Journal of Governance and Public Policy
ISSN: 2460-0164 (print), 2549-7669 (Online)
Vol 9, No 3 (2022): Page no: 211-224

Sustainable Strategy for Community-Based Drinking Water Supply (PAMSIMAS) Post Program In Rural Indonesia

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Article Info

Article History;
Received:
2022-04-28
Revised:
2022-06-16
Accepted:
2022-07-29

Abstract: Pamsimas acted as a platform for essential services for the community. Therefore, post-program sustainability in rural areas would significantly affect its basic services. Currently, the problems are that Pamsimas villages, which have received assistance for constructing facilities and infrastructures, are having trouble maintaining the facilities and infrastructures on their own. Many of them are on the verge of abandonment due to limited resources, as the community and village government are not equipped with enough resources to follow up after the program ends. This study used qualitative methods to analyze a sustainable strategy after the community-based drinking water supply and sanitation program was done in 2021. Primary data was collected through informant interviews, while secondary data was through literature reviews from relevant journals. The findings highlighted that adjusting the community institutions and village government in their place, ownership of assets after the Pamsimas program, mainstreaming essential drinking water services in village planning and budgeting, and increasing public awareness regarding the environment were strategic efforts and policies to support the sustainable fulfillment of drinking water needs after the end of the program.

Keyword: *Rural Drinking Water; Strategy; Program Sustainability*

DOI: https://doi.org/10.18196/jgpp.v9i3.14629

INTRODUCTION

Efforts to develop strategies for the sustainability of basic drinking water services had been included in the Sustainable Development Goals (SDGs) priority, where global commitments were made not only to achieve the quantity but also the quality of drinking water services and to ensure its availability for future generations. Indonesia's commitment to fulfilling basic drinking water services was manifested through the National Medium Term Development Plan (RPJMN) from 2020-2024, with a target of achieving 100% appropriate drinking water and 15% safe drinking water. However, the survey noted that the target had not been met. The government continues to make efforts to fulfill universal access to basic drinking water services, one of which is through the Community-Based Drinking Water Supply and Sanitation Program (Pamsimas). The number of Pamsimas villages throughout Indonesia was recorded at 35.095 villages spread over 408 regencies/cities in 33 provinces by the end of 2021, from a total of 74.962 villages (Pamsimas Management Information System Application, 2021). The efforts to fulfill universal access to drinking water in Indonesia by 2030 require a commitment and strategy in order to achieve important goals and create public value (Bryson & George, 2020), one of which is by taking care of the villages that have received Pamsimas assistance to meet their needs. On the other hand, villages that have not

received Pamsimas assistance can still seek access through village government intervention as a government presence within the community.

Strategy within governance combines management, thinking practices, social systems theory, and evolutionary governance theory, which must be understood as part of the current dynamics (Van Assche et al., 2020). In thematic issues, there is no consensus on the ideal strategic approach in public administration. Therefore, claims regarding optimizing the process-based approach are still relevant amid claims regarding the results-based approach (Mazouz & Rousseau, 2016). In the process-based approach, the strengthening and direct support for village governments throughout Indonesia must be encouraged through collaboration and planning for budgeting activities in the field of drinking water supply, especially in light of the village's authority to regulate and manage their local community on the village scale (Law Number 6 of 2014 concerning Villages, 2014). The village apparatus' needs to increase its capacity to manage the village funds optimally (Darmi & Mujtahid, 2021).

The Pamsimas program, as a policy, is positioned to play a role in providing financial support for physical investment in the form of facilities and infrastructure and non-physical investment in the form of management, technical support, and capacity building. Furthermore, the community group responsible for the Pamsimas program in the village is the Kelompok Keswadayaan Masyarakat (KKM) or Self-Sustaining Community Group, in which the community group acts as the program's financial administrator, whose financing is provided in the form of BLM from the APBN (grants and loans from the World Bank), as well as planning and cooperation for the sake of the program. Meanwhile, the management of construction results and drinking water infrastructure built in the village is carried out by the Kelompok Pengelola Sistem Penyediaan Air Minum dan Sanitasi (KPSPAMS) or Drinking Water Supply System Management Community, as an extension of the KKM.

The scheme formed under the Pamsimas program was that villages were given BLM to build physical facilities and infrastructure such as water reservoirs, water pumps, and wells. Its maintenance and daily use were then charged to the community as beneficiaries. However, currently, there are various problems and complaints in the villages where the program was implemented. The physical infrastructure is now damaged, and the community cannot pay for its maintenance. Furthermore, there are villages where the community can no longer pay regular fees because of low income, and after the infrastructure was built, they cannot afford the fees to connect the pipes to their houses.

This article emphasizes a sustainability strategy after the Pamsimas program ended in 2021, which leaves the target of fulfilling the need for safe drinking water still unmet in some rural communities in Indonesia. It was a program with a community-based background in its planning, implementation, and evaluation process. Therefore, the real daily practice on the field, program implementation, and all the processes can form long-term strategies so that the government can adopt stable, realistic, responsive, and proactive approaches to the external environment (Pot et al., 2022). This sustainability strategy is critical because the village communities must build their independence to manage and maintain program assets, community institutions, equitable development, and quality testing for drinking water after the program ends. For this reason, a realistic and applicable policy strategy for the community is needed.

