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STUDY OF COMMUNITY PARTICIPATION LEVEL IN THE IMPLEMENTATION OF DRINKING WATER INFRASTRUCTURE IN MAROS DISTRICT

(CASE STUDY: TARGET VILLAGES OF 2018 PAMSIMAS PROGRAM)

Ulfa Hudayah,[1] Hanafi Ashad,[2] Ratna Musa II [3]

[1](Master of Construction Engineering Management Concentration, Faculty of Civil Engineering, Muslim Indonesia University)

[2] (Faculty of Civil Engineering, Muslim Indonesia University)

[3] (Faculty of Civil Engineering, Muslim Indonesia University)

ABSTRACT

As a program that uses a community-based approach, PAMSIMAS places the community as the main actor and is also responsible for the implementation of the activities. Both at the planning, implementation, and management and maintenance stages of SPAM infrastructure and facilities to ensure the implementation of the program is supported by program management units at the central and regional levels, as well as consultants and facilitators. Community involvement as the main responsibility is intended to increase ownership of program results and be able to independently manage program results. This study aims to determine the level of community participation in the implementation of drinking water infrastructure development in Maros Regency and identify the factors that influence the level of community participation in the implementation of drinking water infrastructure development, and obtain the factors that most influence the level of community participation in the implementation of drinking water infrastructure development in Maros Regency. Data collection was carried out through a survey using a questionnaire. The target respondents in this study were the desa/kelurahan beneficiaries of the PAMSIMAS Program in Maros Regency in Tahun Anggaran 2018 in Kecamatan Cenrana, Desa Limappoccoe and Desa Cenrana Baru. To find the relationship between the factors that influence community participation with the form and level of participation, cross tabulation and data from interviews with respondents as qualitative data are used to get a picture of the level of community participation as well as supporting quantitative analysis. Meanwhile, secondary data and documentation data are presented to complement and provide an overview of the condition of the research object. The results of the factor analysis show that the level of community participation in the implementation of the PAMSIMAS program in the two villages is at the Informing Level (the third step of the eight Arnstein Ladder) and is included in the Degree of Tokenism. Factors affecting the level of community participation in the development of drinking water infrastructure in Maros Regency are Education, Employment, and Income. Contingency coefficient test results of the three factors that most influence the level of community participation is employment.

Keywords: Community participation, level of participation, drinking water

I. INTRODUCTION

As a basic public service, based on Law no. 23 of 2014 concerning Regional Government, drinking water and sanitation services have become mandatory affairs of the Regional Government. To support the capacity of local governments to provide drinking water and sanitation services that meet Minimum Service Standards (SPM), the government through the Community-Based Water Supply and Sanitation Program (PAMSIMAS) plays a role in providing financial support for both physical investment in the form of facilities and infrastructure, as well as non-physical investment in the form of management, technical support, and capacity building.

The PAMSIMAS program is implemented with a community-based approach through community involvement (women and men, rich and poor, etc.) and an approach that is responsive to community needs (demand responsive approach). Both approaches are carried out through a community empowerment process to foster initiative, initiative, and active community participation in deciding, planning, preparing, implementing, operating and maintaining the facilities that have been built, as well as continuing activities to improve health status in the community including in the school environment.

As a program that uses a community-based approach, PAMSIMAS places the community as the main actor and at the same time as the person in charge of implementing activities. At the planning, implementation, and management and maintenance stages of SPAM infrastructure and facilities to ensure the implementation of this program is supported by program management units at the central and regional levels, as well as consultants and facilitators. The involvement of the community as the main person in charge is intended to increase a sense of belonging to program results and to be able to manage program results independently.

II. LITERATURE REVIEW

Definition of Participation

Hoofsteede (1971) in Turindra (2009) states that participation is "the taking part in one ore more phases of the process" (taking part in one or more stages in the process) while Keith Davis (1967) in Turindra (2009) states that participation "as mental and emotional involment of persons of person in a group situation which encourages him to contribute to group goals and share responsibility in them" (mental and emotional involvement of group members that encourages him to contribute to group goals and share responsibility in in it).

Verhangen (1979) in Mardikanto (2003) states that participation is a special form of interaction and communication related to the distribution of: authority, responsibility, and benefits. Theodorson in Mardikanto (1994) suggests that in everyday terms, participation is the participation or involvement of a person (individual or community member) in a particular activity. The participation or involvement referred to here is not passive in nature but is actively directed by the person concerned. Therefore, participation will be more accurately defined as the participation of a person in a social group to take part in community activities, outside of their own work or profession.

Participation Stages

The descriptions of each stage of participation are as follows:

a. Participation stage in decision making
   In general, every community development program (including the use of local resources and budget allocation) is always determined by the central government, which in this case reflects the nature of the needs of the elite groups in power and does not reflect the wants and needs of the community at large. Therefore, community participation in development needs to be fostered through the opening of forums that allow the public to participate directly in the decision-making process about development programs in the local area or at the local level (Mardikanto, 2001 in Turindra, 2009).
b. Participation stage in activity planning

Slamet (1993) distinguishes that there are levels of participation, namely: participation in the planning stage, participation in the implementation stage, participation in the utilization stage. Participation in the planning stage is the stage with the highest level measured by the degree of involvement. In the planning stage, people are invited to participate in making decisions that include the formulation of goals, objectives and targets.

One of the new development planning methodologies is to recognize the different abilities of each community group in controlling and their dependence on resources that can be obtained in their environmental system. The knowledge of technical planners from above is generally very profound. Because of this situation, it is the role of the people themselves who are ultimately willing to make the final choice because they will bear their lives. Therefore, the planning system must be designed in accordance with the community's response, not only because of their essential involvement in achieving commitment, but because the community has relevant information that cannot be reached by superior technical planning (Slamet, 1993 in Turindra, 2009).

c. Participation stage in the implementation of activities

Community participation in development is often interpreted as the participation of the general public (who are generally poorer) to voluntarily contribute their energy in development activities. On the other hand, the layers above it (which generally consist of the rich) who get the most from the results of development are not required to contribute proportionally. Therefore, community participation in the implementation stage of development must be interpreted as equal distribution of community contributions in the form of labor, cash, and or various other forms of sacrifice that are commensurate with the benefits that will be received by the residents concerned (Mardikanto, 2001).

d. Participation stage in activity monitoring and evaluation

Monitoring and evaluation activities for development programs and projects are indispensable. Not only so that the objectives can be achieved as expected, but also necessary to obtain feedback on problems and obstacles that arise in the implementation of the development concerned. In this case, community participation in gathering information related to the development of activities and behavior of development officials is needed (Mardikanto, 2001).

e. Participation stage in the utilization of activity results

Participation in the utilization of development results is the most important element that is often overlooked. Because the aim of development is to improve the quality of life of many people so that equitable distribution of development results is the main goal. In addition, the use of development results will stimulate the willingness and volunteerism of the community to always participate in every future development program (Mardikanto, 2001).

