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# Strategy for the provision of drinking water and environmental sanitation based on the community in Sidodadi Village, Pesawaran Regency

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**Abstract.** The provision of community-based drinking water and sanitation (PAMSIMAS) is one of the programs implemented by the government to address environmental sanitation problems. This study aims to analyze the success strategy of the PAMSIMAS Program, which is measured based on the success indicators of the PAMSIMAS Program. The research was conducted using a quantitative approach method in Sidodadi Village Way, Lima District in 2020. In this research used the snowball sampling technique. This technique is useful for finding, identifying, selecting and taking samples in a network or chain of relationships. Snowball sampling technique has strengths and weaknesses in its application. Field research housing sector become the case study to explain this sampling technique. The analysis used in this study is a SWOT analysis. The results shows that still have obstacles in several aspects such as the willingness of the community to participate in the form of input and ideas is still low, coordination between agencies has not been going well, there is no legal protection for water sources in order to maintain quality and quantity. The SWOT analysis used aims to formulate a strategic plan so that the PAMSIMAS Program can be sustainable in the fulfillment of clean water. The results of this study are the identification of the position of the PAMSIMAS. Program after the EFAS and IFAS calculations are carried out based on interviews that have been distributed to the implementers of the PAMSIMAS program, and then proceed with recommendations for priority strategies that will be carried out for the development of the PAMSIMAS Program.

## 1. Introduction

Water is a basic need that is needed to improve human life [1], [2]. Clean water is a vital need for every human being, so its availability determines the community's health and well-being [3], [4]. Clean water is closely related to environmental sanitation. The availability of clean water is influenced by many things such as forest sustainability, environmental sustainability, technology and climate change [5], [6], [7], [8].

In connection with these efforts to create community welfare, the Indonesian government is working with the World Bank to provide clean water and environmental sanitation services in the PAMSIMAS Program [9], [10]. The PAMSIMAS program is one of the programs implemented by the Government of Indonesia with the World Bank's support. This program is implemented in rural and



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suburban areas, aiming to increase the number of facilities for underserved citizens, including low-income communities in rural and peri-urban areas (Book General Guidelines for the PAMSIMAS Program, 2015). Based on the Decree of the Minister of Public Works and Public Housing Number: 195 / KPTS / M / 2016 concerning the Designation of Pesawaran District as one of the target districts for the Phase III PAMSIMAS Program in 2017. As many as 33.4 million people lack clean water, and 99.7 million people lack access to the best sanitation facilities. Data from the Central Statistics Agency states that access to safe, clean water in Indonesia reached 72.55 percent, while for proper sanitation, it was 76.37 percent [11].

In 2019, Pesawaran District achieved sustainable access to the safe drinking water of 244,747 people, or 56.76 percent [12]. One of the villages that were the target location for the PAMSIMAS Program in Way Lima District, Pesawaran District, was Sidodadi Village. The majority of the people in Sidodadi Village are still in the middle to lower class. This condition can be seen through the Village Development Index for the Ministry of Rural Affairs in 2019, which states that Sidodadi Village is a village with underdeveloped status with a Developing Village Index of 0.5889. One indicator of a village that is said to be underdeveloped is the low access to clean water and environmental sanitation. The PAMSIMAS program in Sidodadi Village, Way Lima District, Pesawaran Regency was inaugurated on 29 December 2017 and is still running until now with a total of 130 KK recipients.

The Program PAMSIMAS is a program implemented in rural and suburban areas, aiming to increase the number of facilities for underserved citizens, including low-income communities in rural and peri-urban areas. The PAMSIMAS program is one of the government programs to create a clean and healthy living community by providing community-based drinking water and environmental sanitation services [13]. The PAMSIMAS program is a government infrastructure development program in increasing rural and urban community access to proper drinking water and environmental sanitation facilities with a community-based approach.

The PAMSIMAS program is a concrete manifestation of infrastructure development that involves the role of the community. The PAMSIMAS program is expected to increase village income, which will impact improving the welfare of the village itself. It is hoped that the PAMSIMAS program can be realized following the original program objectives. However, in reality, not all PAMSIMAS recipient locations successfully plan, implement, and manage sustainably. During the dry season, the PAMSIMAS Program used by the community experiences drought and must take turns to get clean water obtained from the PAMSIMAS Program. Then not all Sidodadi Village people who have limited access to clean water and sanitation receive the PAMSIMAS Program. The difficulties that arise due to the lack of adequate drinking water can be immediately felt and impact the health and productivity of the community. The community is forced to carry out water activities in nearby rivers (River Way Lima), which are quite far away. The behavior of open defecation in rivers certainly makes environmental conditions unhealthy. This open defecation behavior is also a habit that is difficult to break. A solution is needed to overcome this problem) To meet the needs of drinking water in Sidodadi Village, a PAMSIMAS program strategy is needed as an effort to improve community access to drinking water and sanitation.

