

## **Fishermen Group Dynamics Before and After the Implementation of a Capture Fisheries Development Program**

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**Abstract:** The study aimed to examine the group dynamics of fishermen groups before and after the implementation of a capture fisheries development program. The study was carried out in Kendari municipality, Southeast Sulawesi Province, Indonesia. Respondents consisted of 54 fishermen selected from 11 groups which were beneficiaries of the program. Data and information were collected using questionnaire based interview and observation. Data were analyzed using descriptive statistics and paired sample t test. The level of group dynamics was low before the program implementation, but improved to the high level after the program implementation. The result of t test shows that there is a significant difference in the level of group dynamics before and after the program. Regular monitoring needs to be done to help maintain the group dynamics and program sustainability.

**Keywords:** capture, fisheries, fishermen, group dynamics, program.

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### **I. INTRODUCTION**

Indonesia is the world's largest and most populous archipelago. The country's location in the tropic area, long coastline, and vast marine territory provide a source for livelihoods for coastal communities [1]. Both fish and shrimp farming and fishing have supported the Indonesian economy by generating foreign exchange through exports. In the local context, they become the primary source of employment and food for local consumption in many of Indonesia's coastal communities [1].

Fishing communities live in coastal areas and depend on fisheries resources for their livelihoods. The conditions of fishing communities are often identical with such characteristics as poverty, socio-cultural backwardness, and low capacity of human resources. Poverty in fishing communities is due to the limited affordability of fishers on technology, dependence on the structure of the fishing season, lack of bargaining position in the fish marketing network, consumptive life-styles, and the less functioning of community organizations such as cooperatives and fishers groups [2,3,4]. Well-functioning of the fishermen group can help increase the income and welfare of fishers and fishing communities.

The government has implemented various policies and programs to address poverty in coastal communities. One of them is *Program Pengembangan Usaha Mina Perdesaan Perikanan Tangkap* (PUMP PT) or Program for Developing Rural Business of Capture Fisheries. Starting in 2011, the program aimed to accelerate the eradication of poverty among fishing households. The program was part of *Program Nasional Pemberdayaan Masyarakat* (PNPM) or Community Empowerment National Program, focusing on the empowerment of small-scale fishers through financial assistance for developing capture fisheries. The fund was used to finance capital investment and operating costs, depending on the needs of fishers. To improve the effectiveness of the fund being received and membership participation, the program also included institutional strengthening. Membership participation is crucial for fishermen to act individually or in a group in their own best interests. To overcome the problem of poverty in fishing villages, fishermen groups should perform sufficient roles both in vertical integration within the fisheries sector and horizontal integration across several economic sectors [5].

Fishermen group can play a significant role in establishing members' attitudes and characteristics and in fostering collaboration among members. Members' involvement in various activities of the group is expected to improve vision, way of thinking, interest, commitment and innovation characteristics ability of the members, so it is essential to take the group approach to promote interaction among member fishermen. The group

dynamics is related to the level of satisfaction of the members toward the group [6]. According to Sidorenkov [7], the concept of group dynamics is employed to signify a full totality of processes and phenomena, which take place in the group covering aspects such as social influence, leadership, role performance, and communication forms. The group dynamics affects or determines the behavior of the group or its members to achieve their goals. A more dynamic group will be functioning more effectively for the attainment of the goals of its members in their livelihoods.

Many studies have been done to investigate group dynamics, such as in small-scale fishermen groups [4,8], beef cattle farmer groups [9], oil palm farmer groups [10], rubber farmer groups [6], and water user association [11]. However, very few information is available for group dynamics before and after a program or a project implementation. It is against this background that this study was conducted to find out group dynamics before and after the implementation of a capture fisheries development program.

## **II. METHODOLOGY**

The study was carried out in the sub-districts of Abeli, Poasia, West Kendari, and Kendari, in Kendari municipality of Southeast Sulawesi Province. Study locations were determined purposively with the consideration that the four sub-districts were the target locations of PUMP-PT program.

The population of this study was all 118 fishermen who were beneficiaries of the program. Based on Slovin Formula, the number of respondents selected was 54 fishermen. The number of respondents was then distributed to all beneficiary groups. There were 11 groups, so the number of samples was 4-5 persons per group.

Data and information were collected through questionnaire-based interview and observation. The questionnaire consisted of three parts. The first part dealt with demographics of respondents, the second part included items to measure group dynamics, and the last part contained comments and suggestions regarding fishermen groups, the program, and fisheries development.

