Most of them were not able to optimally access every asset of sustainable livelihood. From the asset pentagon chart, it can be seen that: (1) human asset on SLA was 65%, (2) social asset on SLA was 20%, (3) natural/environmental asset on SLA was 50%, (4) infrastructure asset on SLA was 60%, and (5) financial asset on SLA was 30%.

The Concept of Poverty Reduction Strategy in Coastal Area of Surabaya based on Sustainable Livelihood Approach was an empowerment concept involving society and stakeholder by performing utilization of local resources, strengthening local professional institutions, establishing cooperation to

support fishermen village development, improving the quality of human resources and education, as well as empowering coastal women in handicraft production and products' marketing management.

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