Factors Affecting Community Participation

According to Slamet (1993), internal factors that influence community participation are gender, age, education level, income level and livelihood.

Internal factors come from the individual himself. Theoretically, individual behavior is closely related or determined by sociological characteristics, namely:

a. Gender

The participation given by a man and a woman in development is different. This is due to the existence of a social stratification system that is formed in society, which differentiates the positions and degrees of men and women. This difference in position and degree will lead to differences in rights and obligations between men and women. According to Soedarno et. al (1992) in Suciati (2006), that in this layering system based on sexuality, men have a number of privileges compared to women. Thus, the tendency is that the male group will participate more.

b. Age

Age differences also affect the level of community participation. In society, there are differences in positions and degrees on the basis of seniority, so that the older and younger groups will emerge, who differ in certain matters, for example channeling opinions and making decisions by Soedarno et. al

(1992) in Suciati (2006). Age affects a person's activeness to participate (Slamet, 1994). In this case the elderly, who are considered more experienced or senior, will give more opinions and in terms of making decisions.

c. Level of education

Likewise with the level of knowledge. Litwin (1986) in Suciati (2006) states that, one of the characteristics of partisan in participatory development is the level of public knowledge about participation efforts provided by the community in development. One of the factors affecting the level of knowledge is the level of education. The higher the educational background, of course, have a broad knowledge of development and the forms and procedures for participation that can be provided. The educational factor is considered important because through the education obtained, it is easier for a person to communicate with outsiders and is responsive to innovation.

d. Income Level

Income levels also affect community participation. According to Barros (1993) in Suciati (2006), richer residents mostly pay cash expenses and rarely do physical labor themselves. Meanwhile, people who have barely enough income will tend to participate in terms of labor. The high level of income will provide greater opportunities for the community to participate. This level of income affects people's financial ability to invest. The community will only be willing to give all their abilities if the results achieved will be in accordance with their wants and priority needs (Turner in Panudju, 1999: 77-78).

e. Livelihood

This livelihood will be related to a person's income level. Thus it can be said that livelihoods can influence community participation in development. This is because work will affect a person's spare time to be involved in development, for example in terms of attending meetings, community service and so on.

Meanwhile, external factors can be said to be stakeholders, namely all parties who have an interest and influence on the program (Sunarti, 2003).

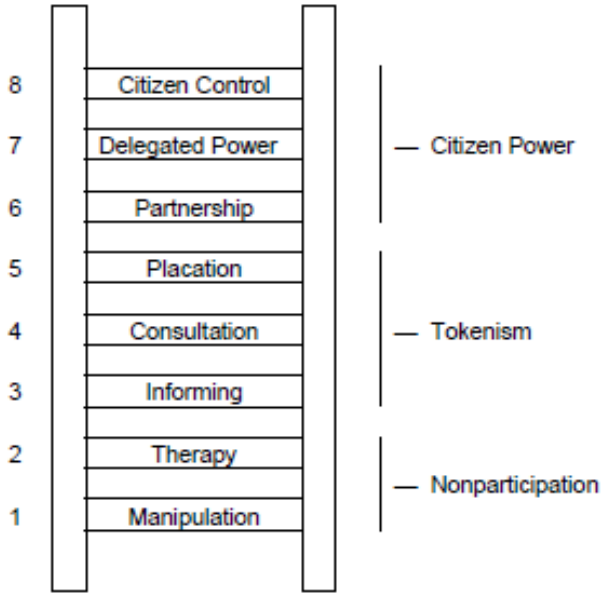
Stakeholders in the PAMSIMAS Program can be grouped as follows:

1. The Government, in this case the Central Government, Regional Governments and Village Governments,
2. Consultants, in this case ROMS 15 South Sulawesi Province and Maros Regency consultants,
3. Facilitators, which are divided into senior facilitators who handle the technicalities, and community facilitators who assist the village community in implementing the program.

Level of Community Participation

According to Sherry Arnstein (1969) in his paper published in the Journal of the American Institute of Planners entitled "A Ladder of Citizen Participation".

There are 8 levels of participation ladder based on the level of community power in influencing planning, as shown below:



Source: Arnstein (1969)

Picture 1
Eight Ladder Levels of Community Participation

1) *Manipulation*
   This level of participation is the lowest, which positions the community to be used only as a party providing approval in various advisory bodies. In this case there is no genuine and sincere public participation, but it is misused and used as a means of publication by the authorities.
2) *Theraphy*
   Under the guise of involving community participation in planning, experts treat community members like a patient's healing process in therapy. Even though the community is involved in activities, in reality these activities are mainly aimed at getting input from the public for the sake of the government.
3) *Informing*
   Providing information to the public about their rights, responsibilities and various options, can be a very important first step in implementing community participation. Although what often happens is the one-way information sharing from the power holders to the community, without the possibility of providing feedback or power for negotiations from the community. In the situation when information was mainly given at the end of the planning, the community had little opportunity to influence the plan.
4) *Consultation*
   Inviting public opinion, after providing information to them, can be an important step towards full participation of the public. Although there has been a two-way dialogue, this method has had a low success rate because there is no guarantee that people's concerns and ideas will be heeded. The methods often used are surveys, community community meetings and community hearings.
5) *Placation*
   At this level the community begins to have some influence although some things are still determined by those in power. In its implementation, several community members are deemed capable of being included as members of community group development cooperative bodies whose members are representatives of various government agencies. Although proposals from the community are considered according to their needs, community voices are often not heard because their position is relatively low or they are too few in number compared to members of government agencies.
6) *Partnership*
   Pada tingkat ini, atas kesepakatan bersama, kekuasaan dalam berbagai hal dibagi antara pihak masyarakat dengan pihak pemegang kekuasaan. Dalam hal ini disepakati bersama untuk saling membagi tanggung jawab dalam perencanaan dan pembuatan keputusan serta pemecahan berbagai masalah. Telah ada kesamaan kepentingan antara pemerintah dan masyarakat.
7) *Delegated Power*

At this level, the community is given the authority to make dominant decisions on certain plans or programs. To resolve the differences that arise, the owners of power must bargain with the community and cannot exert pressure from above. So the community is given the authority to make decisions about the plan and the plan is then determined by the government.

8) *Citizen Control*
At this level the community has the power to regulate programs or institutions related to their interests. They have authority and can enter into negotiations with outside parties who wish to make changes. In this case, the community's joint venture can directly connect with sources of funds to obtain assistance or loans without going through third parties. So the community has the power to plan, implement and supervise the programs it makes.

At levels 1 and 2 it is concluded as a level that is not participation or non participation. Levels 3, 4, and 5 are called the Degree of Tokenism or the Degree of Tokenism. And levels 6, 7, 8 are called the Degree of Citizen Power.

Based on the individual participation scale, the scale used as a variable to measure the level of community participation in the implementation of drinking water infrastructure development can be classified as:

a. Meeting attendance rate
b. Activeness in suggesting input / suggestions / suggestions
c. Activeness in the preparation of work plans (proposal and RKM)
d. Involvement in providing labor / material contributions and approval of work implementation, operation and maintenance.

