A Study on Empowerment Partner Model in Fishing Community in City of Bengkulu, Sumatra, Indonesia

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Abstract—**Proper utilization of resources plays an important role in improving life standard of a community. We have studied the influence of the characteristics of the fishing capitals for the successful of partnership model of a fishing community empowerment in the City of Bengkulu. We conducted interviews to 170 respondents comprising of general coastal and fishing communities. The data was analyzed using SEM (Structural Equation Modeling) with AMOS version 4.01. The results show the capital characteristics influencing the fishing community life are (in sequence from the highest): human capital (1.028); marine resource capital (1.027), microfinance institutions (1.007); institutional access (1.000); facilities and infrastructure (0.999); economy (0.998); culture (0.859) and social (0.682). We found that the capital characteristics of the fishing community have a positive influence on the successful model of a fishing community empowerment partnership in the City of Bengkulu.**

Index Terms— **life standard, fishing community, empowerment partner, Structural Equation Modeling**

I. Introduction

COASTAL resource of the City of Bengkulu (3° 47′ 44″ S, 102° 15′ 33″ E), Bengkulu Province, has a value and benefits for the life of fishing communities, which include: first, the marine fisheries resources as a source of living of most of coastal communities in many marine culture activities such as pond fish, shrimp and shellfish as well as for the main food, especially fish that provide with animal protein. Second, the fisheries resources benefit the community in supporting local economic development. Third, fisheries resources also provide support for community recreation activities by fishing [1].

Based on the area of the exclusive economic zone (EEZ) of 200 miles offshore, the coast of Bengkulu city has a protected area of 195 thousand km2 for the capture fisheries (brackish

and marine). Report data in 2010 showed that the sustainable potential is 126 tons per year, and have been exploited as much as 39 tons [2]. However, this potential does not reflect the real welfare of fishing communities. Coastal communities, particularly the fishing community still entangled in the problems of poverty, backwardness, and low quality of human resources, difficulty in accessing public services, so that in the aspects of ecological, social, and economic the communities in coastal areas are still lagging behind [3, 4]. Fishery resources in the city of Bengkulu were already degraded since 1999 due to the low quality of human resources in managing fisheries resources [1].

As the capital for empowerment, human beings have personal assets that can be used as capital to maintain a good life. Even the poorest people also still have assets or resources of life upon which they depend. Better life and sustainable must be built upon an understanding of the owned assets and the extent to which they can use and develop these assets. Those capitals are human capital, natural resource capital, economic capital, physical capital and social capital [5].

The factor of life capital ownership will affect the success of the model of a fishing community empowerment partners in improving the welfare of their life. So the fishermen as the executor of empowerment will be able to improve the quality of life or whether they will be increasingly entangled in poverty. In this manuscript we describe the results of our study on the influences of the characteristics of fishing community capitals to the successful models of fishing community empowerment partners in the city of Bengkulu.

II. Research Methods

Coastal communities, particularly fishing communities, still are entangled by the problems of poverty, backwardness, and low quality of human resource, difficulties in accessing public services, so that in the aspects of ecological, social, and economic communities in coastal areas are still lagging behind.

Our preliminary results through observation and literature study to the coastal city of Bengkulu show that the characteristics of fishing capital or assets consist of: (a) social, (b) economic, (c) micro-finance institutions, (d) human resources, (e) means and infrastructure, (f) culture, (g) the

assets of fish resources, and (h) institutional access. While the moderator variables that strengthen or weaken the successful model of empowerment partner, which allows fishing community to be poor or wealthy, have some measurement indicators: (1) the performance of micro-economic institutions, (2) productive economic activities (coastal tavern), (3) human resources; (4) institutional performance.