RESEARCH METHOD

This article utilized a qualitative approach through description by building a strategy analysis based on the Pamsimas program of 2021 and was supported by previous studies from international, national, and other publications. This article used secondary data as the main data source, which was followed by primary data collected through interviews with informants who were directly involved in the Pamsimas III program at the central level. The informants were representatives of the National Village Management Program Pamsimas III and Deputy Chair of the Central Project Management Unit (CPMU) III in the Directorate General of Village Government Development, Ministry of Home Affairs. On the other hand, secondary data was collected through the Pamsimas Management Information System (MIS) and publications from other relevant institutions and sources.

The qualitative approach was chosen because a sustainability strategy developed must be based on the programming practices carried out by the Pamsimas program so that the strategic framework does not eliminate the values that have been built, such as realistic and implementable. Furthermore, the programs that have been implemented are multi-dimensional and multi-stakeholder in the sense that the sustainability strategy will influence various aspects of people's lives, such as economic, social, environmental, and health aspects, which in this case are carried out by many actors such as the government, private sectors, and other institutions. Based on these considerations, this research's qualitative approach was appropriate to develop a new concept for the program's sustainability policy strategy. Inductive and deductive data analysis took an important role in developing this research, which according to (Creswell & Creswell, 2018):

> *"Qualitative researchers build their patterns, categories, and themes from the bottom up by organizing the data into an increasingly more abstract unit of information. It illustrates working back and forth between the themes and the database. Then, the researcher looks back at their data from themes to determine if more evidence can support each theme or if they need to gather additional information."*

The authors collected data from various sources, including informant interviews, literature studies, document publications, and Pamsimas MIS data. A thorough analysis was carried out using triangulation, during which comparisons or checks were made between data from several sources. The authors built the program's sustainability strategy concept based on the analysis.

RESULT AND DISCUSSION

Sustainable Strategy for Pamsimas Program in Rural Areas

The community-based program strategy to fulfill drinking water needs in rural areas must be viewed as an integrated system and function. Its mechanisms involve issues of development and infrastructure management institutions, technical capacity, and participation of community groups, which require various disciplined approaches, namely collaboration, participation, and sustainability (Anstiss et al., 2016). The Deputy of CPMU III of the Directorate General of Village Government Development said in an interview that, in building the sustainability of the program, it is necessary to develop a vision and views that bring access to rural drinking water services in the long term, fair access to safe drinking water, efficient and effective management, as well as community empowerment. Such vision is the basis for building a broad framework for the program's sustainability strategy in rural areas. In general, drinking water services in rural developing countries face the same set of problems.

The solution taken as the strategy is to apply the eight principles of Community-Based Natural Resource Management: (a) Legally clear boundaries for individuals and households in managing physical resources; (b) Congruence, where the rules applied are consistent with local community conditions, and the proportion of profit sharing is allocated equitably; (c) Arrangements are jointly made, where operational regulations can be modified with the involvement of all actors involved; (d) Monitoring users and resource conditions where accountability is required; (e) Imposition of sanctions for violations of operational regulations regularly; (f) Recognition of the rights to organize, so that various spheres or higher authorities do not pressure users of users; and (g) Togetherness in a business where all forms of activity are carried out by the layers of the roles of each person (Naiga, 2018).

With the inclusion of local village authority in meeting the needs of village-scale drinking water, the Deputy Chairperson of CPMU III of the Directorate General of Village Government Development considered the need for efforts and village participation in supporting the mandate of the 2020-2024 RPJMN, which is achieving 100% appropriate drinking water services and 15% safe drinking water. Apart from not achieving the RPJMN target, this program made the Ministry of Home Affairs required to join in and include the community-based program plan so the ministry could enter the mainstream of the village budgeting system. The strategic direction was to ensure water security, productive infrastructure, and effective and efficient funding.

Deciding the Role of the Village Government, KKM, and KPSPAMS in the Provision of Villages' Drinking Water Services

KKM, which was formed under the Pamsimas program, is a form of a community group that participates in providing services to the community and forms a partnership with the village government. Currently, program management groups design their plans as Community Work Plans (RKM). As a result, when problems or obstacles occur, the village government lacks ownership of the problem. Finally, they are often abandoned when it seems there is no way to build the facilities. The Pamsimas program results in assets (bore wells and reservoirs) that need to be managed and maintained so that access to safe drinking water can reach the community. Based on the National Village Specialist - National Management Consultant (NMC) of the Pamsimas III program, Mr. Saprudin, community groups had experienced problems in financing the maintenance and routine operations of the infrastructure facilities that had been built, especially when the facilities and infrastructure were damaged because the project only allocated assistance for the construction before it was handed over to be managed by the community.

This condition has encouraged KKM and KPSPAMS to cooperate with the village government to ensure that basic services reach the community and eliminate all obstacles through the village government's resources. For this reason, several conditions are necessary to build cooperation: (a) Setting limits and ownership of the assets in advance; (b) Adapting existing conditions and situations according to regulations; (c) Involving village cooperation agencies in decision-making and prohibiting/limiting the involvement of other authorities originating from the village of the rights of the village government and related communities; and (d) Developing social bonds to resolve conflicts in the event of asset dispute (Calzada et al., 2017). According to Mr. Saprudin, KKM and KPSPAMS are still inadequate in villages with low economic capacity, especially in Eastern Indonesia, where people still depend on farming activities in dry fields and rely on rain. Thus, economic inequality needs to be resolved for community-based programs to be managed optimally.

