

**FISHERS' PARTICIPATION IN DEVELOPMENT ACTIVITIES IN THE COMMUNITY WITH
DIFFERENT LEVEL OF CO-MANAGEMENT PROCESSES (CASE STUDY IN DEMAK AND
PEMALANG, CENTRAL JAVA-INDONESIA)**

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ABSTRACT

People's participation in development efforts is to create sense of awareness and involvement, increase level of aspiration, and mobilize local resources for productive purposes. The process whereby people learn to take charge on their own lives and solve their own problems is the essence of development (Burkey, 1993). Many programs have been put on fisheries sector development in Indonesia. In facts, outcome of the development from region to region might different. This perhaps related to the condition of multi-ethnic and the diverse of natural resource endeavor. This study emphasize on fishers' participation in development program with special reference to the community with different level of co-management processes (CMP). The level of CMP in this study is classified into low (case in Demak) and high (Pemalang) (see, Susilowati, 2001). Fishers' participation in this study covers their activities in planning and decision-making, implementation, sharing benefits and evaluation of the development program. The sample of n=56 (Demak) and n=52 (Pemalang) were withdrawn by multi-stages sampling method. Descriptive statistics and parametric analyses have been employed to analyze the data. Participation level of respondents in Demak majority (32 out of 56) are classified below the averaged participation score, while more than half (27 out of 52) respondents in Pemalang have participation rate above its average. The results indicated that participation of fishers in Demak and Pemalang - which have different level in co-management processes - is not statistically different ($t=0.823$; $p\text{-value}=0.412$). In contrast, the participation of fishers with respect to sex and education factors are found significantly different with $t=34.449$ and $F=2.450$, respectively. Furthermore, age, education, sex, and number of family members were found as the important factors (at $p\text{-value}$ from 0.000 to 0.080, subsequently) to influence participation of respondents in development efforts. However, income and region where fishers' live-in were not able to explain the participation. Moreover, it was found that the independent variables mentioned above were able to discriminate the level of participation as indicated from $F\text{-approx}=3.198$ ($p\text{-value}=0.000$) with 63.9% of original grouped cases into low and high participation are correctly classified. In order to improve fishers' participation in development efforts, particularly in fisheries management and conflict resolution then introducing co-management approach should be encouraged seriously. This is in accordance to the policy outlined by ICLARM or Worldfish (Pomeroy et al., 1994 and Kuperan et al., 2003).

Keywords: Fishers, participation, development, co-management, Demak, Pemalang, Indonesia

INTRODUCTION

The importance of people participation in rural development programs was emphasized since a few decades. The term has a diverse definitions and scopes with different intensity among developing countries. Nevertheless, it was believed that through participation, development policies would better grasp the practical realities of rural development. In addition, participation came to be seen as a means of promoting democracy by enfranchising the poor people who economically weak (Ingham, 1993). Indonesia is basically an archipelago and agricultural country. Nearly three-fourth of people lived in rural area and involved with agricultural activities, including in fisheries sector. The majority of people who involved in fisheries sector are small-scale fishers who economically weak. However, they need to be empowered through several development programs and activities directed to improve their standard of living. It is one of the ways in helping poor people to alleviate from the situation of powerlessness, poverty, and isolation.

Since the Indonesian's independence, a number of rural development programs were launched. It was aimed at helping poor people to uplift their living by empowering people through their participation. The programs and activities varied among development sectors, especially in agricultural sectors including in fisheries. Technical, investment, and management assistances were provided to the poor people by the government and other donor agencies. In fisheries sector, for example, one of the approaches used in a number of development activities was through co-management processes in which local fishers and support agencies collaborates among others in implementing development activities. By practicing this approach it is intended that the development programs and activities would be sustainable and provide continuous benefits to the fishers.