## **2. Research methods**

Research on the success strategy of the PAMSIMAS Program in Sidodadi Village is a quantitative study. Quantitative research starts from theory, hypothesis, research design, selecting subjects, collecting data, processing data, analyzing data, and writing conclusions [14]. Quantitative data is data in the form of numbers, or quantitative data that is assessed (scoring) [15]. So quantitative data is data that has a tendency to be analyzed by statistical means or techniques. This data can be in the form of numbers or scores and is usually obtained using data collection tools whose answers are ranges of scores or weighted questions. This research was conducted in May 2020, the sampling technique used was snowball. Snowball sampling is an approach to finding key informants who have a lot of information. Using this approach, several respondents were potential contacted and asked if they knew any other person with characteristics such for research purposes. Initial contact will help find other respondents through recommendations. To achieve the research objectives, this technique is supported

also by interview techniques and field surveys. To be able to overcome problems these, the snowball sampling technique, as a non-probability sampling technique, can be used for data collection to answer research problems. By using this technique, it is hoped that research will be easier to carry out and complete.

### *2.1. Method of collecting data*

Interviewing is the process of obtaining information for research purposes by conducting questions and answers face-to-face between the informant and the interviewer. The interview technique in this study was to find out information about the success factors of the PAMSIMAS Program in Sidodadi Village. Interviews will be conducted on key instruments such as the Head of the PAMSIMAS Program in Sidodadi Village, the Consultant in charge of the PAMSIMAS Program, and the Community Administering the PAMSIMAS Program in Sidodadi Village. Researchers ask open-ended questions to key instruments regarding everything related to the success strategy of the PAMSIMAS Program. Researchers do not limit the answers given by the informants so that the information obtained is complete and in-depth.

### *2.2. Data analysis*

To find a success strategy for the PAMSIMAS Program in Sidodadi Village, a SWOT analysis is used which is an analysis used to identify strengths, weaknesses, opportunities and threats in clean water services so that a service capacity development strategy can be formulated / developed. The process of calculating and processing data through SWOT analysis is carried out after conducting interviews with key instruments to produce the necessary information which consists of 4 (four) strategic factors, namely: Strength, Weakness, Opportunity and Threat. The calculation of the Internal Strategy Factors Analysis Summary (IFAS) and the External Strategy Factors Analysis Summary (EFAS) will be projected into the cross axes which will determine the position of the PAMSIMAS III Program, which will then discuss what strategic priorities are needed for the development of the PAMSIMAS III Program in Sidodadi Village.

## **3. Results and Discussion**

### *3.1. Analysis of internal strength conditions*

#### *Strengths*

- PAMSIMAS program water quality that meets health standards has a weight of 0.2 and a rating of four. The water quality of the PAMSIMAS program has been tested. Affordable fees are a factor that has a weight value of 0.2 and a rating of three. The monthly fee for the PAMSIMAS program is more affordable compared to the fees for other programs, such as PDAM and others; it meets health standards;
- The level of community participation is high enough in terms of program maintenance has a weight of 0.3 and a rating of three. As well as the great benefits felt by the community, it makes the community feel responsible for this program;
- The performance of the PAMSIMAS Program management body is already good because the human resources that manage the PAMSIMAS Program in Sidodadi Village are good enough.
- The high level of community satisfaction with the PAMSIMAS program is a factor that has a weight of 0.1 and a rating (three). This is because this program answers the needs of the community.

#### *Weakness*

- The water continuity of the PAMSIMAS program is not yet 24 hours, rating this factor is 2 (two). Frequent machine breakdowns which cause obstruction of the PAMSIMAS program operations
- The lack of knowledge transfer regarding various aspects of governance to society is an internal factor (weakness) which has a rating of three.

- Good inter-agency ordination is one of the strategic internal factors (weaknesses) which has a rating of three.
- There is no legal protection for water sources to maintain the quality and quantity of water. The PAMSIMAS program is an internal strategic factor (weakness) that has a rating of two.
- The willingness of the people of Sidodadi Village to participate in the form of ideas is still very low because most of the community has an elementary to junior high school education, so there is minimal in-depth knowledge.

