

WATER GOVERNANCE ANALYSIS IN THE DEVELOPMENT OF EMBUNG FOR WATER SUPPLY SECURITY FOR AGRICULTURE (STUDY IN SABU RAIJUA DISTRICT, NTT PROVINCE)

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ABSTRACT

82.3% of the population of Sabu Raijua Regency work as farmers with a high level of need for water but the geographical conditions of Sabu Island are not able to support this activity because the majority consists of dry land with a percentage of 97.51% and the number of rainy days is only approximately 100 days per year so that The Sabu Raijua Regency Government has built hundreds of reservoirs to meet agricultural activities, but the weak sustainability of the reservoir construction projects in Sabu Raijua Regency is a problem in itself. The method used in this research is a descriptive method with a qualitative approach with a total number of 76 people who were determined purposively then the primary and secondary data collected were analyzed using data analysis techniques from Creswell (2016). Water governance in the construction of reservoirs for water supply resilience for agriculture in Sabu Raijua Regency, NTT Province uses theory from Van der Kerk, et al (2013: 8) with research results in aspects (1) content layer which is hampered by the uneven flow of information, the absence of training to improve the knowledge and skills of reservoir water users as well as poor strategies/policies, whereas in aspect (2) the institutional layer from the organizational side there was no clear division of roles and responsibilities between institutions, the private sector and the community relating to the use of reservoir water and instruments that were not adequate and in aspect (3) the relational layer on the cooperation side was found not to involve existing policy stakeholders in making decisions about the water management process. The inhibiting factors for water governance in the construction of reservoirs for the resilience of water supply for agriculture in Sabu Raijua Regency, NTT Province consist of a minimal budget, lack of effective institutional governance and climate and geographical conditions.

Keywords: *water, governance, reservoir, agriculture.*

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INTRODUCTION

Water availability is closely related to supporting food security. Water is an important input for agricultural production (World Bank, 2020). According to data, currently the potential for water in Indonesia is 3.9 trillion cubic meters per year, while only around 691.3 billion cubic meters can be utilized (Fitra, 2017). Of the water potential of 691.3 billion cubic meters, only 222.59 billion cubic meters per year are currently being utilized. The largest use of water, or as much as 79.6 percent, is used to irrigate agricultural land and the remaining 20.4 percent is used for raw, domestic and industrial water needs (Pandu, 2021).

This is in line with the results of research by the Food and Agriculture Organization (FAO), FAO estimates that globally, 11 percent is for drinking, sanitation and human hygiene, and 19 percent is for industrial purposes and 70 percent water use is for agricultural practices (Molden, 2007, FAO, 2020) in order to achieve food security as one of the Nawacita agendas or 9 agenda changes from the Government of the Republic of Indonesia 2014-2019.

Referring to the General Policy on Food Security, the form of support provided is by developing new irrigation infrastructure or by rehabilitating irrigation infrastructure that is in a damaged condition. The data shows that Indonesia has 9.10 million hectares of irrigated land,

consisting of 7.15 million ha of surface irrigation, 1.83 million ha of swamp irrigation (tide, lebak, ponds), 0.11 million ha of groundwater irrigation and 0.1 million ha of groundwater irrigation. 04 million ha of pump irrigation with an average cropping index (IP) of 1.43. Assuming that the per capita consumption of the Indonesian population is 139 kg/person/year, it is estimated that the existing land area can meet the intended needs, however, the problem of conversion of agricultural land, especially irrigation, has become quite a big problem.

Developments in irrigation accelerated in the twentieth century, following rapid advances in civil engineering machinery and encouragement from governments and international development agencies. Many developing countries (often ex-colonies) changed their views on irrigation from supporting colonial agriculture to national policies for employment and poverty alleviation (Suhardiman & Giordano, 2014). Between 1970 and 1990, the world's irrigated land area increased from 184 to 258 million ha. Irrigation development continued, and in 1992 the area of land for irrigation reached 324 million ha (AQUASTAT 2014 a). Currently, the world's public irrigation projects are located in Asia (70%), take from surface water sources (62%), use surface irrigation (86%), achieve cropping intensity of 130%, and grow cereals (61%) (AQUASTAT 2014 b).