A similar sentiment was shared by the Deputy Chairperson of the Central Project Management Unit (CPMU) of the Pamsimas III program based at the Directorate General of Village Government Development. The informant stated that as a community-based service program, KKM and KPSPAMS must set the community as the basis of movement. What needs to be encouraged is KKM and KPSPAM, which are located in villages with low economic capacity. Meanwhile, for villages that can run independently, it is necessary to build a partnership between the two parties to ensure community access to safe drinking water simultaneously. Based on this statement, the information gained is then presented in Table 1.

Table 1. Development of KKM and KPSPAMS from 2008 to 2021

No.	Institution	Indicators	Details (Number of Villages)		Total
			Available	Not available/incomplete	
1.	KKM	Planning (RKM)	34.348	741	35.089
		Financial administration	17.724	17.367	35.091
		Assets administration	34.432	659	35.091
2.	KPSPAM	Expenses management	32.677	2.418	35.095
		Functional drinking water facilities	31.889	3.206	35.095

Source: (PAMSIMAS Management Information System (MIS) Applications, 2021)

The progression data shows that from 35.095 Pamsimas villages in 2021, there are 741 problematic KKMs, in which the tasks and functions in planning through the Community Work Plan were not carried out. There was no or incomplete financial and asset administration in 18.026 KKMs, which was the main key to moving the role of community services. In addition, 2.418 KPSPAMS experienced problems managing fees for facilities, 3.206 KPSPAMS infrastructure, and facilities that

do not function properly because of damage and disuse after being around for a long time. For this reason, the strategic steps required to encourage the role are as follows:

a. The village government needs to mainstream Minimum Service Standards (SPM) in carrying out basic services so that the drinking water supply through the program also synergizes with the efforts made by the village government in allocating a budget for safe drinking water for the village community.
b. KKM must be placed as an institution within the village responsible for the Pamsimas program and its implementation. In addition, an administration can be accounted for in organizing and taking an inventory of the ownership of program assets so that their existence has a legal basis or, in other words, is formally recognized. Likewise, KPSPAMS must have a legal basis for its institutions because it operates in the village and participates in services provided by the village government so that the elements in the project and village government can dynamically support one another.

It is necessary to understand that the implementation will involve three dimensions: (a) Cognitive, which relates to the awareness, understanding, and acceptance of the object to be collaborated with; (b) Emotional or the perception of the village government and the community towards the object; and (c) Behavior as a result of interactions between the community, village government, and object, which form the basic elements of social relations in structure, process, and culture (Kasri & Wirutomo, 2018). Maintaining the community as the main basis for program sustainability is a more rational choice because the community will feel more responsible when the asset belongs to the community. What needs to be encouraged more is the community's ability, both in funding and management. In some developed countries such as China, safe drinking water projects guarantee rural areas' social and economic development. In the process, they prioritize the local conditions of rural communities, which then develop innovations and provide benefits for the communities involved in supporting access to drinking water. It is where coordination and openness between community groups and village government become a foundation supporting rural access to drinking water (Zhou, 2019). The scheme for the program's Sustainability Strategy Framework through Community Groups and Village Governments is depicted in Figure 1.

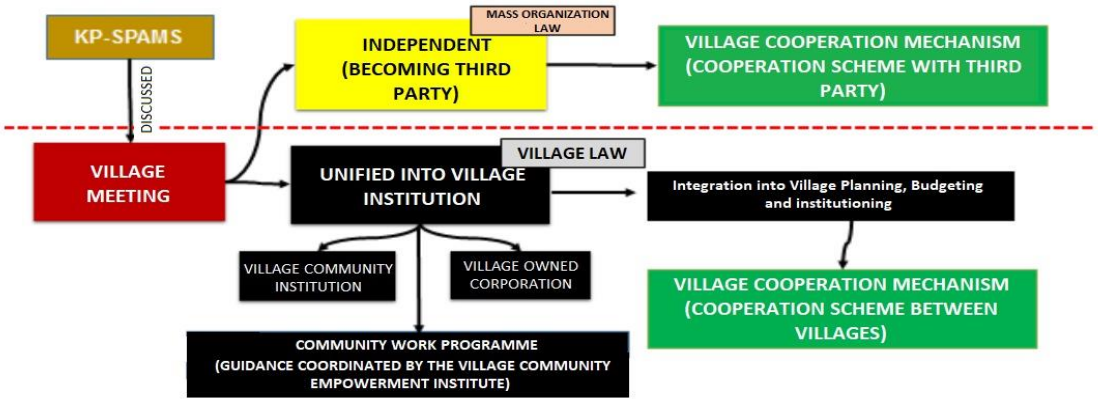

Figure 1. KPSPAMS Sustainability Flow for Pamsimas Program in Rural Areas
Source: (*Village Partnership Technical Guidelines Directorate General of Village Government Development*, 2020)

- Pamsimas villages, which are already independent in funding and managing fees for daily drinking water services in their position as third parties in the village, can still receive assistance if needed. However, the assistance is in the form of capital investment, which is given to encourage services to produce profits.
- Pamsimas villages, which are in a semi-operational or defunct state, can still be saved through a fusion with village institutions, whether with the Village Community Institutions or Village-

Owned Enterprises, so that villages can assist in the form of funding or assistance for community empowerment.