Group dynamics were divided into eight components, namely group goals, group structure, group task function, group building and maintenance, group cohesiveness, group atmosphere, group pressure, and group effectiveness [11,12,13]. Group goals and group guidance were measured using four items each, whereas the other six variables were measured using three items each. Each item was measured by one question, and the wording of the answers was adjusted according to the question. In this regard, respondents were asked to answer each question or item using a three-point Likert scale, where "disagree" was given the value of 1, "neutral" as 2 and "agree" as 3. Responses of the questions were categorized according to their mean scores. Mean scores of 1.00 – 1.66 were classified as low, mean scores of 1.67 – 2.33 were classified as medium, and mean scores of 2.34 and above were regarded as high. Space was provided on the survey for respondents to comment or provide additional information on what they thought about the status and causes of the group dynamics over the years. A paired sample t test was used to analyze the difference of group dynamics before and after the project implementation [14,15].

## **III. RESULTS AND DISCUSSION**

### **3.1. Group Goals**

Table 1 presents the number of respondents according to the level of their assessment toward the group goals. More than half of respondents (57%) had an unsatisfactory assessment of their group goals before the program implementation. However, after the program implementation, a majority of respondents (70%) had a satisfactory assessment of the project goals. The mean score before the program implementation was 1.43 (low), and that after implementation was 2.70 (high). This result indicates that the presence of the program has contributed to the improvement of the group goals.

The high category of the group goals after the program implementation meant that fishermen had a sufficient level of knowledge and understanding of the group goals. It also meant that fishermen had considered the group goals being relevant to their individual goals. Such satisfactory performance of the group goal component was due to their participation in training and guidance provided by the extensionists and staff from the Office of Fisheries. Their participation in the training improved their knowledge and understanding about fishermen groups, especially the group goals. The fishermen formulated Common Business Plan as a reference for accepting assistance under the program, in which the group goals were an important part of the plan.

The high mean score indicated that most respondents had understood the goals of their group sufficiently. The process of formulating the goals involved all members. With the clear goals in mind, members were expected to have trust in the group, which in turn would motivate them to involve in group activities. This condition would lead to strengthened group dynamics. This agrees to a finding of Cartwright [16] that clear goals are needed in order for the members to carry out activities according to group needs. When group goals support individual member goals, the group would be more dynamic. In this regard, the group goals relating to the program were to increase membership productivity, increase fishers' income and prosperity, and improve

knowledge and skills of members. It was revealed during the survey that most respondents knew and understood these goals.

**Table 1.** Number of respondents according to their perceived level of group goals

Group Goals	Category	N	%	Mean Score
Before the Program	High		-	1.43
	Medium	23	43	
	Low	31	57	
	Total	54	100	
After the Program	High	38	70	2.70
	Medium	16	30	
	Low	-	-	
	Total	54	100	

### 3.2. Group Structure

Table 2 presents the number of respondents according to the level of their assessment toward the group structure. A majority of respondents (80%) assessed their group structure before the program as being low. However, a majority of respondents (96%) had a satisfactory assessment of the project structure after the project. The mean score before the program implementation was 1.20 (low), and that after implementation was 2.96 (high). This result indicates that the presence of the program had contributed to the improvement of the group structure.

**Table 2.** Number of respondents according to their perceived level of group structure

Group Structure	Category	N	%	Mean Score
Before the Program	High		-	1.20
	Medium	11	20	
	Low	43	80	
	Total	54	100	
After the Program	High	52	96	2.96
	Medium	2	4	
	Low	-	-	
	Total	54	100	

The improvement of the mean score indicated a significant improvement in the group structure as a result of the program intervention. Members acknowledged that before the program implementation, they did not understand clearly the group structure and did not perform tasks in accordance with the expected responsibilities from their position in the group. However, after the program implementation, the groups had already had a structure with a clear division of tasks and responsibilities. The decisions were made after taking into account membership aspiration, and there had been active communication between the group management and members, so members were well-informed with all activities of the group. The program had facilitated the establishment of a simple organizational structure, consisting of the head, secretary, treasurer, and members. In all groups surveyed, almost all respondents agreed that there had been clear structure of the group and there had been clear assigned tasks and responsibilities for both management (head, secretary, and treasurer) and members. According to respondents, the existing structure had provided clear responsibilities and procedures in the decision-making process, communication system, group activities, and rights and obligation.

### 3.3. Group Function

Table 3 presents the number of respondents according to the level of their assessment toward the group task function. A majority of respondents (81%) rated their group task function before the program as being low. However, the majority (83%) rated high the group task function after the program implementation. This result indicates that the program implementation had led to an improvement in the task function of the group.