Our study was a correlational study, which describes the relationship between the fishing community characteristics capital variables, i.e. eight fishing community life assets, with the model of empowerment partner. The first variables were the independent variables and the latter was the dependent one. We set up four indicators measuring the success of the empowerment, which is to strengthen or weaken the influence of the independent variables on the dependent variable, as illustrated in Fig. 1. This study was also a quantitative research in an ordinal scale.
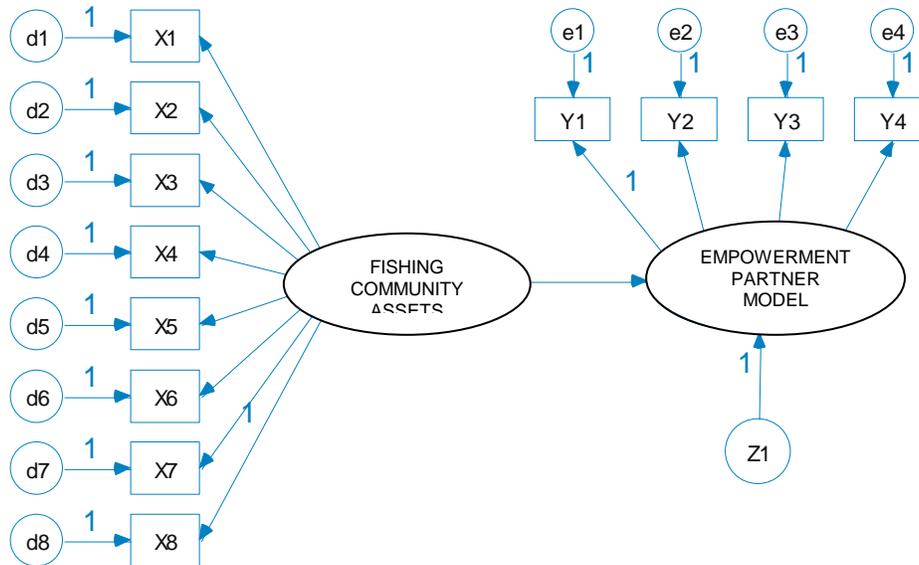

Fig. 1. The chart depicting the influence of capital or assets of fishing community to the successful of the fishing community empowerment partner model. The variables are listed in Table I.
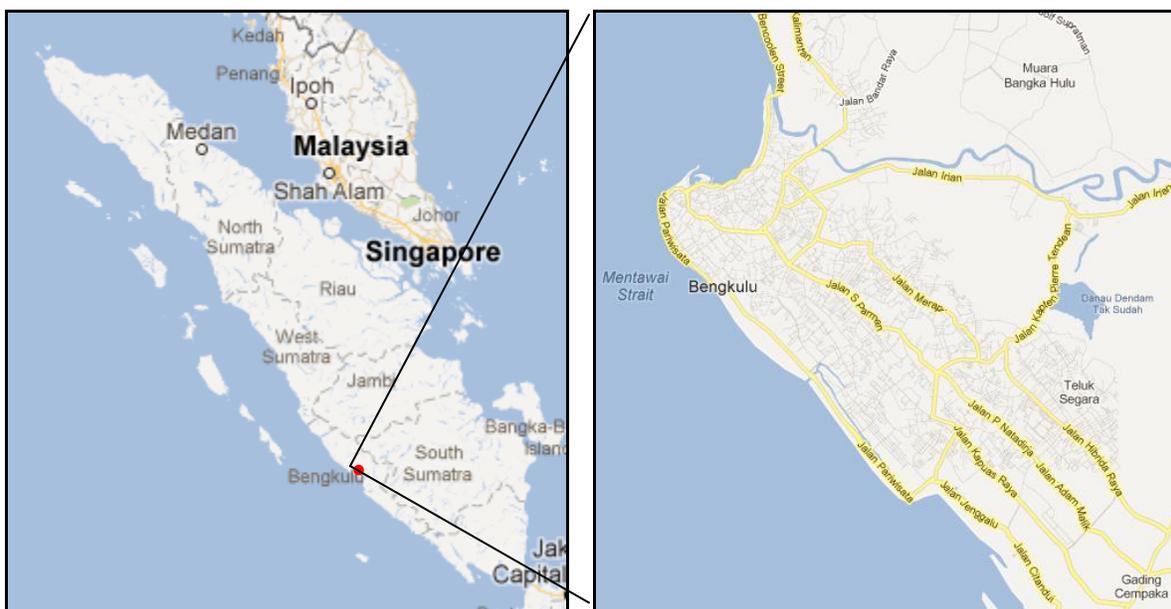

Fig. 2. A map showing the City of Bengkulu (3°47′44″S, 102°15′33″E), where the study was conducted.

The respondents were proportional representative of each group of coastal communities. The fishing community was divided into several strata, i.e. capture fishing, fish farming, trader fishermen, and employer fishermen strata. The study was conducted in 25 coastal villages in the Districts of Ratu Agung, Ratu Samban and Teluk Segara, in the City of Bengkulu (see Fig. 2); and we conducted interviews with 170 respondents for the primary data. Data analysis was performed to look for the relationships between variables to prove our hypothesis in finding the most appropriate model in explaining the fishing community empowerment and welfare. The model would be used to find the factors that most determine the level of welfare, either partially or jointly.

