

Tumada Peak Drinking Water Supply System Plan (SPAM) Tumada Village is Located in The Kapontori District of The Buton Regency

Aswad Asrasal^{1*}, Muhammad Abdu¹, Musrifin¹, Intan Ahlul Hafsiyah¹

¹Civil Engineering Department, Universitas Muhammadiyah Buton, Indonesia

Correspondence: aswadasrasal@gmail.com

ABSTRACT

The community service program's objective is to apply technical knowledge, particularly civil engineering, to the village government and the local population. So they may appreciate the critical nature of discussion and consultation over image design during the Planning for Drinking Water Supply System (SPAM) phase prior to construction. The program's implementation is supposed to result in a design that is responsive to the needs and conditions of the surrounding environment. To accomplish this, effective design concepts and mentorship methods are employed to provide consulting services to the village administration and community, ensuring that the program's objectives are realized. The final results acquired include the design and budget for the Puncak Tumada Drinking Water Supply System (SPAM) in Tumada Village, Kapontori District, Buton Regency.

Keywords: Civil Engineering; Drinking Water Suplplay System; Timada Village

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1. Introduction

Water is a fundamental human need that God Almighty has endowed all living things on the planet with. Water, as a component of water resources, is a significant production branch that affects the livelihoods of many people. It is controlled by the state and is to be used for the greatest prosperity of the people in accordance with the mandate of the 1945 Constitution of the Republic of Indonesia that, in order to address an imbalance between declining water availability and increasing demand for water, water resources must be managed taking social, environmental, and economic factors into account (UU RI, 2019). The Drinking Water Supply System (SPAM) is a component of the Tumada Village government's plan for meeting the village's drinking water needs, particularly in the Tumada Peak area (Adam, 2021). Naturally, several factors must be considered when planning SPAM, including the construction of clean water facilities. Clean water facilities are structures designed to store and distribute clean water to designated beneficiaries in order to meet their water needs (Aswad, Asrasal et al., 2021). The Tumada Peak Drinking Water Supply System (SPAM) development point is located in the Rawasa Hamlet, Tumada Village, at 5o6'40.75" South Latitude and 122o47'14.26" East Longitude.

The construction of this clean water facility has been planned since 2020, but due to terrain conditions or the elevation of the springs, gravity cannot be channeled into the Puncak Tumada area, leaving residents of the Rarasa hamlet without access to safe drinking water,

and even if they do, they must dispose of it. It takes considerable energy to transport and fetch water from sufficiently remote public hydrants, and even then, it frequently becomes a source of contention because the water debit is insufficient if it is used by everyone who does not have access to water. In planning the construction of this SPAM, it is necessary to carry out a good study, experience, and a background of adequate construction knowledge. However, when the work/planning is carried out by the village government/community without the assistance of an expert, many questions arise regarding how to make design drawings, how to calculate RAB, how the piping network system is and how it is operated. Taking into account the problems above, it is necessary to provide assistance by experienced building experts and have background knowledge about the design of the Drinking Water Supply System (SPAM).

2. Methodology

The plan for implementing this service activity details the steps that will be taken from start to finish, specifically as follows:

- a. Field Investigations The field survey was conducted to gather data and inventory the condition of SPAM locations, beginning with the production unit and progressing through the processing and distribution units.
- b. Design Preparation Preparation of design drawings and budget projections This design drawing will later serve as the primary reference for the Puncak Tumada SPAM's construction.
- c. Participation of Village Government/Community PaThe village government/participation community's in this service entails paying close attention to the planner's explanation of the Puncak Tumada SPAM building.
- d. Evaluation Plan for the Implementation Following this service, it is hoped that the village government will collaborate with the Faculty of Engineering UM Buton in terms of socialization and training to improve the village government's performance in terms of development, particularly in the construction of SPAM in the Tumada peak area, Tumada Village, Kec. Kapontori Kab. button.