Several studies on rural and fisheries development have emphasized the significance of participation in development program in developing countries (Cohen and Uphoff, 1980; United Nations, 1990; Burkey, 1993; Waridin, 1999). People's involvement in development efforts is to make sense of responsiveness and involvement, increase the degree of aspiration, and mobilize local resources. Burkey (1993) verifies that the essence of development is the process whereby local people learn to take charge on their own lives and solve their own problems.

MATERIALS AND METHOD

Materials:

The main objective of the study is to determine the level of fishers' participation in co-management processes (CMP's) in Demak and Pemalang, Central Java-Indonesia. The specific objectives of the study are: (a) to analyze fishers' attitudes toward participation in development activities or program in the study area; and (b) to provide policy recommendations for improving fishers' participation.

There are commitments from the government, fishers, and other non-government organizations to increase their collaboration in fisheries development. It is intended as a means of providing development benefits by empowering fishers in co-management development. The findings of this study would provide a more understanding to the form and extent of the fishers' participation in development activities. The findings might also useful to various agencies and other related organizations involved in planning, implementation, and evaluation of the development programs.

The emphasis on grassroots participation in several developing countries was foreshadowed in the 1960s and 1970s by development strategies which saw rural projects as a way of reducing large-scale poverty

(Ingham, 1993; Waridin, 1999). It was believed that through participation, development policies would better grasp the practical realities of development. Participation came to be seen as a means of promoting democracy by enfranchising the poor people who economically weak. It is a manner of breaking into what Chambers (1983) term as the “deprivation trap”, a mutually reinforcing situation or powerlessness, vulnerability, poverty and isolation into which the majority of poor people are locked. The philosophy which underlies the approach is that local people know to a far greater degree of sophistication than does the government on what problems they face and how best to solve these problems (Rigg, 1991; Bruns, 1993). A number of studies have emphasized the importance of participation in development program (see, for instance: Cohen and Uphoff, 1980; United Nations, 1990; Burkey, 1993; Waridin, 1999). People’s participation in development efforts is to create sense of awareness and involvement, increase level of aspiration, and mobilize local resources for productive purposes. The process whereby people learn to take charge on their own lives and solve their own problems is the essence of development (Burkey, 1993).

Participation defies any single attempt at definition or interpretation. According to Paul as quoted by Oakley et al. (1991), community participation is an active process by which beneficiary or client groups influence the direction and execution of a development project with a view to enhancing their well-being in terms of income, personal growth, self-reliant or other values they cherish. With regard to development, participation includes people’s involvement in decision-making processes, in implementing programs, their sharing in the benefits of development programs and their involvement in efforts to evaluate such programs (Cohen and Uphoff, 1980). According to Pretty (1995), typology of participation consists of manipulative participation, passive participation, participation by consultation, participation for material incentives, functional participation, interactive participation, and self-mobilization.

The literature is stronger on quantitative indicators of participation than of qualitative indicators. The following is a composite list of quantitative indicators as drawn by Oakley et al. (1991) from a number of sources. These indicators covers: (1) economic indicators, (2) organizational indicators, (3) participation in project activities, and (4) development momentum. Few would argue that quantitative indicators alone are adequate to evaluate fully a process of participation; indeed Rugh as cited by Oakley et al. (1991) for example, comments that they are “relevant, appropriate but limited”; Cohen and Uphoff (1977) similarly recognize the need for a broader dimension. The use of such quantitative indicators is, however, a good way to start. Oakley et al. (1991) mentioned that indicators for the evaluation of a process of participation comprise of (1) beneficiaries’ role in the planning phase, (2) beneficiaries’ role in implementation phase, (3) beneficiaries’ role in maintenance, and (4) project linkages to beneficiaries. By employing Cohen and Uphoff’s (1980) model, Bahaman (1992) verified that the degree of people’s participation related to several factors such as age, education, experience, income, number of family, and length of stay.