Drinking Water Supply System Policy

In accordance with the mandate of Law Number 23 of 2014, that drinking water and sanitation are basic services which are mandatory government affairs, in this case local government. Therefore it becomes the attention of local governments to implement programs and activities that support the achievement of drinking water supply for the community.

The Community Based Drinking Water and Sanitation Provision Program (PAMSIMAS) is one of the government's flagship programs in an effort to meet the community's needs for drinking water. The PAMSIMAS program is implemented with a community-based approach through community involvement (women and men, rich and poor, etc.) and an approach that is responsive to community needs (demand responsive approach).

Both approaches are carried out through a community empowerment process to foster initiative, initiative, and active community participation in deciding, planning, preparing, implementing, operating and maintaining the facilities that have been built, as well as continuing activities to improve health status in the community including in the school environment.

The scope of the PAMSIMAS program includes five program components:

1) Community empowerment and development of regional and village institutions;
2) Improving hygienic behavior and sanitation services;
3) Provision of drinking water and public sanitation facilities;
4) Incentive Grants; and,
5) Technical support and program implementation management.

Data analysis
Determining the Level of Community Participation

The determination of the category of the level of community participation based on table 8 of the Community Participation Ladder can be calculated as follows:

There is 1 question variable with 8 choices of answers to questions with each score ranging from 1 to 8. The order of the scores is based on the 8 levels of community participation ladder from Sherry Arnstein.

So that the minimum score obtained for each individual (1 x 1) is 1, the maximum score obtained for each individual (1 x 8) is 8, then if the number of samples is n, it can be seen that the minimum score for the level of community participation (nx 1) and maximum score (nx 8).

By knowing the minimum and maximum scores, the interval distance can be calculated using the equation:

$$I = \frac{X\max - X\,min}{8} \quad \text{..... (1)}$$

Where: I = Interval
X_{max} = maximum score
X_{min} = minimum score

Furthermore, the range of the lowest participation level score (Manipulation) can be determined as follows:

X_1 : X_0 to $(X_0 + I)$
Where: X_1 = ladder participation rate score -1
X_0 = minimum score
I = Interval

For the next level, you can use equations:
X_2 : $(1 + (X_0 + I))$ to $(X_1 + I)$
X_3 : $(1 + (X_1 + I))$ to $(X_2 + I)$
X_n : $(1 + (X_{n-2} + I))$ to $(X_{n-1} + I)$
..... (2)
Di mana : X_0 = minimum score
X_1 = ladder participation rate score -1
X_2 = ladder participation rate score -2
X_n = ladder participation rate score -n
I = interval
The minimum score at each level is added by 1 to the maximum score of the previous level. If the interval is a decimal, 0, ... 1 is added to the maximum score of the previous level. For example the interval is 250,250 and the maximum score for the previous grade is 885,500, then the minimum score for the nth grade is 885,501.
Based on equation (2) above, the value for each level of community participation is determined based on the ladder of community participation based on Arnstein's typology, as follows:

- *Citizen Control*, when it has a score: $(1 + (X_6 + I))$ to X_{max}
- *Delegated Power*, when it has a score: $(1 + (X_5 + I))$ to $(X_6 + I)$
- *Partnership*, when it has a score: $(1 + (X_4 + I))$ to $(X_5 + I)$
- *Placation*, when it has a score: $(1 + (X_3 + I))$ to $(X_4 + I)$
- *Consultation*, when it has a score : $(1 + (X_2 + I))$ to $(X_3 + I)$
- *Informing*, when it has a score : $(1 + (X_1 + I))$ to $(X_2 + I)$
- *Therapy*, when it has a score : $(1 + (X_0 + I))$ to $(X_1 + I)$
- *Manipulation*, when it has a score : X_0 to $(X_0 + I)$

III. RESEARCH METHOD

Types of research

This research includes survey research, namely research that takes a sample from a population and uses a questionnaire as a data collection tool.

This research focuses more on field research (field research), to find out problems and to obtain information and data in the research location. In addition, this study also uses a rationalistic paradigm, which puts forward thinking in the form of a concept or theory, as a basis for examining the symptoms that occur and taking action. This research will also be supported by secondary data and literature study, especially at the beginning of the preparation of a framework and theoretical basis.

Type of Data

To get the final goal of the research, the data required are as follows:

1. Primary data

Namely those obtained from the first source, either from individuals or individuals such as the results of interviews or the results of filling out questionnaires that are usually carried out by researchers.

2. Secondary data

Secondary data is primary data that has been processed by other parties or primary data that has been further processed and presented either by primary data collectors or by other parties which are generally presented in the form of tables or diagrams. Secondary data are generally used to provide additional images, complementary images or for further processing.

The data requirements required in this study are as follows:

Table 1.
Data Requirements and Sources

No.	Data	Jenis Data	Kebutuhan Data	Variabel	Sumber
1.	Regional Conditions of Cenrana District, Cenrana Baru Village and Limappoccoe Village	Secondary	- An area - Geographical conditions - Coverage of Drinking Water Services		- BPS of Maros Regency - BAPPEDA of Maros Regency
2.	Technical Guidelines for Community Level Planning and Implementation	Secondary	Types of activities that involve the community		- Study of literature - BAPPEDA of Maros Regency - Maros Regency PMD Office
3	PAMSIMAS Program Implementation Stages	Secondary	Report and Documentation of the Implementation of the PAMSIMAS Program for Fiscal Year 2018 in Cenrana District		- BAPPEDA of Maros Regency - Maros Regency PMD Office - Consultan ROMS 15 BAPPEDA of Maros Regency - Maros Regency PMD Office Facilitator
4	Level of Community Participation	Primary	Data on the level of community participation in the PAMSIMAS Program of Drinking Water Infrastructure Development	- Types of activities that involve the community - Report and Documentation of the Implementation of the PAMSIMAS Program for Fiscal Year 2018 in Cenrana District - Data on the level of community participation in the	Public

No.	Data	Jenis Data	Kebutuhan Data	Variabel	Sumber
				PAMSIMAS Program of Drinking Water Infrastructure Development - Data on the factors that influence the form and level of community participation	
5.	Factors affecting community participation	Primary	Data on the factors that influence the form and level of community participation	Internal factors: - Gender - Age - Level of education - Level - Income - Livelihood - External factors: - Role of Government - Role of Consultant - The role of the facilitator	Public

Source: Analysis Results, 2020

Data collection technique

To obtain the required data, the data collection techniques to be used in this research should be selected as far as possible data collection techniques that can be carried out in a short time and ensure the accuracy of the data obtained. The data collection techniques that will be used in this study are as follows:

1. Using a questionnaire (list of questions) filled out by respondents by selecting the answers that have been prepared in the question sheet.
2. In-depth and structured direct interviews with several staff from related agencies of the PAMSIMAS Program.
3. In-depth and structured direct interviews with consultants and facilitators, as well as some of the beneficiary communities in the study area.
4. Observation, namely making direct observations at the research location on the phenomena that can be observed at the research location which can be evidence that strengthens the results of the conclusions that have been made.
5. Documentation, namely techniques for obtaining secondary data, through literature / literature studies equipped with statistical data, maps, photos and pictures relevant to the research objectives.