3. Result and Implementation

According to the team's survey findings, the pipeline's length from the water intake point to the Puncak Tumada area would require a 1,500-meter-long pipe comprised of a 1,200-meter transmission pipe and a 300-meter distribution pipe. The operating system for this clean water facility is as follows: water flows from the spring into a gravity-fed reservoir, is pumped into a distribution tank that is elevated above the residential area, and is then channeled back to the user community.

Physical development of clean water facilities such as storage tanks, distribution tanks, transmission pipes, distribution pipes, pumps, and PLN connection (kwh) is expected to proceed as planned, allowing clean water to be channeled to areas experiencing water shortages, particularly in the Tumada peak area.

The following figure depicts the SPAM design and the proposed Budget Plan (RAB)

3.1 Budged Plan

The budget for this construction is determined by the project's requirements, which include reservoirs, distribution tanks, transmission pipes, pumps and associated equipment, and PLN connections.

Tabel 1. Rekapitulasi Rencana Anggaran Biaya

No	Description	Volume	Unit	Unit Price	Total Price
I	Shop Work	1	Paket	24,320,000.00	24,320,000.00
Total I					24,320,000
II	Distribution Box Work	1	Paket	21,500,000.00	21,500,000.00
Total II					21,500,000
III	Transmision Pipe Work	1	Paket	28,050,000.00	28,050,000.00
Total III					28,050,000
IV	DistribusionPipe Work	1	Paket	7,180,000.00	7,180,000.00
Total IV					7,180,000
V	Pump Work & Accesories	1	Paket	31,700,000.00	31,700,000.00
Total V					31,700,000.00
VI	PLN Work	1	Paket	5,000,000.00	5,000,000
Total VI					5,000,000
Total (I+II+III+IV+V+VI)					117,750,000.00
Collected					117,750,000.00

Something: One Hundred Seventeen Million Seven Hundred Fifty Thousand Rupiah

Sumber: Hasil Analisis 2021

3. 2 Tumada Peak SPAM Plan

Design spam planning includes, piping network plans and building production units and distribution units.