Method:

The Study Area

The research was conducted in fishing communities in the regencies of Pemalang and Demak, Central Java, Indonesia on March to April 2004. The two study areas are hypothesized to be different in the level of co-management processes (CMP’s) (Susilowati, 2001). This is subject to the external characteristics of the people and availability of the local institutions or infrastructures. The selection of the districts was due to a reason that Pemalang and Demak have different feature on fisheries community’s profile.

Data and Sampling

Cross-sectional survey was designed to collect the data through personal interviews by the trained enumerators and guided by a standardized questionnaire. The total respondents of 108 fishers (Pemalang, n=52; Demak, n=56) were selected as the sample using multi-stage sampling method.

Analytical Approach

The multivariate analysis (Hair Jr. et al., 1998) have been employed and also was complemented by descriptive statistics (see Mason et al., 1999; SPSS, 1996). The statistical package for social science (SPSS) program was used to execute the data analysis in this study. The details test pursued by the study is explained as follows.

(1) **Descriptive statistics:** frequencies, descriptive summary, cross-tab, and other indicators were used to describe the profiles of respondents and the observed variables in the study.

(2) **A Multivariate statistics:** Regression and discriminant analyses were employed to determine the factors influence towards fishers' participation in the study area. Moreover, compare means with independent t-test (Mason et al., 1999) was also been employed to verify whether there is different behaviour of fishers in participation given several factors.

The operational variables of age, gender, level of education, number of family, total income, and fishers' residence were employed to explain the fisher's participation in the study area. In assessing fishers' participation, this study had has utilised an approach based on the four types of participation as suggested by Cohen and Uphoff (1980) and indicators as postulated by Oakley (1991), Bahaman (1992) and Waridin (1999) with necessary modification. Participation in development includes people's involvement in program planning and decision-making, program implementation, sharing benefits, and program evaluation. The Likert scale (1 to 5) was applied to measure the dimensions of fishers' participation and attitudes. In addition, categorical scale (1=low; 2=high) was used to discriminate the factor influence towards participation of fishers. The definition of the operational variables and its measurement is shown in Table 1. The model of fishers' participation behaviour in the study is formulated as follows:

$$\text{PARTICIP} = f(\text{AGE, GENDER, EDUC, FAM, INC, DLOC})$$

Table 1
Definitions and Measurements of the Operational Variables

Variables	Definition	Measurement
DEPENDEN VARIABLE:		
PARTICIP	Level of fishers' participation to involve in CMP's and development activities	In Likert scale (1 to 5)#. Dimension of participation related to: - Program planning and decision making - Program implementation - Sharing benefits of program - Program Evaluation (In metric: score)
LEVEL PARTICIP	~ditto~	In categorical scale (1=low and 2=high)##. Participation is low, if participation score \leq averaged score; high, if participation score $>$ averaged score.
INDEPENDEN VARIABLE:		
AGE	Age of fishers	In numerical value (year)
GENDER	Gender of fishers	Dummy (1 if male and 0 if otherwise)
EDUC	Formal education of fishers	In numerical value (years)
FAM	Number of persons live in fishers' households	In numerical value (person)
INC	Average amount of fishers' income per month	In numerical value (Rupiah)
DLOC	Residence of respondent	Dummy (1 if in Pemalang and 0 if Demak)

Note:

: estimation technique by regression ; ##: estimation technique by discriminant analysis.

RESULTS AND DISCUSSION

Profiles of Respondents

The total of 108 respondents were gathered from the fishing community of Pemalang and Demak for 52 persons and 56 persons, respectively. It composed by 15 female and 93 male respondents. The age of respondents spreads from 18 to 60 years old and in averaged they have engaged with fisheries environment for about 16 years. They used to stay in the fisheries community for about 29 years and even along their live as claimed by the eldest respondent until his age of 60 years. The averaged number of family members belong to the respondent is 4 persons per household. Most of respondents are attained in elementary school (74.1%) and junior high school (16.7%). This indicates that they have very limited experience in formal education. In the study area, it is found that education level attained by respondent is

not associated with their gender significantly (probability of significance for chi-square is only 0.453). The detail statistics of respondents is shown in Table 2 and Table 3.