This scheme can be better implemented if the needs of the Community Group in carrying out the mechanism are mapped, either by institutionalizing it as a village property or through collaboration with the village government. Several developing countries, such as Tanzania, have conducted community mapping as the first step of their efforts. Community mapping is carried out through the following stages: (1) Preparation through training for community teams assisted by facilitators in order to familiarize with and understand the planning and management process; (2) Fieldwork, namely by simulating the implementation and planning according to instructions, thus role and skills of the facilitator play a decisive role; and (3) Analysis and feedback, from the simulation results so that conclusions can be drawn, problems identified, and priories made. Communities will be advocated on how to solve their problems and receive feedback in the evaluations to ensure that the strategic scheme has been carried out (Glöckner et al., 2005).

Asset Ownerships for Assets Management and Maintenance

One of the characteristics of programs that received funding from the World Bank is that in terms of program policies, the community is the one with the main control of the program. At the same time, the government acts as a supervisor, and post-program assets belong to the community. A comparison is the National Community Empowerment Program, known as PNPM. The World Bank views Indonesia's social and political structure as the biggest problem in PNPM implementation, as vested interests strongly influence programs and bureaucracy, and corruption and informal political practices run rampant. To overcome such obstacles, the World Bank implemented a bypassing strategy, cutting administration and bureaucracy in the national structure (Susilo, 2012). It was only in 2010 that the PNPM program entered and was integrated into the national planning and development system. However, in the end, after the end of the program, there was controversy regarding the ownership of ex-PNPM assets, as what was defined as "community" only benefited certain people.

The general condition regarding asset ownership after the end of the Pamsimas program is that assets belong to the community, or in this case, KKM. This program contains an agreement contained in the Cooperation Agreement (PKS) between KKM and the Commitment-Maker Officer (PPK) of the Regency/City Settlement Infrastructure Development Work Unit when PPK provided Community Block Grants (BLM) to KKM in order to build SPAM. Facilities built using the village budget must be recorded as belonging to the village. Thus, an administrative separation with KKM assets must be made, as they come from different sources of finance.

The end of the Pamsimas program has raised many concerns within the community regarding the sustainability of assets management and maintenance, given that the community's economic capacity is very limited. The routine fees levied are not sufficient in the event of asset damage. For example, based on the Branjang Village's website, from a total of 8 pumps in 2022, 3 were damaged, 2 were under repair, and 3 were in normal working condition (Branjang, 2022). Such a condition has prevented people from acquiring safe drinking water, especially during the COVID-19 pandemic, which requires higher water consumption than in the past. Another example in 2018 was the condition of Pamsimas infrastructures in Karangmalang Village, Purbalingga Regency, where it only operated for 4 months after the construction of deep wells and pumps, and after that unable to be repaired. The main stumbling block was the difficulties in procuring appropriate spare parts due to their high cost. Thus in 2018, the Karangmalang Village experienced difficulties accessing water, especially during the dry season (Widiyatno, 2018).

Some examples above showed that the community still depends on government funding. Another study also showed that based on data from Pamsimas MIS Key Performance Index (KPI), the percentage of villages with a Drinking Water Supply System (SPAM) that is managed and financed effectively as of May 2021 is only 86,56%. Thus, in the study, the realization of the indicator performance is considered unmet (PAMSIMAS Management Information System Applications, 2021). The position of asset ownership greatly influences and determines asset management and

maintenance sustainability. The exit strategy from limited community management can be done through two alternatives: (1) Donating KKM assets to the village government; or (2) Conducting asset cooperation with third parties. In the first strategy, donations can be made if approved in a deliberative forum between KKM, KPSPAMS, and the community, clearly stated in the forum minutes and signed by all parties. After that, the village government must record these assets in the asset book as assets obtained from grants, and for assets that belong to the village, maintenance costs can be budgeted in the APBDesa. According to a study, while empowerment programs play a vital role, increasing village development's administrative capacity is equally important to avoid inefficiency, failure to use public resources, and budget misallocation (Zulfida & Fauzi, 2017). After becoming one of the village's assets, maintenance of SPAM can then be carried out sustainably.

In the second strategy, the existing assets can remain as community property in the case of a community possessing economic/resource potential. If external support is needed, a cooperation scheme can be implemented. In addition to a strong economic foundation, the human resource aspect also plays an important role in the cooperation process. The cooperation itself is not permanent and can be terminated at any given moment according to an agreement between the parties involved. Thus, it must be utilized to the fullest in the present to prepare for the future. Consequently, the main point of the strategy for Pamsimas program sustainability emphasizes the solution for the lack of maintenance and management of Pamsimas village facilities through:

a. Village ownership scheme
   The community donates the facilities or infrastructures built through the Pamsimas project to the village. Pamsimas facilities that can no longer be financed independently will have their maintenance costs allocated through capital investment as a BUMDesa business unit through this grant. Therefore, the management is not only carried out by KKM and KPSPAMS but has merged into BUMDesa.
b. Communities' permanent ownership scheme
   If the community still wishes to be the permanent owner of the Pamsimas program assets, the way to do it is through cooperation between village governments and third parties. The cooperation will take Business to Business (B2B). Thus, the maintenance results carried out by the village government will acquire feedback, with consequences in maintenance financing.