### *3.2. Analysis of external opportunity conditions*

#### *Opportunity*

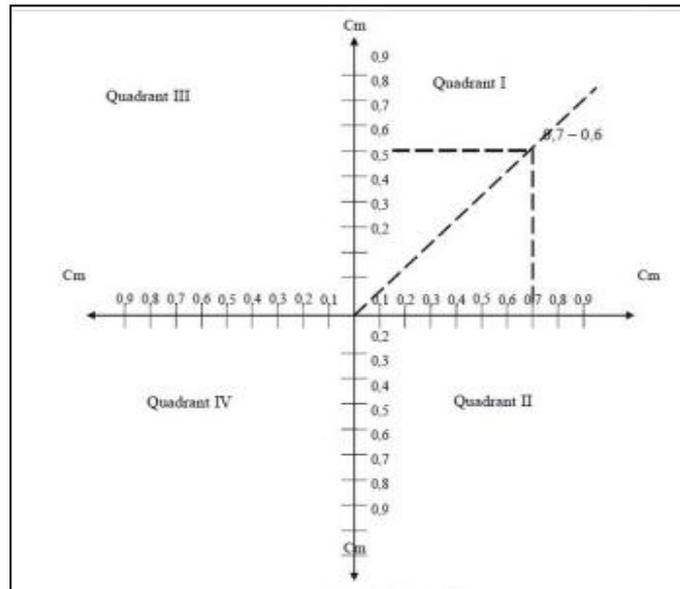
- There is supervision by the Health Office on water quality. The PAMSIMAS program has a rating of four. This is due to the supervision carried out by the office every 6 (six) months;
- The existence of community service as local wisdom in maintaining and utilizing the PAMSIMAS program has a second rating. This means that this factor is not very strong
- There is a desire of the community to make PAMSIMAS managed as a village-owned enterprise (BUMDES) with a rating of three. This is so that the people of Sidodadi Village can feel the utilization directly and maximally;
- There is support from Pokja (Working Group). The national and provincial water and sanitation working groups have a second rating. This is because most of the PAMSIMAS Program managers at the village level are not aware of any interference from the provincial side
- The PAMSIMAS Program which can be used as a forum for activities participating has a rating of four. This is because the benefits of this program are felt directly by the community and make the people of Sidodadi Village

#### *Threat*

- Government intervention in planning and implementing activities is still dominant, which is a strategic external threat that has a second rating. This is because at the planning and implementation stages the role of government is very dominant;
- Frequent droughts due to long drought are one of the external strategic factors that have a rating of (three) opportunities. This is because Sidodadi Village is a village where drought often occurs but does not interfere with the operation of the PAMSIMAS Program.
- The concept of empowerment which is charity has a second rating. This can be a threat if the community in Sidodadi Village is reluctant to participate so that this concept is a threat if it continues to be developed;
- The amount of water that cannot meet the needs of the community if you want to subscribe to PAMSIMAS continues to increase to a rating of three. According to the head of the Sidodadi Village PAMSIMAS Program, it is necessary to add more new water sources to cover the larger needs of the community;
- Low feedback and follow-up on the results of monitoring and performance evaluation has a rating (three). This is because the evaluation and monitoring so far according to the results of interviews with the Head of PAMSIMAS, Sidodadi Village have never been carried out. So there is monitoring but not overall, such as only monitoring related to water quality by the Health Office

From the results of the evaluation of external and internal factors, the total value can be seen Weight of all factors, as follows:

1. The total weight value of strength is 3.3.
2. The total weight value of weaknesses is 2.6.
3. The total weight value of opportunities is 3.1.
4. Total weight value of threats is 2.5.



**Figure 1.** Position of the Success Quadrant of the PAMSIMAS Program

Based on Figure 1, the success of the PAMSIMAS program is Quadrant I. Quadrant I is obtained because the value of internal factors (IFAS) and external factors (EFAS) is positive. The value for the external factor was 0.7 (Strength- weakness / 3.3-2.6 = 0.7) and the value for the external factor was 0.6 (Opportunities-Threats / 3.1-2.5 = 0.6). This position signifies a strong and likely organization. The strategic recommendation given is Progressive, meaning that the organization is in prime and steady condition so that it is possible to continue to expand, increase growth and achieve maximum progress [16], [17], [18]. In this position, the strategy recommendation that can be taken is an aggressive strategy, also known as a development strategy. Potential development in the Sidodadi Village PAMSIMAS Program can be carried out by taking into account the objectives of the PAMSIMAS Program as a whole and comparing them with the current service conditions coupled with directions for the development of services and water supply in Sidodadi Village.