Table 2
Summary of Descriptive Statistics

Description (N=108)	Mean	St. Dev.	Min	Max
Age of fishers	34.09	9.83	18	60
Gender of fishers	0.86	0.35	0	1
Fishers' education	1.29	0.68	0	4
Fishers' experience	15.60	9.56	2	40
Number of family	3.94	1.86	0	9
Total income (Rp. 000)	735.65	416.40	150	2100
Length of stay	28.87	13.95	1	60

Source: Primary data, processed, May 2004.

Table 3
Fishers' Education by Gender

Description	Female	Male	Total
Unschooler	0	3	3 (2.8%)
Elementary school	12	68	80 (74.1%)
Junior school	2	16	18 (16.7%)
Senior school	0	5	5 (4.6%)
Others	1	1	2 (1.9%)
Total	15 (13.9%)	93 (86.1%)	108 (100%)
Pearson Chi Square= 3.670	Decision: There is no significant association		
Asymp. Sig. =0.453			

Source: Primary data, processed, May 2004.

Portrait of Participation by Several Factors

Participation level of respondents in development activities and/ or program in the respected community is not statistically different. In other word, participation intensity (low or high) of respondents in Pemalang and Demak might not different significantly although the two study areas were observed different in level of co-management processes (CMPs) by Susilowati (2001)¹⁷. While, from gender wise participation level of respondents is found associated significantly. These phenomena are confirmed by Table 4 and Table 5, concomitantly. The male fishers are relatively participate more than the female ones in development activities. It is understandable that commonly man is relatively independent in engaging the non-domestic activities than woman. Generally, woman in Asian countries has unique responsibility, hence to take care of the domestic matters first before engaging the external activities. Moreover, the

participation intensity of fishers in their community will be not the same given different level of education attainment as shown in Table 5. This implies that more degree hold by the respondents, they will be more richer in experience, knowledge and progressive in the way of thinking.

Table 4
Level of Fishers' Participation by Factor Location and Gender

Location	Demak	Pemalang	Total
Low participation	32	25	57 (52.8%)
High participation	24	27	51 (47.2%)
Total	56 (51.9%)	52 (48.1%)	108 (100%)
Pearson Chi Square 0.889	Decision: There is no significant association		
Asymp. Sig. 0.346			
Gender	Female	Male	Total
Low participation	14	43	57 (52.8%)
High participation	1	50	51 (47.2%)
Total	15 (13.9%)	93 (86.1%)	108 (100%)
Pearson Chi Square 11.496	Decision: There is significant association		
Asymp. Sig. 0.001			

Score of participation: means =12.63; min=8; max=21; SD=2.60 (low, if \leq means; high, if $>$ means)
Source: Primary data, processed, May 2004.

Table 5
Compare Means of Participation by Location, Gender and Education

Description	F-Levene	t-ratio	Sig.	Decision
Participation by Location	9.555 (prob:0.003)	-0.823	0.412	Not significant
Participation by Gender	6.371 (prob:0.013)	34.449	0.001	Significant
Participation by Education level	ANOVA	F=2.450	0.051	Significant

Educ.level: (1) unschooled;(2) elementary; (3) junior high school; (4) senior high schools; (5) others.

Factors Influence towards Participation

In the study, participation of fishers in development activities is hypothesized will be determined by age, gender, education level, number of family members, income and a place where fishers live-in [Cohen and Uphoff (1980); Oakley (1991), Bahaman (1992) and Waridin (1999) with necessary modification]. There are two estimation techniques (regression and discriminant analysis) have been invoked to analysis the data. The results from these two techniques provide similar conclusion, i.e. participation of fishers in development is guided significantly by variable age, gender, education attainment, and numbers of family member in a household up to the significance level of $\alpha=10\%$. Meanwhile, income and a place where respondent stayed are not able to drive the participation of respondents significantly in the regression model as shown in Table 6. This implies that income level of individual fishers is not able to

guide the participation in activities or program development in the community with different level of CMPs, where they are belong to. Involvement of individual in development activities or program is not determined by individual's income but rather guided by the internal and external awareness toward their environments.