Data Presentation and Processing Techniques

Data that has been processed, so that it is easy to read and understand by others, needs to be displayed in certain forms. Presentation of data in this study, so that it is easy to read and understand as well as to analyze, will be presented in the form of tables and or graphs. A table is a collection of numbers arranged in such a way according to certain categories to facilitate discussion and data analysis. While graphs are pictures that show data visually based on the original observed values or from previously made tables.

The most widely used table is the frequency distribution table, which is the arrangement of data in a table that has been classified according to certain classes or categories.

The data processing technique referred to here is the processing of primary data obtained directly from respondents through questionnaires. In the data processing process, the respondent's answer to each question will be given a predetermined weight / value.

To find out the form, level, and factors that influence community participation, from the values obtained in each question, so that it can be used as data that is easy to analyze and conclude according to the problems raised, then the distribution of these values needs to be summarized in a frequency distribution. Frequency distribution is a presentation in the form of a table that contains data that has been classified into classes according to the order of their levels and the number of individuals included in each class (Hadi, 2001: 225).

For the data processing analysis process, use statistical formulas and if necessary use a computer program, namely by using the SPSS (Statistical Product and Service Solutions) program.

Sampling technique

Because the population is located in 12 scattered locations, to obtain data that represents the overall population of the community is done by using a cluster sampling system (area sampling).

This sampling technique is used in two stages, namely the first stage to determine the sample of the area, and the next stage to determine the people who are in the area by sampling as well. (Sugiyono, 2008; 65).

Before taking samples from each of the smallest areas, first the minimum number of samples that is considered to meet the validity requirements of the sample must be calculated. By using the formula for determining the minimum sample size proposed by Sugiyono (2008) as follows:

N.....= N/(N.d2+1..... (3)

di mana :

n = total sample

N = population size (139 KK)(350 person)

d = set precision (10 %)

So based on the above equation, the number of samples in this study is n = 139 / ((139 x 0.102) + 1)) = 58.159 = **59 samples**.

Then to determine the number of samples for each element of the smallest area, it is calculated in stratified (stratified) with the proportional allocation formula from Sugiyono (2008) as follows:

Ni.....= (*Ni/N*)..... (4)

Where :

ni = number of samples according to the stratum

n = total sample size

Ni = population according to the stratum

N = total population

Using the formula above, the required minimum sample size is obtained as follows:

Table 2.
Calculation of the number of samples

No.	Village Name	Jumlah Sampel
1.	New Cenrana	44/139)x 59 = 19 person

2.	Limappoccoe	95/139)x 59	=	40 person
	Total			**59 person**

Source: Primary Data (processed)

Respondents

Respondents in this study were rural / urban communities who received the benefits of the PAMSIMAS Program in Maros Regency in the 2018 Fiscal Year.

Communities in this case are AMPL Cadres, Community Self-Help Groups (KKM), Water Supply and Sanitation System Management Groups (KP SPAMS), Community Facilitators, and community beneficiaries of the program.

Research methods

Based on the implementation of the research, the research method that will be used is descriptive research with qualitative and quantitative analysis. This descriptive method is used to systematically describe the facts or characteristics of a particular population or a particular field in an actual and accurate manner, emphasizing observations and natural conditions (Hasan, 2002: 22).

The use of descriptive method because this research focuses on field research to obtain data or input from the community as primary data.

Quantitative descriptive focuses more on the interpretation of quantitative data in the field. Meanwhile, qualitative descriptive focuses on disclosing various qualitative information through data collected and then analyzed.

Table 3
Analysis of Research Approaches

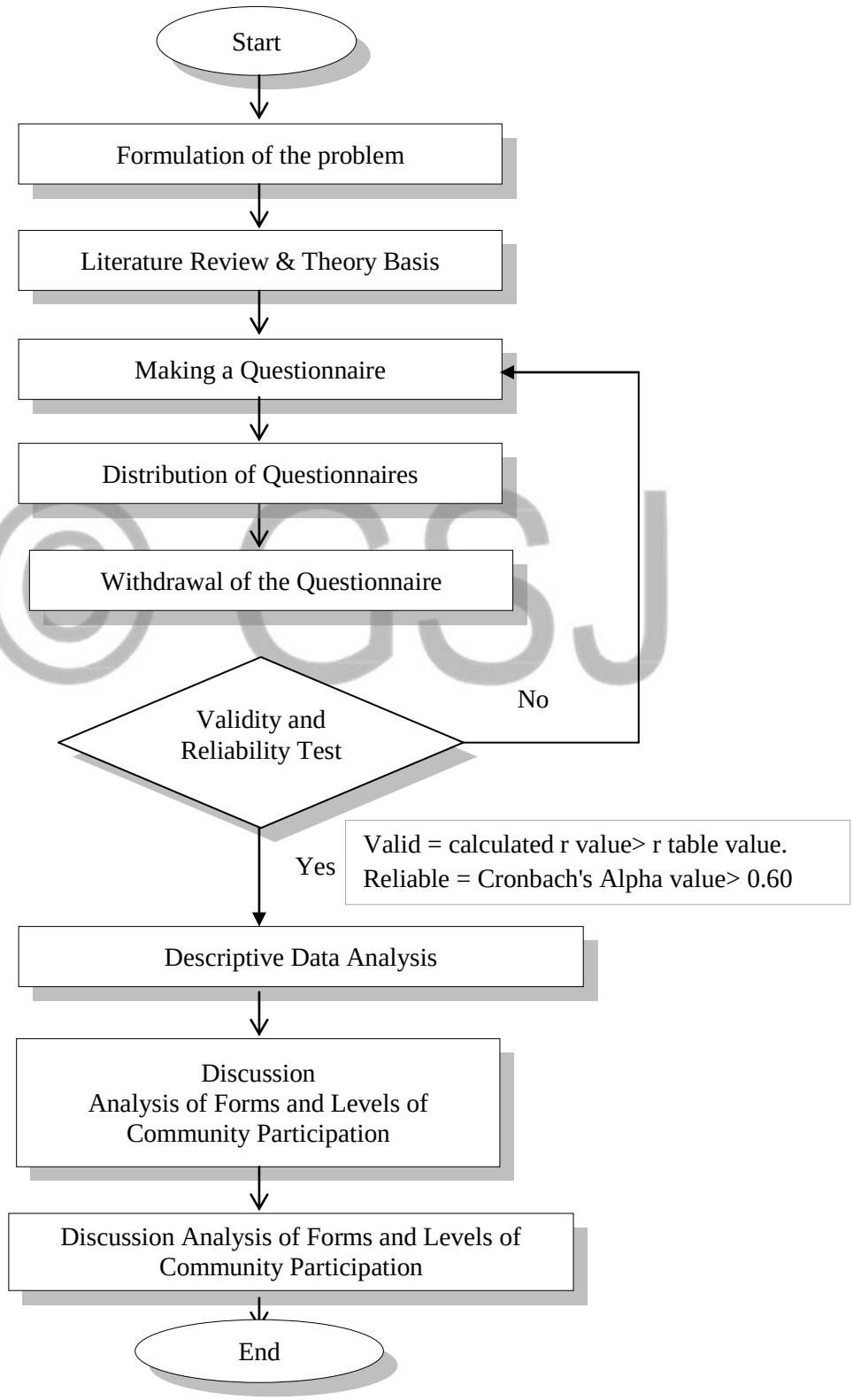
No.	Analysis	Method	Description	Results
1	PAMSIMAS Program Implementation Policy	Qualitative Description Analysis	Identify the PAMSIMAS program implementation policies	PAMSIMAS Program implementation policy
2	Forms of Community Participation	- Qualitative Description Analysis - Frequency distribution	Analyzing forms of community participation in the development of drinking water infrastructure in Maros Regency	Percentage
3	Level of Community Participation	- Qualitative and quantitative Description Analysis - Frequency distribution	Analyzing the level of community participation in the development of drinking water infrastructure in Maros Regency	regarding forms
4	Factors affecting community participation	- Qualitative and quantitative Description Analysis - Frequency distribution	Analyze influencing factors	participation
5	The relationship between the factors and the forms and	Quantitative Description Analysis	community participation in the development of drinking water	Public.