Based on the quadrant position of the clean water service capacity development strategy and the SWOT Analysis Matriculation, an aggressive strategy or also known as a development strategy is implemented to develop the capacity of clean water services. The formulation of a strategy for developing the capacity of clean water services in Sidodadi Village is as follows:

- 1) Utilizing the potential of existing raw water sources, both quantity and quality, to be used as a source of raw water for the people of Sidodadi Village;
- 2) Safeguarding and safeguarding raw water in order to maintain the quantity and quality, especially in areas constituting raw water source areas by means of integrated watershed management;
- 3) Improving service quality, Utilizing existing idle capacity / excess production capacity by optimizing service areas that have not been served by connections but already available piping networks;
- 4) Developing service coverage. Judging from the drinking water production capacity in Sidodadi Village, it turns out that by 2020 the existing capacity is still sufficient to meet the clean water needs of the Sidodadi Village community and this is a potential that can be utilized as well;
- 5) The PAMSIMAS Program Manager can expand the scope of its services to a wider area, namely covering the entire Sidodadi Village that has not been served by clean water.
- 6) The PAMSIMAS Program Manager coordinates with relevant parties such as the Legislative, the PU service, the Bappeda office and the provincial government to develop the PAMSIMAS Program so that it can become BUMDES and its benefits are felt by the community;
- 7) Improve and maintain pipelines. The age of the pipe network that is old causes leaks in the distribution of clean water; Improved supporting facilities and infrastructure, Utilizing the

- topography of the area adjacent to the Way Lima river water source optimizing the distribution pump performance system;
- 8) Infrastructure improvement, infrastructure improvement aims to improve the quality of service to the community so that customers are satisfied. Customer satisfaction is one of the trigger factors to increase the collection of fees, because if customers are satisfied with the service they will be willing to pay, as happened in the sample of Sidodadi Village. Customer satisfaction is a part of internal factors that can support the sustainability of the supply system in rural areas [19], [20]. Service improvements can be done with independent funds or by maximizing the government's commitment to financing the water supply system and environmental sanitation.
  - 9) Conduct training not only for managers but for the community to be involved to improve the quality and capacity of the people of Sidodadi Village. The training is used as a means to add information and knowledge to managers about the procedures for managing clean water supply in rural areas;
  - 10) The formation of a supervisory body, the formation of a supervisory body must have members from community representatives to oversee the management of clean water supply and have broad access to all regarding management. So that this supervisory body can supervise management and provide advice to managers so that management can develop properly, effectively and efficiently. In addition, the existence of a supervisory body becomes an arena for increasing community participation and increasing public trust in the manager;
  - 11) Increasing community participation, the participation of the community as a whole is good because they have been involved or involved from the early stages of planning the development of a clean water supply system. So that community participation can still be maintained, it can be done by holding regular meetings between managers and the community so that in these meetings the managers can be used as a place for performance reporting including financial reports as well as being used as a basis for asking people to pay dues regularly. For the community, this event is a place to provide constructive criticism and suggestions;
  - 12) The addition of house connections, with the addition of house connections, the more people who receive the benefits of providing clean water in rural areas directly and can increase financial income for the manager.

#### **4. Conclusion**

Based on the analysis, it is known that the success of the PAMSIMAS. The strategic recommendation given is Progressive, meaning that the organization is in the prime and steady condition so that it is possible to continue to expand, increase growth and achieve maximum progress. In this position, the strategy recommendation that can be taken is an aggressive strategy, also known as a development strategy. Potential development in the Sidodadi Village PAMSIMAS Program can be carried out by taking into account the PAMASIMAS Program's objectives as a whole and comparing them to the current service conditions coupled with directions for the development of services and water supply in Sidodadi Village.

#### **5. Recommendation**

1. The community must increase awareness of the importance of clean water through the PAMSIMAS program and this must be balanced by managers from both the village and local governments, because PAMSIMAS is a self-supporting program so that the government must be more able to move people to be motivated to do self-help in the PAMSIMAS Program.
2. Training intended for the community is expected to be of higher quality, special techniques are needed in the transfer of knowledge of the PAMSIMAS Program to the community, both on program implementation and on the management of drinking water facilities so that people understand the program better and are able to manage sustainability programs independently

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