**Table 3.** Number of respondents according to their perceived level of group function

Group Tasks	Category	N	%	Mean Score
Before the Program	High	2	4	1.19
	Medium	8	15	
	Low	44	81	
	Total	54	100	
After the Program	High	45	83	2.83
	Medium	9	17	
	Low	-	-	
	Total	54	100	

The mean score before the program was 1.19 (low), which increased to 2.83 (high) after the program. This indicated a significant improvement in the group task function. Before the program, members did not understand their roles and responsibilities in the group. This condition changed after the program implementation. Members regarded group management to have performed their tasks and responsibilities sufficiently. The head was responsible for all group activities, the secretary handled the administration, and the treasurer handled the financial matter. Members had allocated a certain percentage of their income for the group fund. Satisfactory group task function was enabled by the guidance and regular monitoring from the facilitator of the program from the Municipality Office of Fisheries. As recipients of the fund, each group had to make regular reporting of the group activities and progress.

**3.4. Group Building and Maintenance**

Table 4 presents the perceived group dynamics based on group building and maintenance. Before the program implementation, the majority of respondents (89%) gave a low rating on the group building and maintenance. However, after the program implementation, the majority (91%) had rated it as being "medium" and "high." This meant that after the program implementation, there had been sufficient participation in the group activities, sufficient activities of group building and maintenance, and the availability of facilities that supported group activities. Group building and maintenance was done by developing member participation in group activities and by controlling the implementation of group rules and norms.

**Table 4.** Number of respondents according to perceived group building and maintenance

Group Building and Maintenance	Category	N	%	Mean Score
Before the Program	High	-	-	1.11
	Medium	6	11	
	Low	48	89	
	Total	54	100	
After the Program	High	17	32	2.22
	Medium	32	59	
	Low	5	9	
	Total	54	100	

The mean score of group building and maintenance before the program was 1.11 (low), and that after the program implementation was 2.22 (medium). The perceived level of group building and maintenance improved, but only until the medium level. Thus it is still a challenging task to improve the group building and maintenance. To increase member participation, the groups had already conducted a regular meeting, but still not all members attended the meeting. All groups already had assigned meeting room, which was in the house of one of the group members. However, not all groups had owned sufficient facilities for member participation, such as tables, whiteboard, and teaching aids.

### 3.5. Group Cohesiveness

Table 5 presents the perceived group dynamics based on group cohesiveness. The majority of respondents (91%) assessed the level of the group cohesiveness before the program implementation as being low. After the program implementation, their level of group cohesiveness increased to medium level. The mean score increased from 1.15 (low) to 2.33 (medium). This indicated that after program implementation, members had shown convenience to collaborate.

**Table 5.** Number of respondents according to perceived group cohesiveness

Group Cohesiveness	Category	N	%	Mean Score
Before the Program	High	3	6	1.15
	Medium	2	4	
	Low	49	91	
	Total	54	100	
After the Program	High	18	33	2.33
	Medium	36	67	
	Low	-	-	
	Total	54	100	

The convenience of collaborating with other friends was related to the attitude and behavior of members toward other members. As fellow members, each person felt the same condition with the common goals so that they developed mutual respect, trust, help, care, and dependent on each other. In fact, the implementation of PUMP PT program activities required collaboration among member fishermen. Fishermen helped each other in the situation when one was facing a problem. They also helped each other to go fishing together, provided information about the fishing ground with abundant fish, and helped others to fix damaged fishing tools.

Mean score of 2.33 indicated that group cohesiveness was sufficient. This group cohesiveness is the strength for the groups to perform their activities to attain their objectives. This might be due to the leadership that can motivate the members. Another factor might be the level of awareness of members regarding the importance of the group in performing their livelihood and in turn to their income and prosperity. According to Falo [17], group cohesiveness reflected the level of commitment and loyalty toward the group. The group has been acknowledged to serve as a venue for learning and collaboration. In the study area, closer cultural distance [18] might have contributed to the group cohesiveness as the members had similarities in terms of language, social structure, religion, living standards, and values.

### 3.6. Group Atmosphere

Table 6 shows the number of respondents according to their perceived level of the group atmosphere. The majority of respondents (78%) assessed the level of the group atmosphere before the program implementation as being "low." However, all respondents rated the group atmosphere as being "medium" and "high" after the program implementation. The mean score increased from 1.3 (low) to 2.6 (high). This indicated that the program implementation had led to improved group atmosphere among the members.

A high mean score after the program implementation meant that members had had a favorable perception of the group atmosphere. Group members acknowledged that the values of mutual help, care, open communication, and collaboration were promoted more in the groups after the program implementation. They developed mutual understanding and thus could peacefully manage conflict. This is in line with what Jehn and Mannix [19] have suggested about four underlying dimensions of the group atmosphere, namely, trust, cohesion, openness, and respect. The program activities such as training and guidance in addition to the group-based financial assistance might have improved these elements of a group atmosphere. Favorable group atmosphere encourages participation in group activities and may lead to better group performance.