In Sabu Raijua Regency, most of the population, 82.3% work as farmers out of a total population of 74,403 people (BPS Sabu Raijua, 2021). This paradox is not an option, but actually shows that the production phase of most NTT people has only reached the subsistence farming stage, in which this method of production has a high level of demand for water. Even though they work as farmers, the number of paddy fields in Sabu Raijua Regency is only 2.49%, the rest is dry land with a percentage of 97.51% and with the number of rainy days only 100 rainy days per year (BPS Sabu Raijua, 2021). So during the dry season, many rivers and streams dry up and to overcome this problem, the government of Sabu Raijua Regency built hundreds of ponds as a medium for water reserves for the community (Wadu et al, 2023) because water availability is very closely related to supporting food security. Water is an important input for agricultural production (World Bank, 2020). The largest use of water, or as much as 79.6 percent, is used to irrigate agricultural land and the remaining 20.4 percent is used for raw, domestic and industrial water needs (Pandu, 2021).

The results of previous research found factors inhibiting increasing agricultural productivity in Indonesia, namely; (1) lack of manpower and weak agricultural extension; (2) infrastructure is lacking and poorly maintained; (3) sharecroppers' access to village financing sources is limited; (4) unclear land ownership; (5) technological gaps, (6) neglected high-value commodity potential (7) inadequate and poorly maintained irrigation systems (7) and weak farmer, water and irrigation institutions; (Purwantini & Suhaeti, 2017).

The findings of the previous research are also currently happening in Sabu Raijua Regency in terms of building reservoirs for the resilience of water supply for agriculture, such as irregularities in the provision of water for irrigation water supply. This is due to the condition of human resources in the regulation and distribution in the field that are less prepared and the technical arrangement and distribution of facilities and infrastructure such as irrigation water gates (intake), ponds and several paramedical facilities have not been carried out accurately and optimally and are not even suitable for use when studied based on technology. new irrigation.

In the context of water governance, the lack of clarity regarding rights (water rights) and obligations in the use of water, causes the organization of associations of water users to be less effective (Hanak et al, 2011) especially for the purpose of securing water supply for agricultural activities as the main objective of the construction of hundreds of ponds. in Sabu Raijua Regency which according to research results (Wadu et al, 2023)

Water governance mechanisms in institutions that do not function properly will ultimately have an impact on water use inefficiencies and potential conflicts in water allocation (Wadu et al, 2023). Homer (1994) and Gleick (1993) also stated that the scarcity of natural resources (water) will trigger conflict. Therefore the management of water needs is not only viewed from the economic aspect but how water is managed with environmental principles to achieve prosperity with institutional practices in policy making based on environmental sustainability and equal distribution justice (Koudstaal, Rijesberman and Savenije, 1992) therefore the research team will conduct research with the title Water Governance Analysis in Reservoir Development for Resilience of Water Supply for Agriculture (Study in Sabu Raijua Regency, NTT Province)

To analyze water governance in the construction of reservoirs for water supply security for agriculture in Sabu Raijua Regency, NTT Province, the author uses the water governance analysis model from Van der Kerk, et al (2013: 8) which states that there are three layers of discussion that are connected and inseparable. in order to create a solid concept regarding water governance, namely; (a) The Content Layer, which consists of information, knowledge, skills, strategies/policies; (b) Institutional Layer, consisting of Organizations, instruments; and (c) Relational Layer, which consists of cooperation, participation, culture, integrity.

These dimensions or aspects will form a cycle which also becomes a process and influences one another. The important points of applying this concept are collaboration, cooperation and participation from the government, community and private parties in creating good water resources management. At least the most important thing in the water governance model is public participation, so that multi-stakeholders or multi-actor elements in water management are a must accompanied by clarity on the roles and functions of each actor in collaborative water management.