No.	Analysis	Method	Description	Results
	levels of community participation		infrastructure in Maros Regency	

Source: Analysis Results, 2020

Research Flowchart

The stages of the activities to be carried out in this study are presented in the following flow chart:



Picture 1.
Research Flowchart

Data analysis method

Analysis of the qualitative data obtained from the open-ended questionnaire was carried out through 3 activities that occurred simultaneouslysimultaneously, namely data reduction, data presentation, and drawing conclusions / verification (Miles and Huberman, 1992: 16-20).

The analysis method that will be used in more detail is as follows:

- Identifying policies for the development of drinking water infrastructure in Maros Regency. At this stage, qualitative descriptive techniques will be used, namely using the results of secondary surveys and literature reviews as the main material for the analysis process.
- Methods of analysis of forms of community participation in the development process of drinking water infrastructure in Maros Regency. At this stage, a qualitative descriptive technique will be carried out. Based on the results of data from the community, by using frequency distribution analysis, it can be seen the percentage of forms of community participation. Variable forms of community participation include: As listeners; Contribution of input / suggestions / suggestions; Contribution of information / data; Help clarify the right to space; and Filing objections to the draft plan.
- The method of analyzing the level of community participation in the development process of drinking water infrastructure in Maros Regency. At this stage, qualitative and quantitative descriptive techniques will be carried out. The level of community participation is measured by quantitative methods through the sum of the scores of the variables. Based on the total score of all variables, it can be seen that the level of community participation falls into the category of Arnstein's Eight Ladder of Participation typology. The amount of the score interval to determine the level of community participation category as a whole is based on the individual participation level category score multiplied by the number of samples. The detailed explanation is as follows:
- The method of analyzing factors that influence community participation in the process of developing drinking water infrastructure in Maros Regency. At this stage, a qualitative descriptive technique will be carried out. Based on the results of data from the public, by using frequency distribution analysis, it can be seen the percentage of the factors that affect community participation. Meanwhile, the factors affecting community participation in the development process of drinking water infrastructure in Maros Regency include internal and external factors. Internal factors consist of: gender, age, education level, income level and livelihood. Meanwhile, the external factors consist of: the role of government, the role of consultants, and the role of community assistants.
- Analytical methods to determine the relationship between the factors and the form and level of community participation. To find out this relationship from the results of the primary survey in the field, it can be done using a cross tabulation model. Cross tabulation is a procedure used to calculate different combinations of values of two or more variables by calculating statistical values and their tests.
- Data from each variable is grouped into several categories, where each category is given a score to make calculations easier. Then the variables to be identified are arranged in rows and columns. Furthermore, the contingency coefficient is calculated, which is the coefficient used to determine whether or not there is a strong or weak relationship between two variables.
- The cross tabulation method will tabulate several different variables into a matrix, the results of the cross tabulation are presented in the form of a table with the variables arranged as columns and rows

of the table. To observe and analyze these variables a two-dimensional table is used which is the easiest way.

$$X^2 = \sum_{i=1}^{b}\sum_{j=1}^{k}\frac{(P_{ij} - H_{ij})^2}{H_{ij}} \quad \ldots\ldots (3)$$

Where:
χ^2 = Chi Square Correlation Coefficient
P_{ij} = Observation frequency to -ij
H_{ij} = Expectation frequency to -ij

The significance test α = 0.05 or something that happens systematically as opposed to occurring by chance (Tiro, 2000).
The degrees of freedom are calculated using the following formula (Tiro, 2000):

$$dk = (b-1)(k-1) \quad \ldots\ldots (4)$$

Where:
b = the number of rows
k = the number of column

By using the formula above, it can be seen the value of Chi Square (2), while the amount of Contingency Coefficient (CC) can be calculated using the following formula:

$$CC = \sqrt{\frac{\chi^2}{N + \chi^2}} \quad \ldots\ldots (5)$$

Where:
CC = contingency coefficient
χ^2 = The value of $\chi 2$ count
N = Number of Respondents

Where CC is on the scale range from 0 to 1, or 0 <CC <1
If CC = 0 means there is no relationship
If CC = 1 means there is a perfect relationship
In this case the closer to number 1, the relationship that occurs is getting stronger and the closer to number 0, the relationship that occurs is getting weaker.

IV. DISCUSSION

Research Object Overview

This research is focused on the implementation of the 2018 Fiscal Year program. The target villages for the PAMSIMAS Program for the 2018 Fiscal Year are 12 villages, 2 of which are located in Cenrana District, namely Cenrana Baru Village and Limappoccoe Village.