With this consideration, we utilized a statistical technique structural equation modeling (SEM) based on the theoretical basis which is arranged in the path diagram in Fig. 1.

TABLE I
THE THEORETICAL MODEL DESIGN OF THE STUDY

No.	Variables	Indicators
1.	Fishing Community Assets (independent)	– social (X1) – economy (X2) – microfinance institutions (X3) – human resources (X4) – facilities and infrastructure (X5) – culture (X6) – fish resources(X7) – institutional access (X8)
2.	Empowerment Partner Model (dependent)	– performance of micro-economic institutions (Y1) – productive economic activities (coastal tavern) (Y2) – human resources (Y3) – institutional performance (Y4)

Mathematically the relationship between the variables that make up the successful of the empowerment partner model in fishing community can be expressed as:

$$MMP = \beta_1 X_1 + \beta_1 X_2 + \beta_1 X_3 + \beta_1 X_4 + \beta_1 X_5 + \beta_1 X_6 \\ + \beta_1 X_7 + \beta_1 X_8 + Z_1 \quad (1)$$

where MMP is the empowerment partner model, Z_1 is the regression weight, β_1 is the disturbance term. Variables X_1, X_2, …, X_8 are the independent variables.

The measurement equations are:

Social $= \lambda_{11} X_1 + d_1$
Economy $= \lambda_{12} X_2 + d_2$
Microfinance institutions $= \lambda_{13} X_3 + d_3$
Human resources $= \lambda_{14} X_4 + d_4$
Facilities and infrastructure $= \lambda_{15} X_5 + d_5$
Culture $= \lambda_{16} X_6 + d_6$

Fish resources $= \lambda_{17} X_7 + d_7$
Institutional access $= \lambda_{18} X_8 + d_8$

Performance of micro-economic institutions $= \lambda_{21} Y_1 + e_1$
Productive economic activities (coastal tavern) $= \lambda_{22} Y_2 + e_2$
Human resources $= \lambda_{23} Y_3 + e_3$
Institutional performance $= \lambda_{24} Y_4 + e_4$

SEM (structural equation modeling) uses only the input data variance or covariance matrices or correlation matrix. The observation raw data was inputted to the analysis program AMOS v.4.01. AMOS will then change the raw data into covariance matrix or correlation matrix. The analyses was conducted to test the overall model of the relationship between life assets of the fishing community with the successful model of fishing community empowerment partner in finding the most influencing factors, either partially or jointly.

III. RESULT AND DISCUSSION

The structural equation was used to determine the feasibility of the models by conducting a full model test. The results were given in Table II. The equation was also used to test the hypotheses on causality relationships with the results are shown in Table III. From the structural equation model built one can see the influence of the eight fishing community characteristics capitals on the successful model of the community empowerment partner. Besides, it also can be seen the influence of the capitals on the model of the community empowerment partner. It can be seen in Table III that the weighting factors of human resource indicators showed the largest value (1.028). Our results show that this community empowerment approach has led to and focused on human capital (people-centered development), with the objective to increase the ability of the fishing communities in actualize themselves (empowerment). Such a community empowerment approach is expected to give the role to the individuals not as an object, but as an actor who defines their own lives [6].

TABLE II
EVALUATION CRITERIA GOODNESS OF FIT INDEX FULL MODEL AFTER MODIFICATION

Criteria	Results	Critical Value	Evaluation of the Model
Chi square	17.457	Expected less than 53.384	Good
Probability	0.998	≥ 0.05	Good
CMIN/DF	0.459	≤ 2.00	Good
GFI	0.977	≥ 0.90	Good
TLI	1.012	≥ 0.95	Good
AGFI	0.953	≥ 0.90	Good
CFI	1.000	≥ 0.95	Good
RMSEA	0.000	≤ 0.08	Good

TABLE III
WEIGHTING FACTOR AFTER MODIFICATION (LEVEL OF SIGNIFICANCE 5%)

Relation between Variables			Estimate	S.E.	C.R.	P	Lable
Model	←	Capital	0.553836	0.066611	8.314456	***	par_11
X8	←	Capital	1.000000				
X7	←	Capital	1.027275	0.026262	39.116482	***	par_1
X6	←	Capital	0.859989	0.042757	20.113492	***	par_2
X5	←	Capital	0.999616	0.029578	33.796222	***	par_3
X4	←	Capital	1.028412	0.028714	35.816139	***	par_4
X3	←	Capital	1.006688	0.035592	28.283892	***	par_5
X2	←	Capital	0.997965	0.028583	34.915029	***	par_6
X1	←	Capital	0.682062	0.075985	8.976220	***	par_7
Y1	←	Model	1.000000				
Y2	←	Model	1.315008	0.070388	18.682404	***	par_8
Y3	←	Model	1.376868	0.080194	17.169287	***	par_9
Y4	←	Model	1.380657	0.080598	17.130177	***	par_10

It was noted in other studies that the root causes of poverty and economic behavior of the fishing community is the low level of education and knowledge of the people, as well as a strong dependency of poor fishermen on their bosses and mentors [7]. Therefore, investment in fishing community human resources should be the focus of the empowerment, although considered as an expensive investment [8].