The development of the concept of water governance which is widespread in various countries. This concept is a reference for good and sustainable water management. Nonetheless, not all variants of the water governance model can be generalized in their application (Wang et al. 2021) because the institutional context and political culture are different in each country, especially in various regions in Indonesia, one of which is in Sabu Raijua Regency, NTT Province.

METHOD

The method used in this study is a descriptive research method with a qualitative approach while the technique of determining the informants carried out by researchers in this study is a purposive sampling technique with a total of 76 people, then the informants mentioned above will be investigated using the snowball sampling technique until it reaches the saturation stage. data.

The data sources in this research were obtained through primary sources and secondary sources. Primary sources are data sources that directly provide data to data collectors such as

interviews with informants and secondary sources are sources that do not directly provide data to data collectors such as documents, photographs, art objects, videotapes or all types of sounds/sounds, then the data that has been collected is analyzed using data analysis techniques from Creswell (2016:264-268).

RESULTS AND DISCUSSION

Analysis of Water Governance in Building Reservoirs for Resilient Water Supply for Agriculture in Sabu Raijua Regency, NTT Province

In Sabu Raijua Regency, the majority of the population, 82.3%, work as farmers out of a total population of 74,403 people (BPS Sabu Raijua, 2021). This paradox is not an option, but actually shows that the production phase of most NTT communities has only reached the subsistence farming stage, where this method of production has a high level of need for water. Even though he earns his living as a farmer, the amount of paddy land in Sabu Raijua Regency is only 2.49%, the rest is dry land with a percentage of 97.51% and with only approximately 100 rainy days per year (BPS Sabu Raijua, 2021).

So during the dry season, many rivers and streams dry up and to overcome this problem the Sabu Raijua Regency government built hundreds of reservoirs as a water reserve medium for the community (Wadu et al, 2023) because water availability is closely related to supporting food security. Water is an important input for agricultural production (World Bank, 2020). The largest water use or 79.6 percent is used to irrigate agricultural land and the remaining 20.4 percent is used for raw, domestic and industrial water needs (Pandu, 2021). Therefore, in-depth research is needed regarding water governance for businesses. agriculture in Sabu Raijua Regency.

Gallaher and Heikkila (2014) stated that water governance is about collective decisions and choices related to the use and management of water resources that emerge through institutions. This includes rule-setting mechanisms and institutions that manage water resources. Sokile et al (2005:1) define formal institutions as 'written regulations created by pre-independence legislative councils and contemporary laws on one hand', while informal water institutions are defined as 'a set of local community-based practices usually determined by custom, local water use traditions and culture.

Most of the literature on water governance focuses on achieving IWRM (Integrated Water Resources Management) goals (Benson et al., 2015; Nshimbi, 2019; Bertule et al., 2018). On the other hand, water governance is not synonymous with water management, which refers to operational activities (i.e., delivery, wastewater management, recycling) (Romano and Akhmouch, 2019), but also includes the definition of priorities, which institutional arrangements are most important and suitable for satisfying them and sharing responsibilities among the various actors involved in the process (Homsy and Warner, 2020; Gupta and Pahl-Wostl, 2013).

Therefore, to analyze water governance in the construction of embungs for water supply security for agriculture in Sabu Raijua Regency, NTT Province, the researchers used the theory of Van der Kerk, et al (2013: 8) which states that there are three layers of discussion that are interconnected and inseparable in order to create a solid concept regarding water governance with the following research results and discussions.

Content Layer

a. Information

Information in the context of water governance for the construction of reservoirs for water supply resilience for agriculture in Sabu Raijua Regency, NTT Province includes sufficient and relevant information about water management.

Based on the results of research conducted by researchers, it is known that until 2023, there was no sufficient and relevant sharing of information regarding the management of reservoir water for agricultural activities in Sabu Raijua Regency, and there was even a conflict over the distribution of water between users of reservoir water for agriculture in Raenyale Village to conflicting water users were reconciled at the Raenyale Village Office.