These two strategies were formulated considering the change regarding the need for access to drinking water and sanitation from what was original 'supply-driven' to 'demand-driven.' The change from supply to demand factor is motivated by the strengthening of decentralization in developing countries. Sustainability is emphasized on the strength and empowerment of the community. Thus, the community must always be provided with choices (Sangameswaran, 2010).

Mainstreaming Basic Drinking Water Services into the Regional and Village Government Planning and Budgeting and Optimizing Financial Collaboration with Non-Governmental Institutions

The funding for the Pamsimas program as a whole came from the central, regional, and village governments, the World Bank, the Department of Foreign Affairs and Trade (DFAT), Baznas, Non-Governmental Organizations (NGOs), micro-credit, Corporate Social Responsibility (CSR) funds, and the community. With the end of the Pamsimas program in 2021, efforts must be taken to maximize other funding sources aside from donations or foreign loans, which still dominate program financing, to achieve sustainability. Regional and village government budgets will be given to continue efforts to fulfill drinking water needs as part of the mandatory basic services provision, which has been regulated in Law Number 23 of 2014 concerning the Regional Government. Meanwhile, as of May 2021, the percentage of regencies that have realized their regency/city budgets through the Regional Budget Revenue and Expenditure (APBD) in the Water Supply and Sanitation (AMPL) sector to achieve universal access has only reached 68,69% (PAMSIMAS Management Information System Applications, 2021). Therefore, it is necessary to strengthen regulations and policy directions to encourage local governments to mainstream the fulfillment of basic drinking water services that are appropriate and safe for consumption. From 2016 to 2020, the regional government contributed

755,73 billion from the non-sharing APBD to Pamsimas funding, focusing on physical development, which took around 706,91 billion or 93% of the budget. On the other hand, the allocation for non-physical development was around 48,82 billion, or 7% of the budget (PAMSIMAS Management Information System Applications, 2021). For this reason, the regional government's commitment after the program ends will determine the future sustainability of the drinking water supply.

As a mandatory basic service which falls under the purview of the regional government, what is the position and role of the village government in the planning and budgeting of the drinking water sector? Villages possess a village-scale local authority, one of which is managing village-scale drinking water. Through this authority, the village government can budget the costs of the development/rehabilitation/improvement of village-owned clean water sources and other activities mentioned in the Minister of Home Affairs Regulation Number 20 of 2018 concerning Village Financial Management.

Table 2. List of Account Codes in the APBDesa which Support Drinking Water Budgeting

2	4		Residential area sub-sector
2	4	02	Maintenance of village infiltration wells
2	4	03	Maintenance of village clean water sources (springs/rainwater reservoirs/bore wells)
2	4	04	Maintenance of clean water connections to households (pipelines)
2	4	10	Construction/rehabilitation/improvement of infiltration wells
2	4	11	Construction/rehabilitation/improvement of village-owned clean water sources (springs/rainwater reservoirs/bore wells)
2	4	12	Construction/rehabilitation/improvement of clean water connections to households (pipelines)

Source: Attachment to Minister of Home Affairs Regulation Number 20 of 2018 Concerning Village Financial Management, 2018

The APBDesa fund to support the fulfillment of drinking water needs is through the village fund. Thus, efforts to mainstream planning and budgeting in the drinking water sector have become a logical and realistic strategy. From a practical point of view, these efforts have been made during the program through a budget-sharing mechanism. What makes the difference is that the village must identify the basic needs for drinking water and include it in the Village Medium-Term Development Plan (RPJMDesa) and the Village Government Work Plan (RKPDesa), with full budgeting from the village fund taking into account the needs and capabilities of the village itself. Villages have contributed 341,32 billion to program funding from 2016 to 2020 through non-sharing APBDesa, focusing on physical development, which took around 326,82 billion or 95% of the budget. On the other hand, the allocation for non-physical development was 14,50 billion, or 5% of the budget (PAMSIMAS Management Information System Applications, 2021).

Regional and village governments also need to collaborate with non-governmental institutions, which took private companies, NGOs, and other institutions, to support sustainability, including using CSR funds provided by companies such as Danone and encouraging contributions from the community. The sustainability of rural areas' resources (including drinking water) requires an integrated mechanism to attract external resources involved in rural development (Rosyadi et al., 2021).

One example of a successful drinking water service provision is through the use of CSR funds. The facilities and infrastructure needed to provide safe drinking water are built through CSR. The funding from community contributions and village government is then used to fund community and household mobility to create a safe environment for building infrastructures. Thus, the main focus is on how to build solutions that come from the empowerment of community movements and not on what kind of technology is made (Harvey, 2011). Although CSR can present an alternative, its scope is limited to a few villages that are part of the company's immediate environment. Thus, it cannot be a funding source for program sustainability in other villages. However, if CSR is somehow able to be allocated to other villages around the area, it will be the driving force for building rural community's access to drinking water.