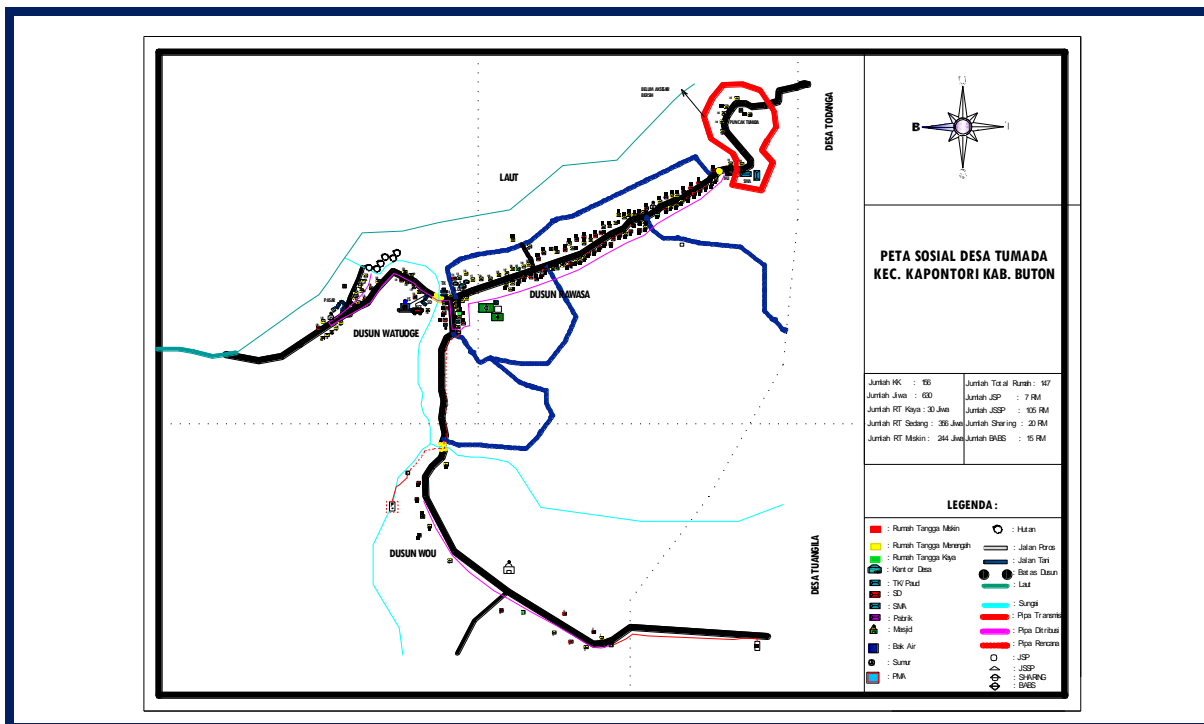


Figure 1. Peta Sosial Desa Tumada

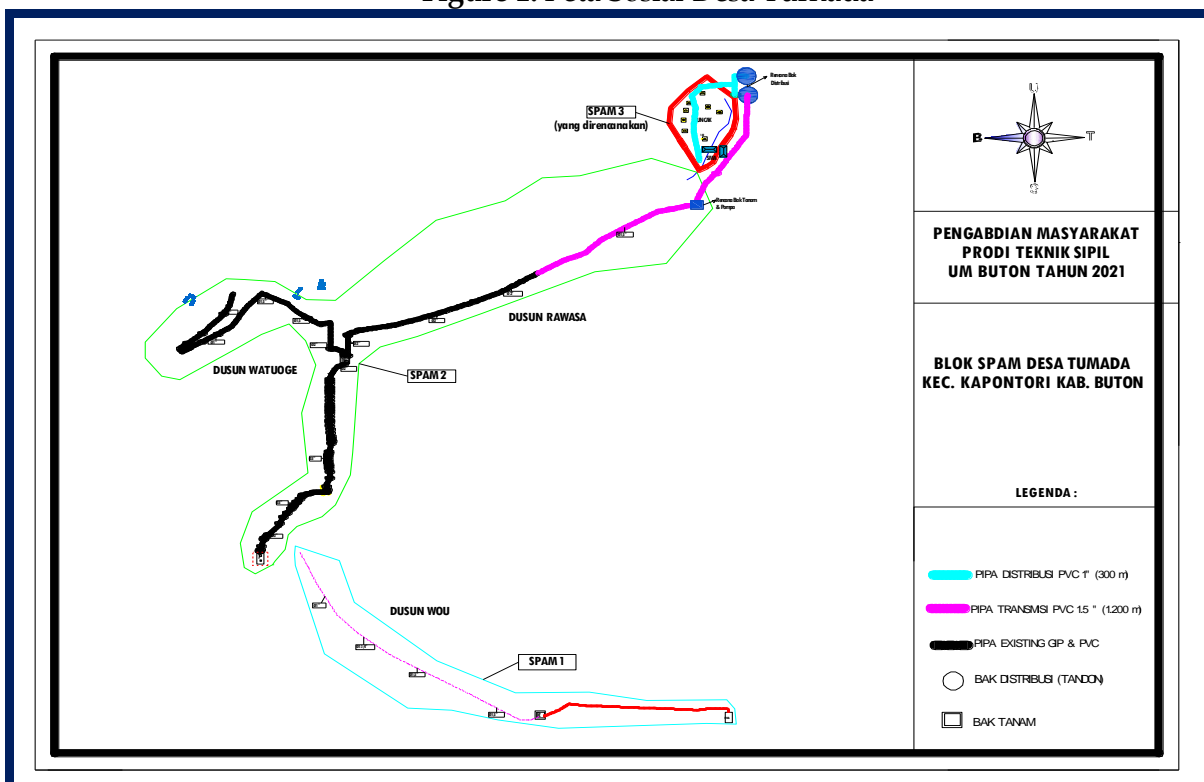


Figure 2. Rencana PAM Puncak Tumada

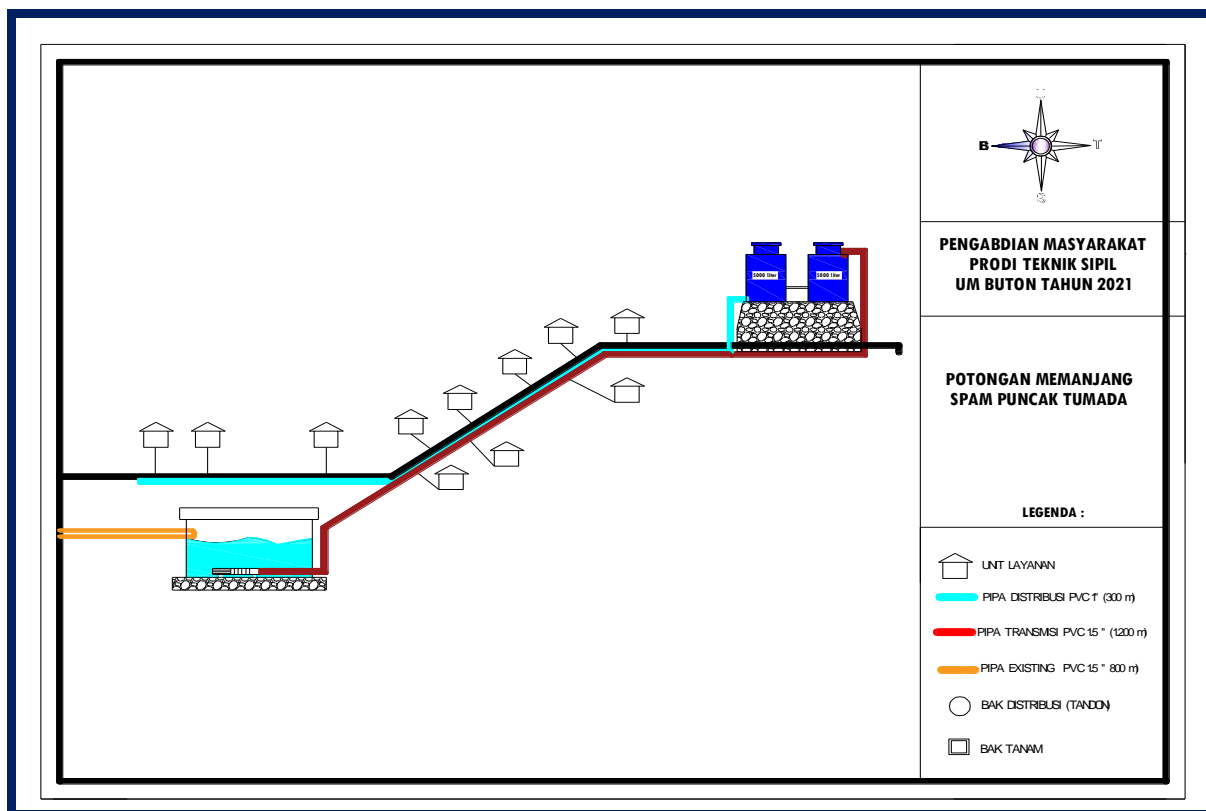


Figure 3. Potongan Memanjang SPAM Puncak Tumada

Sumber: Perencanaa Desa Turnada Tahun Anggaran 20021

4. Conclusion

The total amount of funds required is Rp. 117.750.000,-00, based on the results of the planning of the Puncak Tumada Drinking Water Supply System (SPAM). The DED paper has been submitted in its whole to the Tumada Village government for implementation as part of the village development program. After this service, it is hoped that the Tumada Village Government will continue to collaborate with the UM Buton Faculty of Engineering on socialization and technical training initiatives aimed at increasing the Village Government's, particularly Kaur's, technical cadres', and community's knowledge of construction building planning.

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