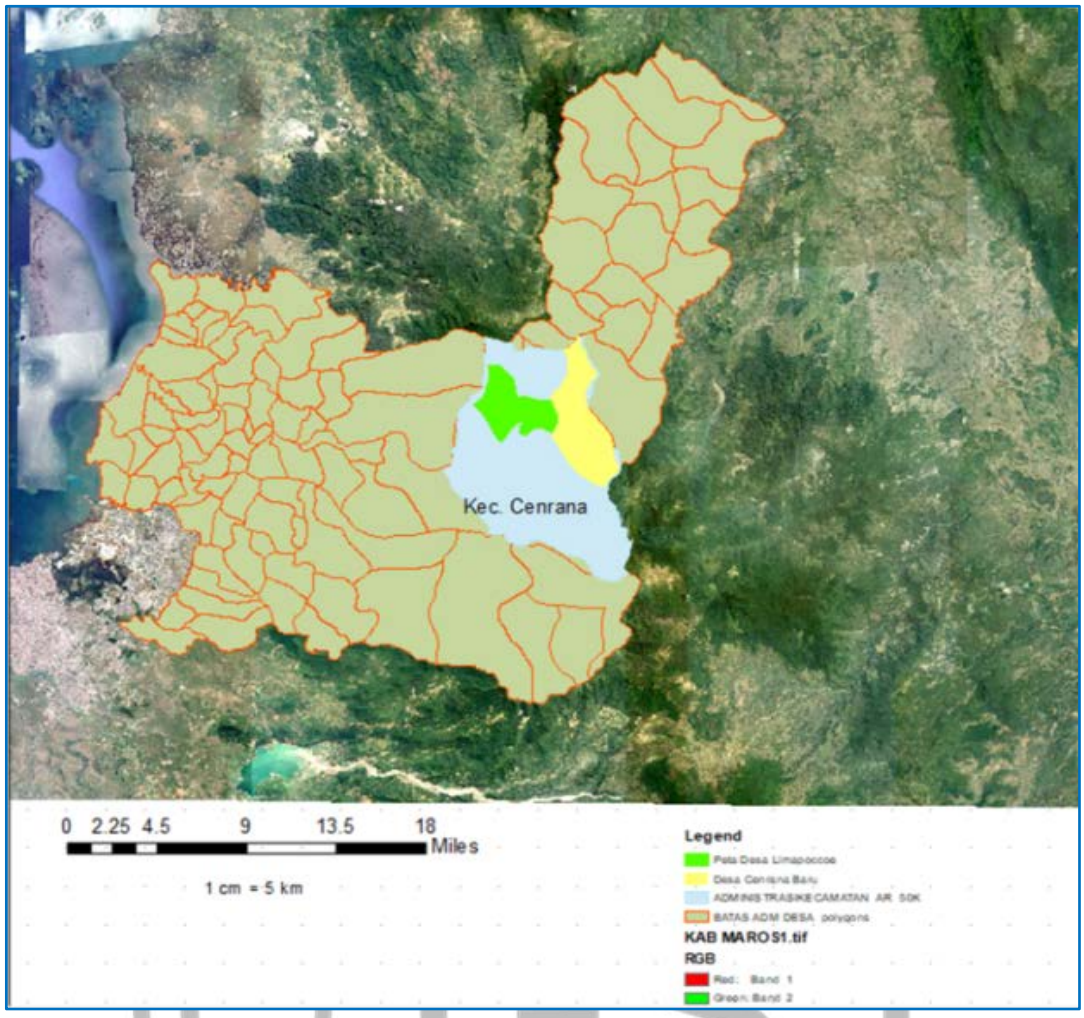


Figure 2.
Map of the position of Cenrana Baru Village and Limappoccoe Village against Maros Regency

1. Cenrana Baru Village

Cenrana Baru Village is one of the villages that in 2017 submitted a village proposal and was declared eligible for the Pamsimas III Program based on the program's goal of increasing the number of underserved communities including low-income communities in rural areas who can access sustainable drinking water and sanitation services, increasing the application of values and behavior to live clean and healthy in order to achieve the target of Universal Access (100-0-100). Based on the results of problem identification and situation analysis (IMAS), Cenrana Baru Village is one of the villages whose inhabitants have difficulty accessing drinking water totaling around 759 people or 197 households.

The source of water in Cenrana Baru Village, namely Mata Air, uses the Garvitation system from the source to the reservoir (Reservoar) and is distributed by gravity to services. The built infrastructure serves 2 (two) hamlets, namely Malacca and Arokke hamlets. The location of the water source is in the Tanete Hamlet, Cenrana Baru Village, with a pipe length of 5,016 meters.

2. Limappoccoe Village

Limapoccoe Village is one of the villages that in 2017 received the Pamsimas III Program based on the aim of the program to increase the number of underserved people, including low-income people in rural areas who can access sustainable drinking water and sanitation services, increase the application of values and behavior of clean and healthy living in order to achieve the target of Universal Access (100-0-100). Community-based development approach. Limapoccoe Village, based on the results of problem

identification and situation analysis (IMAS), includes villages whose residents have difficulty accessing drinking water, the number of which is around 1346 people or 360 households.

The source of water to be used in Limapoccoe Village is in the form of deep ground water, with its drainage system using a pump system from the source to the reservoir (reservoir / water tower) and its distribution by gravity to services. The planning of clean water facilities building consists of a drill, construction of a reservoir (water tower), procurement of transmission and distribution pipes that will serve Watang Bengo hamlet. The location of the water source is in Watang Bengo Hamlet, Limapoccoe Village, and the pipe length is 4,776 meters.

Analysis of Community Participation Levels in Drinking Water Infrastructure Development

To measure the level of participation in activities, an assessment scale is used that refers to the Sherry Arnstein Community Participation Ladder which consists of 8 stairs, from stairs 1 to 8 in a row as follows: (1) do not get information about related activities; (2) obtaining information regarding activities, only giving approval related to activities; (3) received information on activities but did not have the opportunity to ask questions and provide suggestions regarding activities; (4) conducting dialogue / question and answer with the government; (5) provide suggestions regarding activities; (6) make bargains related to activities; (7) obtaining authority from the government to make dominant decisions; (8) gets full power by the government regarding activities.

There is 1 question variable with 8 choices of answers to questions with each score ranging from 1 to 8. The order of the scores is based on the 8 ladder of community participation levels from Sherry Arnstein. So that the minimum score obtained for each individual (1 x 1) is 1, the maximum score obtained for each individual (1 x 8) is 8, so if the sample size is 59, it can be seen that the minimum score for the level of community participation (59 x 1) is 59 and the maximum score (59 x 8) is 472.

By knowing the minimum and maximum scores, the interval distance is also known, namely (472-59) / 8 = 51.625. So when using Arnstein's typology, it can be seen that the level of community participation is:

- Citizen Control, if it has a score of 420,376 - 472
- Delegated Power, if it has a score of 368,751 - 420,375
- Partnership, if it has a score of 317,126 - 368,750
- Placation, if it has a score of 265,501 - 317,125
- Consultation, if you have a score of 213.876 - 265.500
- Informing, if it has a score of 162,251 - 213,875
- Therapy, if you have a score of 110,626 - 162,250
- *Manipulation, if it has a score of 59 - 110.625*

1. Level of Community Participation in meeting attendance and socialization

   Based on the results of the calculation of frequency distribution, it can be seen that the level of community participation in attending meetings / meetings and socialization, according to the ladder of community participation, most of them are attending and expressing what is needed by the community as many as 31 people (52.54%).

   Meanwhile, based on the results of calculations using the Community Participation Ladder according to Sherry Arnstein, the level of community participation in meeting attendance and socialization shows a score of 179, so the level of community participation is included in the Informing level category (third of the eight Arnstein Ladder) as seen in the following:

Table 4.