Raising Environmental Village Awareness

Based on a global scale assessment using the global hydrological model, it is estimated that by 2050, as many as 0,5 to 3,1 billion people will experience water scarcity due to climate change. This condition is then worsened by 946 million people who do not have access to proper sanitation (Sari et al., 2021). The global forum captured the importance of this issue. It established a global commitment to the Sustainable Development Goals (SDGs), with one of the targets ensuring access to safe drinking water by 2030. The Pamsimas program had become one of the pillars for realizing the SDGs goals. However, even after the program ended, there has been no research that analyzes how much influence the program has on changing people's clean and healthy lifestyles and whether the community understands the importance of testing the quality of water sources in order to ensure that the water is safe to consume. As a collaboration program, the element of empowerment cannot be ruled out. Thus, the sensitivity of the community and village government towards changes and environmental problems in the village that have an impact on water sources needs to be raised. A study of Qingyanggang Village in China shows that the village's ecological governance is still low. One of the main problems is the lack of rural community awareness regarding problems in the village environment, as indicated by agricultural pollution and lack of domestic waste management, which prompts the need to revitalize rural ecology (Peng & Zhang, 2020).

Through Law Number 17 of 2019 concerning Water Resources, water has come under the full control of the state, which would affect the use of water by communities and various stakeholders (Pertamsari & Munandar, 2020). KKM and KPSPAMS should be empowered optimally after the end of the Pamsimas program. Cadres in KKM and KPSPAM can educate the community regarding the importance of maintaining the availability of raw water and reducing pollution in the village. Such awareness must also be balanced with a clean and healthy lifestyle to positively impact the rural community's quality of life. One of how community empowerment for a clean and healthy lifestyle is not yet optimal is the problem of stunting in Indonesia. Until 2021, Indonesia ranked fourth in the world and second in Southeast Asia in stunting (Pranita, 2021). For this reason, a collaboration between various stakeholders and the main empowerment actors must continue after the program. Empowering the institutions that have been formed and encouraging the village government to oversee the village's ecological revitalization is the key to fulfilling rural drinking water needs.

The First Case Study on Beteng Village, Klaten Regency

Beteng Village is located in Jatinom District, Klaten Regency, Central Java Province, with a population of 2.510 (*Beteng Village Monography*, 2021). The typology Beteng Village is a combination of highland/arable land, which is in close quarters to Mount Merapi. Thus, to support the fulfillment of drinking water needs, the village possessed 5 deep bore wells (village-owned wells accessible to the local community). The coverage of the Pamsimas SPAM in Beteng Village is 787 households.

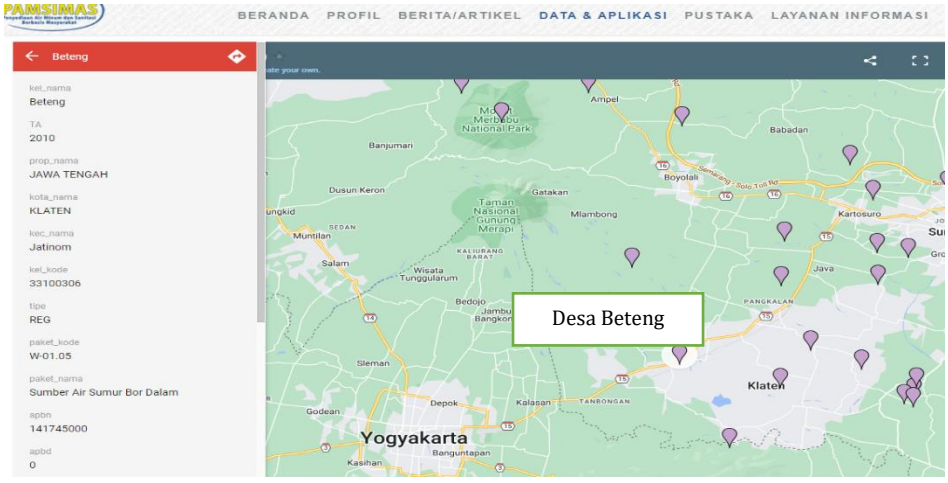

Figure 2. Location and Geographical Condition of the Beteng Village
Source: Pamsimas MIS, 2022

After the construction of village SPAM in 2010, there was no role for Self-Sustaining Community Institution (LKM), which has since experienced a nomenclature change to become the Self-Sustaining Community Group (KKM). Pamsimas MIS data shows the crucial role of receiving village SPAM development grants.

Table 3. Implementation Progress for Target Villages in 2010 (Beteng Village)

Village	Stage of Community Empowerment									
	Socialization	IMAS	CLTS		LKM Formation	PJM & Option	RKM Document		Realization	
			Initiation	Certificate			Finished	Verification	SPPB 1	SPPB 2
Beteng	1	1	1	1	1	1	1	1	1	1

Source: Pamsimas MIS, 2010

Based on Table 3, to develop access to appropriate drinking water for the community and to prepare management groups to carry out SPAM development, the regional governments have carried out several stages of community empowerment, namely socialization, Problem Identification, and Situation Analysis (IMAS), initiation, and LKM/KKM formation for a community-based total sanitation program. KKM plays a specific role in the community empowerment stages, from preparing the Community Work Plan (RKM) document and aid disbursement to realizing activities. During its formation, KKM received socialization from the regional government. The lack of institutional sustainability of KKM as a forum for community participation after the construction of SPAM and management by KPSPAM points to the possibility that KKM only exists to fulfill the Pamsimas program requirement and its role and function ceased to exist after the program ended.