There are 4 out of 6 of the independent variables are significant at $\alpha=8\%$. The overall performance of regression which is evaluated by F-test shows soundly with probability of significance at 0.000, although the coefficient of determination is relatively low ($R^2=0.251$). The summary of regression estimation is summarized by Table 6.

Table 6
Summary of Regression Estimation

Variables	Coefficient	t-ratio	Probability Significancy	Decision
Constant	10.427	8.173	0.000	Significant
AGE	0.135	4.603	0.000	Significant
GENDER	-1.263	-1.900	0.060	Significant at 6%
EDUC	0.732	2.147	0.034	Significant
FAM	-0.412	-2.688	0.08	Significant at 8%
INC	5.452E-08	0.120	0.905	Not significant
DLOC	-0.555	-1.215	0.227	Not significant
R^2	0.251			
F-Ratio (Prob. – Sig.)	5.639			
	0.000			
Σ Var.Indep.Signif	4 out of 6 (at $\alpha=10\%$)			
DW	1.949 (dl=1.550 ; du=1.803); Decision: no autocorrelation			
N	108			

Dependent Variable: PARTICIPATION

In addition, from analysis of discriminant performed that the independent variables of age, gender, education, family members, income and residence of respondents were able to discriminate the level of participation as indicated from F-approx=3.198 (p-value=0.000) with 63.9% of original grouped cases into low and high participation are correctly classified as shown by Table 7.

Table 7
Summary of Discriminant Analysis
 $PARTICIP = f(AGE, GENDER, EDUC, FAM, INC, DLOC)$

Variables	Standardized Coefficients	Canonical	Discriminant
AGE	-0.082		
SEX	2.270		
EDUC	-0.085		
FAM	0.259		
INC	0.000		
DLOC	0.373		
CONSTANT	-0.896		
Box's M:	71.500		
F – Approx. (prob-sig)	3.198 (Sig:0.000)		
Class Commitment	Predicted Group Membership		
	Low	High	Total
Original			
Count:			
Low	29	28	57
High	11	40	51
%:			
Low	50.9	49.1	100
High	21.6	78.4	100

Note: #=Tests null hypothesis of equal population covariance matrices.

*=Significant at alpha 2%. 63.9% of original grouped cases correctly classified.

CONCLUSIONS

Participation of fishers in their community to underdone the development activities and/ or program in the study area with the different co-management processes (CMPs), eventually, is found not statistically significant different. In contrast, gender and education factors were able to differentiate the fishers' participation intensity in the study area of Pemalang and Demak.

By means of regression and discriminant analyses, it was found that age, gender, education, family members, income and residence location as the driven factors in determining participation of fishers in development activities in the study area. This study suggests that in order to improve fishers' participation, then the selected factors aboved should be empowered accordingly. This implies that to improve the degree of fishers participation in the activities related with development, then the magnitude of predictor used in the model (such as: age, gender, education, family members, income and residence) could be explored further. Moreover, the findings of this study might be used for many purposes in enhancing participation of fishers, among other are for determining the fisher's target for extension, training, credit scheme and other treatments or purposes. The study mightbe considered as the stimulator or a kinds of an initial research on fisher's participation and need to be expanded with necessary enhancement.

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ENDNOTES

^{1/} Several criteria were imposed, among others are: participation intensity shared by the stakeholders, outcomes achieved in the community from the programs launched by government or NGO/ universities or other agencies in the two sites; degree in attention given by community for having cooperation and collaboration with other people or organization; management strategy performed by community, such as in solving conflict, formulating a plan, etc.; numbers of informal and formal organizations exist in the two sites.