Respondents' Opinions on the Level of Community Participation in Attendance at the PAMSIMAS Program Meeting / Meeting

No.	Participation Rate		Freq (N)	Percentage (%)	Weight (B)	Score (B x N)	Information on Participation Level
1	Present only as a listener	A	10	16,95%	1	10	
2	Present and provide input for the benefit of the government only	B	-	0,00%	2	-	
3	Present and say what the community needs	**C**	**31**	**52,54%**	**3**	**93**	
4	Attend and conduct dialogue / question and answer with the government	D	14	23,73%	4	56	
5	Be present and exert some influence on what is being planned	E	4	6,78%	5	20	**Informing**
6	Attend and share planning responsibilities with government	F	-	0,00%	6	-	
7	Be present and empowered to make dominant decisions throughout the plan	G	-	0,00%	7	-	
8	Be present and have full power to plan, implement and supervise the plan	H	-	0,00%	8	-	
	TOTAL		**59**	**100%**		**179**	

Source: Analysis Results, 2020

2. Level of Community Participation in providing input / suggestions / suggestions

The community in providing input / suggestions / suggestions, according to the ladder of community participation, mostly in the form of providing input for the benefit of the community as many as 27 people (45.76%).

Meanwhile, based on the results of calculations using the Community Participation Ladder according to Sherry Arnstein, the total score obtained from the results of the analysis is 173, so the level of community participation is included in the Informing level category (third of the eight Arnstein Ladder) as shown in the following table:

Table 5.

Respondents' Opinions on the Level of Community Participation in providing input / suggestions / suggestions

No.	Participation Rate		Freq (N)	Percentage (%)	Weight (B)	Score (B x N)	Information
1	Do not provide input / suggestions / suggestions	A	15	25,42%	1	15	
2	Provide input for the benefit of the government only	B	-	0,00%	2	-	
3	Provide input for the benefit of the community	**C**	**27**	**45,76%**	**3**	**81**	
4	Provide input by means of a two-way dialogue with the government	D	9	15,25%	4	36	
5	Providing input and suggestions are considered according to need	E	7	11,86%	5	35	**Informing**
6	Provide input and achieve common interests with the government	F	1	1,69%	6	6	
7	Provides input and has the dominant decision-making authority throughout the plan	G	-	0,00%	7	-	
8	Provides input and has the power to plan, implement and supervise plans	H	-	0,00%	8	-	
	TOTAL		**59**	**98%**		**173**	

Source: Analysis Results, 2020

3. Level of Community Participation in the preparation of work plans (proposals and RKM)

Based on the results of the calculation of frequency distribution, it can be seen that the level of community participation in the formulation of work plans, according to the community participation

ladder, most of them are in the form of participating in determining the concept of a plan for the benefit of the community as many as 26 people (44.5407%).

Meanwhile, based on the results of calculations using the Community Participation Ladder according to Sherry Arnstein, the total score obtained from the results of the analysis is 166, so the level of community participation is included in the Informing level category (third of the eight Arnstein Ladder) as shown in the following table:

Table 6.
Respondents' Opinions on the Level of Community Participation in Establishing Concept Plans

No.	Participation Rate		Freq (N)	Percentage (%)	Weight (B)	Score (B x N)	Information
1	Does not participate in defining the plan concept	A	18	30,51%	1	18	
2	Participate in drafting plans but for the benefit of the government only	B	-	0,00%	2	-	
3	Participate in drafting plans for the benefit of the community	C	26	44,07%	3	78	
4	Participate in active discussions in establishing the plan concept	D	9	15,25%	4	36	
5	Participates in drafting and exerts some influence on the conceptual plan	E	2	3,39%	5	10	**Informing**
6	Participate in drafting plans and share responsibilities with the government	F	4	6,78%	6	24	
7	Participates in drafting the plan and has the authority to make dominant decisions throughout the plan	G	-	0,00%	7	-	
8	Participates in drafting plans and has the power to plan, implement and supervise plans	H	-	0,00%	8	-	
	TOTAL		**59**	**100%**		**166**	

Source: Analysis Results, 2020

4. Level of Community Participation in Engagement in Giving Consent

Based on the results of the calculation of the frequency distribution, it can be seen that the level of community participation in giving approval, according to the ladder of community participation, most of them are in the form of providing labor contributions for the benefit of the community as many as 18 people (30.51%).

Meanwhile, based on the results of calculations using the Community Participation Ladder according to Sherry Arnstein, the total score obtained from the analysis is 217, so the level of community participation is included in the category of Consultiation level (fourth ladder of eight Arnstein Ladder) as shown in the following table:

Table 7.
Respondents' Opinions on the Level of Community Participation in Providing Consent

No.	Participation Rate		Freq (N)	Percentage (%)	Weight (B)	Score (B x N)	Information
1	Do not provide labor / material contributions	A	9	15,25%	1	9	**Consultation**
2	Providing labor contributions but for the benefit of the government only	B	-	0,00%	2	-	
3	Provide energy donations for the benefit of society	C	18	30,51%	3	54	
4	Give approval if there is a change in construction because there has been a two-way dialogue with the government	D	11	18,64%	4	44	
5	Give approval for construction changes because suggestions from the community are considered	E	16	27,12%	5	80	
6	Give approval for construction changes because there is a common interest with the government	F	5	8,47%	6	30	
7	Give approval after being given the authority to make dominant decisions throughout the work	G	-	0,00%	7	-	
8	Give approval after being given the power to plan, carry out, and supervise work	H	-	0,00%	8	-	
	TOTAL		**59**	**100%**		**217**	

Source: Analysis Results, 2020

5. The relationship between the factors and the level of community participation

The relationship between internal and external factors and the level of community participation at each stage of the PAMSIMAS Program aims to determine whether there is a relationship between factors and levels of participation and if there is a relationship how strong the relationship is. The

results of the cross tabulation (crosstab) calculation between the factors and the level of participation are as shown in the following table:

Table 8.
Calculation Results of Chi square (χ2) and Contingency Coefficient (CC) Community Participation Level

No.	Variables	Attendance rate		Activity provides input		Engagement proposes a concept		Involvement in giving consent	
		χ^2	CC	χ^2	CC	χ^2	CC	χ^2	CC
A	INTERNAL								
I.	GENDER	**4,017**	0,252	**8,217**	0,350	**9,926**	0,379	**5,542**	0,293
II.	AGE	**12,942**	0,424	**7,759**	0,341	**15,745**	0,459	**15,470**	0,456
III.	EDUCATION	**28,961**	**0,574**	**30,438**	**0,583**	**28,988**	**0,574**	**30,242**	**0,582**
IV.	PROFESSION	**35,796**	**0,614**	**35,353**	**0,612**	**79,011**	**0,757**	**36,978**	**0,621**
V.	INCOME	**25,963**	**0,553**	**26,412**	**0,556**	**32,349**	**0,595**	**27,917**	**0,567**
B	EXTERNAL								
I.	THE ROLE OF THE GOVERNMENT	**6,830**	0,322	**3,084**	0,223	**9,320**	0,369	**10,820**	0,394
II.	ROLE OF THE CONSULTANT	**4,896**	0,277	**8,120**	0,348	**12,112**	0,413	**4,902**	**0,277**
III.	ROLE OF THE FACILITATOR	**5,802**	0,299	**1,836**	0,174	**7,588**	0,338	**3,140**	**0,225**