The village community's economic capacity greatly affects the management of the village SPAM, including the sustainability of its technical management. The application of fees for people who use village SPAM differs from PAM, which has its own set of basic fees. Village SPAMs are given the flexibility to impose their fees based on the community's economic capacity and do not possess a legal basis because of their community-based nature, meaning that because they are managed by community groups and are not legal entities like the BUMD, the basic fees in all Pamsimas villages cannot be generalized.

Despite the limited resources, the Chairperson of KPSPAM stated in the interview his hope that SPAM management can be carried out independently. Thus, the ownership of village SPAM assets built during the Pamsimas program will remain under KKM, per forum minutes. However, the factual conditions in the field show that the role of the village government in implementing drinking water services cannot remain separate, one of which is conflict resolution regarding water services between villages. For example, the village government plays an important role in solving pipe connection problems carried out illegally by several community members from the neighboring Randulanang Village, potentially harming the SPAM management (KPSPAM). The role of the village government and KPSPAM is crucial in terms of SPAM technical management and resolving conflicts or issues between villages. In order to resolve the problem, the Beteng village chief and officials have coordinated with the Randulanang Village government. At the same time, the Beteng Village KPSPAM followed up by conducting a field check.

The independent management style carried out by Beteng Village after the end of the Pamsimas program in 2021 can build community independence and value towards the water. Such a condition allows the KPSPAM to build a network with actors outside the village. However, strict supervision is needed to maintain water quality and the fees set so that it does not exceed the community's economic capacity.

The Second Case Study on Pomah Village, Klaten Regency

Pomah Village is located in Tulung District, Klaten Regency, Central Java Province, with 242 ha. The geographical condition of Pomah Village is a highland with a distance of 16 km from the regency capital. From the population of 3.271 people or 1.127 households, access to drinking water needs is dominated by non-Pamsimas facilities, with a coverage of 2.132 people or 801 families. On the other hand, access to drinking water needs from Pamsimas covers about 1.139 people or 326 households

(Management Information System (MIS) PAMSIMAS, 2021). Pomah Village is a Pamsimas replication village. Thus, Pamsimas is a supporting program, while residents still use conventional drinking water sources such as wells and springs.

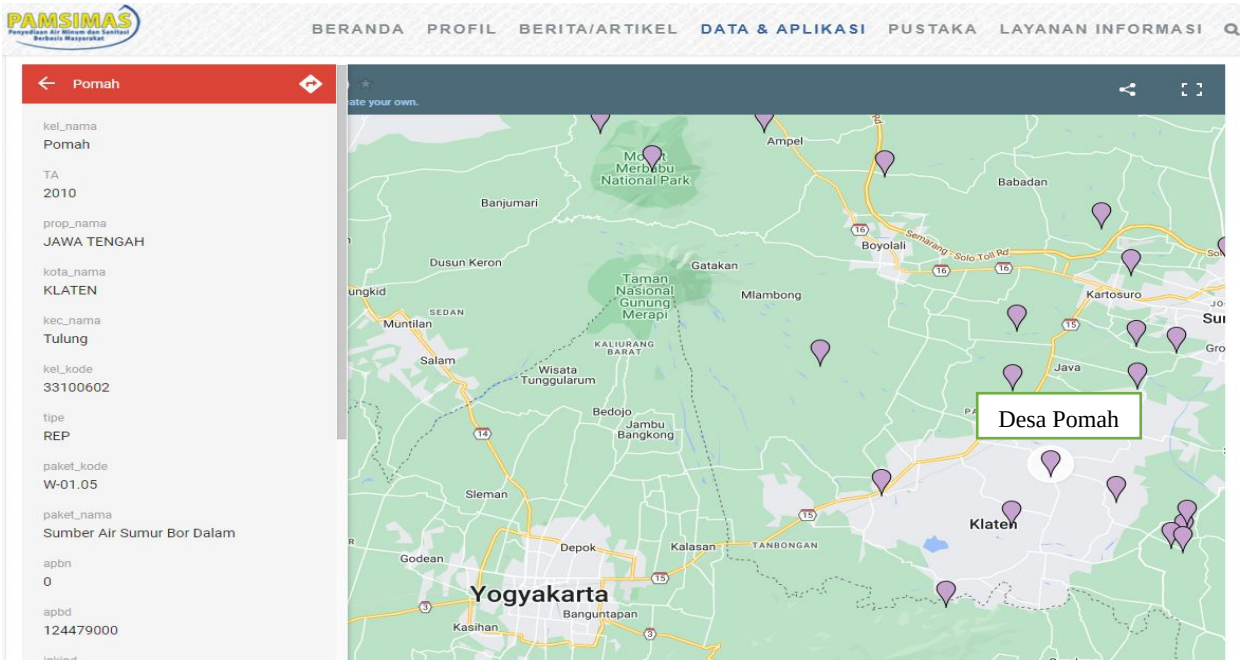

Figure 3. Location and Geographical Condition of the Pomah Village
Source: Pamsimas MIS, 2022

The geographical condition of Pomah Village has caused the village to suffer from long-term drought and difficulties in accessing water. Conditions began to improve when the Pamsimas program entered the village. Based on the interview results, efforts to build village SPAM had begun in 2002/2003, which came from the initiative of the regional government in consideration of the drought. However, the village government could not manage it and only started to participate in the budgeting of drinking water needs three years after Pamsimas' assistance in 2018. One of the reasons was to receive assistance from the regional government. The village government was required to budget through APBDesa as a form of joint commitment, as shown in Table 4.