In the latent variable, the eight characteristics capitals of the fishing communities give the estimated value of the fish resources indicator that was also high (1.027). This suggests that the fish stock as an asset of the fishing communities in the city of Bengkulu condition was sufficient enough to cover the fishing areas (i.e. over fishing has not occurred yet). Fish stocks are enough to supply the fishing areas in the city of Bengkulu by traditional fishing techniques.

The characteristics of environmentally friendly utilization of fish resources are: (1) possessing a high selectivity, the operated fishing gears only catch the targeted species of certain size, (2) does not damage the ecosystem, such as coral reef ecosystems, (3) does not harm biodiversity and does not fish protected species, (4) does not jeopardize the sustainability of the target fish resources, and (5) does not endanger the safety and health of the fishing community [9-11].

One form of the economic capitals of fishing community is the development of micro-economic institutions, which is devoted to support the venture capital in the field of fisheries, such as the one initiated in the PEMP (*Pemberdayaan Ekonomi Masyarakat Pesisir*/Coastal Community Economic Empowerment) program through the establishment of cooperative LEPP-M3 [4]. The weight of the microfinance institutions indicator with a high estimated value 1.007 indicates the ease of fishing communities to obtain capital from coastal microfinance institutions. Most of the fishing community uses the institutions of micro capital to shore up their capital needs.

The weighting indicator factor of institutional access shows the value 1.000. There are some fisheries related organizations in Bengkulu city, such as Department of Marine and Fisheries, coastal development micro-economic institutions of Mitra Mina (LEPP-M3), professional assistants, and fishing community groups. Each institution has a very essential function in optimizing the implementation of the program. Another study reported that the performance and strategies of the coastal communities institutions in the implementation of the PEMP program in District Tobelo, North Halmahera were quite optimal. The institutional sustainability of the Office of Marine and Fisheries Affairs (DKP) Halmahera indicated a good status [12].

The weighting indicator factor of facilities and infra structure capital shows a value of 0.999. In the research area the infrastructure that supports the success of empowerment has been built. Such physical facilities include fish landing port, fish auction venues, fish drying area, fishing net service area and various other support facilities aimed at improving the ease of the fishermen in the works. The supporting infrastructures are the heart of business activities. The availability of such supporting infrastructures greatly influences the development of the fishing industry [13].

The weighting indicator factor of economic capital shows a value of 0.998. The form of economic activities is fish processing business. The fisheries micro-enterprises, such as the cooperative institutions, support the development of these businesses. The cooperative institutions also play an active role in empowering the fishing communities, as well as business activities outside the fishery, such as fishing engine repair business unit, SPDN, coastal tavern and marine tourism [14].

The weighting indicator factor of the cultural capital of the fishing communities showed a low value of 0.859 compared to other owned capitals during the course of the research. This indicates that the cultural character of the fishing communities in the city of Bengkulu is not as strong as the culture of fishing community in coastal areas of Java. The articulated cultural characters of Javanese fishing community are (1) the intense

social interaction between citizens, which is characterized by effective face to face communication, resulting in a very close relationship with each other and (2), in making a living the fishing community shows a strong mutual assistantship [15].

The causal relationships in Table III show that the weighting indicator factor of social had the lowest value. This means that the social bond of fishing communities in the city of Bengkulu coastal area is relatively weaker than that in coastal areas in Java. For example, the social accessibility of fishing community in Lekok beach, Pasuruan regency, East Java has the highest social weighting factor. This means that the social bond is still high [16]. In everyday life there are a variety of social activities, among other gathering activities and mutual assistantship.

IV. CONCLUSION

Empirical results of our study show that the characteristic capitals of fishing communities give a positive influence on the successful of empowerment partner model in the city of Bengkulu. However, optimization of the capitals of the highest influence on the development of coastal areas of Bengkulu city is still required, so that the model of community empowerment partner could be continuously improved to achieve higher quality.

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