Source: Analysis Results, 2020

From table 8 above, it shows that all internal variable factors affect the level of community participation, work and income have an effect on the level of community participation, but the relationship between gender and age variables with the level of community participation is weak, thus the level of influence is not significant. Based on the calculation of the cross tabulation between the internal variables and the level of community participation, the variables of Education, Employment and Income have a relationship with the level of participation, where the contingency coefficient value is close to 1 thus, the level of significance is high on the level of attendance, the activeness of providing input, the involvement of proposing concepts and involvement. give approval. The relationship between variables and can be explained as follows:

- The calculated Chi square value> Chi square table value, then Ho is rejected, which means there is a relationship between variables.
- The average contingency coefficient value of the education variable = 0.578, job = 0.651, and income = 0.568 which is close to the value 1 means that the relationship between these internal variables and the level of community participation is strong and significant.

From the results of the cross tabulation test, it can be concluded that the level of community participation is strongly influenced by education, employment and income factors, other internal variables, namely gender and all external variables have an effect on the level of participation, but with a weak level of influence, thus the effect is not significant .

From the average value of the contingency coefficient, the job variable is the factor that most influences the level of community participation.

The relationship between the level of participation and the variables of employment, education, and income means that the form of community participation is strongly influenced by these three factors.

Type of work will provide community experience and understanding of program implementation. Thus, the willingness to participate can grow.

The ability to participate can also grow from one's experience at work. Through experience in work, a person has the ability to identify and solve the problems at hand.

By having a permanent job, people already have a fixed working time, so they can easily manage their time to contribute. Thus someone has the opportunity to play an active role in development

The second factor that affects the level of community participation in the implementation of drinking water infrastructure development is the level of education. education is closely related to the level of public knowledge about participatory efforts provided by the community in development. The higher the educational background, of course, have a broad knowledge of development and the forms and procedures for participation that can be provided.

The educational factor is important because with the education obtained, it is easier for someone to communicate with outsiders, and is responsive to innovation. With a higher level of education, the willingness to participate can grow due to an attitude to improve the quality of life and not being complacent on their own, an attitude of togetherness to be able to solve problems, and to achieve development goals, as well as an attitude of independence or confidence in their ability to improve the quality of life.

The ability to participate can also grow through education. With education, a person has the ability to identify problems, understand opportunities that can be done to solve problems faced by utilizing available resources, and the ability to carry out development in accordance with the knowledge and skills and other resources they have.

Meanwhile, the opportunity to participate can grow through the knowledge gained from education. With this knowledge, a person can be given the opportunity to mobilize and utilize resources, obtain and use appropriate technology, the opportunity to organize, including to obtain and use regulations, permits and procedures for activities that must be carried out, as well as opportunities to develop leadership that is capable of growing, mobilizing and developing and maintaining community participation in development.

Another internal factor that has a strong influence on the level of community participation is income. Sufficient income levels will affect people's free time because they are no longer preoccupied with looking for additional income so that they are more active in being involved in development, for example in attending meetings.

Meanwhile, the results of cross tabulation calculations between external factors and the level of community participation in program implementation show that the variable role of stakeholders varies. From the crosstab above, the role of stakeholders has an influence on the level of community participation at the level of attendance, the activeness of providing input, the level of involvement in proposing a concept, and the level of involvement in giving approval.

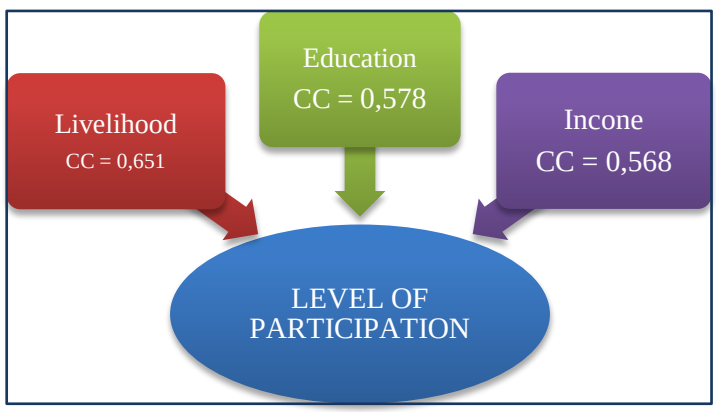
The stakeholder role variable affects the level of education, but the contingency coefficient value is close to 0 so that the effect is considered weak and insignificant.

The relationship between external variables and the level of community participation can be explained as follows:

- The calculated Chi square value> Chi square table value, then Ho is rejected, which means there is a relationship between variables.
- The value of the contingency coefficient of the role of government = 0.327, the role of consultant = 0.329, and the role of the facilitator = 0.259 which is close to 0 means that the relationship between the two variables is weak, thus the relationship is not significant

From the results of the cross tabulation test, it can be concluded that the level of community participation is related to the role of stakeholders with a weak level of influence, thus the effect is not significant.

This relationship can be seen more clearly in Figure IV.4 below.



Source: Analysis Results, 2020

Figure 3.
Factors Affecting the Level of Community Participation in the Development of Drinking Water Infrastructure

V. CLOSING

Conclusion

1. The level of community participation in the development of drinking water infrastructure in Maros Regency is generally at the Informing level (the third of the eight Arnstein Stairs) and is included in the degree of tokenism / appreciation or Degree of Tokenism, which is a level of participation where the public is heard and allowed to argue, but they do not have the ability to have the assurance that their views will be considered by decision-makers.
2. Factors affecting the level of community participation in the development of drinking water infrastructure in Maros Regency are the level of education, type of work, and amount of income.
3. The most influential factor is community participation in the implementation of drinking water infrastructure development in Maros Regency is the type of work.

Suggestion

1. From the results of research on the level of community participation in the development of drinking water infrastructure in Maros Regency, the role of the government does not have an influence on the form or level of community participation. Advocacy to the public is still considered low. For this reason, stakeholders, especially village governments who are in direct contact with the community, must increase their role in stimulating community participation.
2. Increasing community competence in preparing Community Proposals and Work Plans through more intense training, given the low level of community participation in these two stages.
3. The form of fostering community participation so far has only focused on the implementation of drinking water infrastructure development, has not touched the socio-economy of the community, for example fostering the community in terms of developing skills and small businesses.
4. The role of consultants and facilitators who act as community assistants also does not have a significant effect on the level of community participation. It is hoped that it can require the domicile of facilitators in the Maros Regency area for the recruitment of community facilitators, or a requirement to sign a willingness to stay in the mentoring location during program implementation.

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