Table 4. Community Work Plans as Verified by the Province in 2018

No.	Province Regencies/Cities Villages	No. of Villages	No. of Activities	Village Funds				
				BLM	APBDesa	In Cash	In Kind	APBD
70	Pomah, Tulung	1	12	0	32,143,000	12,858,000	51,429,000	225,500,000

Sumber: Pamsimas MIS, 2018

The table above illustrates budgeting management in developing village SPAM. Funding received in 2018 uses a budget-sharing scheme in which the village government must budget the village-scale drinking water program in the APBDesa. The village community is then encouraged to contribute through cash contributions or in kind, which takes the form of goods/assets to be used as a location for the development of village SPAM. If these prerequisites have been met, the development budget from the APBD can then be given to Pomah Village. The condition of community dependence on Pamsimas well water is different from other villages. During normal times, the community uses dug wells more often, while Pamsimas wells are used as an alternative for daily consumption and during dry periods. Thus, it can be analyzed that the community consumption

pattern has not yet differentiated between clean water sources and safe and appropriate drinking water sources. In addition, the mindset of community consumption is also influenced by the perspective that something given as an aid must be free or without fees. KPSPAM, as the managing entity, does not have a strong legal basis for setting fees and collecting user fees and community contributions. The lack of community contributions greatly affects the flow of services to the community because of the village SPAM's high operational and maintenance costs. The management must also be prepared in the case of engine failure, considering that the pump engine and its spare parts have been installed for over 10 years.

KPSPAM, as the technical managing entity for community-based drinking water services, creates a condition where the group does not have a binding legal force, as with other business entities. One is in terms of fee application and collection of contributions. Although the village officials and KPSPAM managers stated that they knew about the fees during the interviews, administratively, it did not yet meet the basic requirements. Administratively, the village needs to create a regulation concerning fees as the legal basis for collecting contributions. However, the factual condition in the field is that neither the village government nor the KPSPAM has created such regulation. With these various considerations, KPSPAM sets the direction of sustainable management by transforming or transitioning from independent management to BUMDesa units in order to receive budgetary support from the village government through the Village Budget Revenue and Expenditure (APBDesa) for operations and services to the community to overcome various capacity limitations, whether in terms of community or human resources.

CONCLUSION

The sustainability of drinking water for rural communities through Pamsimas needs to be supported by not abandoning the program's initial goal, which is community empowerment. From 35.095 Pamsimas villages recorded in the Pamsimas Management Information System (MIS) until 2021, several Pamsimas villages cannot continue their drinking water services due to low ability and willingness caused by economic and administrative factors at the village level. The authors highlighted the importance of a post-Pamsimas program strategy to support the achievement of a sustainable fulfillment of safe drinking water needs in rural Indonesia as one of the SDGs targets by 2030. The strategy analysis in this study prioritized evidence-based, which comes from the existing program policy practices and is supported by data from various sources. Post-program strategies must be realistic, logical, and applicable at the lowest level, namely the village government, with the community as one of the key players. The findings and discussions showed that the strategy for the post-program policies included the following: Firstly, deciding the role and standing of the KKM and village government institutions in meeting drinking water needs. There are two institutional scenarios in which KKM manages independently with KPSPAM or merges into a Village Community Institution (LKD) as part of the village administration. The choice of institutional form is dependent on the social and political conditions of the village and cannot be enforced as it will affect the sustainability process.

Secondly, ownership of post-program assets will affect the management and maintenance of post-program assets. If fixed assets are recognized as belonging to the community, its consequences are that budgetary support and maintenance must be managed independently or through a cooperative mechanism with third parties. However, if transferred to the village as a village asset, it must be recorded in the asset book. After that, support can be given through planning and budgeting according to the village government's mechanism. The third strategy is that the government needs to mainstream basic drinking water services into local and village government planning and budgeting. Although the program has ended, the basic services provided are the obligation of the village government. Thus, the support for planning and budgeting for basic drinking water services needs to be continued. The difference is that the government must consciously and independently plan and budget without a program. The fourth strategy is to increase public awareness regarding environmental problems such as pollution because it has a major impact on the security of water sources. KKM must be optimized to encourage a clean and healthy lifestyle for the community after the program ends.

The study was still limited since the scope was only from a national perspective and the used secondary data as the main data source. The authors recommend that further studies be conducted directly in the Pamsimas village and take several samples with different conditions to determine whether the post-program strategy can be applied. In addition, the authors also provide recommendations to conduct research in Pamsimas and non-Pamsimas villages to map out the basic conditions of rural drinking water services throughout Indonesia.

ACKNOWLEDGEMENT

We thank the Directorate General of Village Government Development Ministry of Home Affairs and the Pamsimas National Management Consultant, who has supported the research and assisted with the data collection process.

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