**Table 6.** Number of respondents according to perceived group atmosphere

Group Atmosphere	Category	N	%	Mean Score
Before the Program	High	3	5	1.28
	Medium	9	17	
	Low	42	78	
	Total	54	100	
After the Program	High	33	61	2.61
	Medium	21	39	
	Low	-	-	
	Total	54	100	

### 3.7. Group Pressure

Table 7 shows the number of respondents according to their perceived level of the group pressure. The majority of respondents (82%) assessed the level of the group atmosphere before the program implementation as being “low.” However, all respondents rated the group pressure as being “medium” and “high” after the program implementation. The mean score increased from 1.26 (low) to 2.72 (high). This indicated that the program implementation had led to stronger group pressure among the members.

**Table 7.** Number of respondents according to perceived group pressure

Group Pressure	Category	N	%	Mean Score
Before the Program	High	4	7	1.26
	Medium	6	11	
	Low	44	82	
	Total	54	100	
After the Program	High	39	72	2.72
	Medium	15	28	
	Low	-	-	
	Total	54	100	

The group pressure that influenced members to conform to attitudes, values, and behaviors of the group was primarily related to informal rules adopted to manage credit repayment, membership rights and obligation, and submission of the progress report. Enforcement of rules and sanctions was effective in the group fund management and in increasing member participation in group activities. Another thing was that the local government often carried out the contest to select the groups with the best performance, making all groups tried to perform to achieve the standard of group management. The presence of this pressure seemed to lead to positive result toward the better performance of the group.

### 3.8. Group Effectiveness

The number of respondents according to their perceived level of the group effectiveness is presented in Table 8. The majority of respondents (78%) assessed the level of the group effectiveness before the program implementation as being "low." However, all respondents rated the group effectiveness as being "medium" and "high" after the program implementation. The mean score increased from 1.22 (low) to 2.85 (high). This indicated that the program implementation had led to higher group effectiveness according to the members.

**Table 8.** Number of respondents according to perceived group effectiveness

Group Effectiveness	Category	N	%	Mean Score
Before the Program	High	0	0	1.22
	Medium	12	22	
	Low	42	78	
	Total	54	100	
After the Program	High	46	85	2.85
	Medium	8	15	
	Low	-	-	
	Total	54	100	

Higher group effectiveness meant that members had considered the group to have attained its goals. It seemed that members were satisfied with the overall performance of the group. In this regard, the group goal was to strengthen the group as the fishermen's institution that could perform the roles as a learning venue, a means for collaboration, and a production unit. Effective performance of the group in these three roles would help achieve the program objectives, namely, to increase income, strengthen entrepreneurship, and improve the institution of the fishermen. As Cahaya [3] has suggested, the local government should facilitate those groups to serve as a forum for the empowerment of the fishermen.

Overall, the mean scores of each element of the group dynamics before the program ranged from 1.11 to 1.43, which was under the "low" category. The overall mean score was 1.3, which meant the group dynamics before the program implementation was "low." However, after the program implementation, most elements of the group dynamics showed an increase in their mean scores to the "high" category, except for group building and maintenance and group cohesiveness whose mean scores were in the "medium" level. The overall mean score after the program implementation was 2.7, which was under the high category.

The results of the paired samples t-test clearly show that there is a significant difference in the group dynamics before and after the program implementation ( $p < .05$ ). The difference between the mean scores of the group dynamics before and after the program implementation verifies the success of the program in improving the group dynamics of program beneficiaries. This result agrees to a finding of Febrianti, Sulistyati, and Alim [13] that extension activities conducted by community organizers or extension officers positively affect the level of group dynamics of farmer groups. Findings of a study by Anisi, Yunasaf, and Winaryanto [20] confirm that group dynamics has a positive correlation with the success of members' businesses. The higher the group dynamics, the more likely members' businesses will be successful. Thus it is expected that improved group dynamics will lead to a higher income for fishermen.

#### IV. CONCLUSION

Level of group dynamics improved with the implementation of the PUMP PT program. The level of group dynamics is low before the program implementation, but changes to the high level category after the program implementation. The results of t test show that there is significant difference in the level of group dynamics before and after the program. This meant that the program has improved significantly the level of group dynamics. Higher group dynamics will lead to better individual and group performance as well as program performance. Regular monitoring may still be necessary to maintain group dynamics and sustainability of the program activities and benefits.

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