From an institutional perspective, it was also found that all types of decision making regarding the use of reservoir water for agriculture were only top down without involving the community around the reservoir, whereas good communication in water governance would make an important contribution to effective collective action and long-term sustainability of water governance (Djumaboev, 2017).

Farmers who use ponds in Sabu Raijua Regency for agricultural activities assume that there is often insufficiency, inaccuracy, and injustice in the distribution of water which results in crop failure so that farming productivity decreases. Lack of understanding is also due to lack of outreach by agencies related to water management activities such as the Service, Agriculture, PMD and Public Works and Public Housing so that the water governance mechanism in institutions that does not function properly will ultimately have an impact on water use inefficiencies and potential conflicts. in water allocation (Wadu et al, 2023).

Findings related to the lack of information related to the construction of embungs for the resilience of water supply for agriculture in Sabu Raijua Regency have resulted in less than optimal community involvement in sustainable planning and management of embungs, even unclear water rights and ignorance and uncertainty about water (Araral and Yu, 2012: 3 -9) while the importance of water has an influence on all aspects of human life, making water management a global issue that will continue to be discussed. Water as an essential material in human life is a resource needed by all groups which is capable of causing economic competition and social conflict because of its fulfillment. Therefore, managing water needs is not only viewed from economic aspects but how water is managed using environmental principles to achieve prosperity with policy making practices based on environmental sustainability and distribution justice (Koudstaal, Rijesberman and Savenije, 1992).

Water governance, in concept, brings together how public policy is not only the domain of the government but also requires the involvement and participation of civil society and the private sector in utilizing the reservoirs in Sabu Raijua Regency for agricultural activities and how public policy regarding water management considers the balance of resources with needs. water for people who still pay attention to the ecosystem and maintain the sustainability of water sources (UN-Water, 2014) or according to van Monfort, et al (2014) as a multistakeholder (multistakeholder provision) where water management combines several actors involved from both the private sector and government and local communities in Sabu Raijua Regency with horizontal consultations with cooperative relationship patterns so that there is more openness (Schwab and Kubler, 2001) or there is

dependency in the relationships between institutions involved in collective action (Ewalt, 2001)

b. Knowledge and skills

Knowledge and skills relate to needs related to knowledge and skills in water management and based on the results of interviews and observations of researchers, it is known that the construction of reservoirs for water supply resilience for agriculture in Sabu Raijua Regency from a knowledge and skills perspective concerns needs related to knowledge and skills in water management has never been carried out properly. by BWS NT II and the Regional Government of Sabu Raijua Regency through related agencies while it is useful for improving irrigation water distribution services for farmers and increasing the ability of collaborating actors in establishing cooperation with external parties including the Regional Government or other institutions for the benefit of farmers in Sabu Raijua Regency.

Sharing knowledge and skills between individuals and departments should play an important role in creating new knowledge in a sustainable innovation process in an institution (Barachini, 2009). Transfer of knowledge and skills from one person to another can also give rise to new knowledge (van Den Hooff & de Ridder, 2004).

The researcher's findings regarding the absence of transfer of knowledge and skills in the construction of reservoirs for water supply security for agriculture in Sabu Raijua Regency are in line with the findings of (Mimin & Budhi, 2009; Purwantini & Suhaeti, 2017) the low management of an irrigation area is caused by factors which hinders the distribution of knowledge and skills in the field, namely; (i) lack of capital, (ii) incomplete and/or unclear work programs, (iii) non-continuous coaching and guidance and (iv) low quality of local government support.

c. Strategies/policies

Strategies/policies concern the existence of clear strategies and policies for managing water in Sabu Raijua Regency where the strategy begins with research on water conditions in Sabu Raijua Regency showing that in general water needs include; (1), water needs for agriculture (rice, secondary crops and vegetable gardens) (2), animal husbandry, (3) domestic water needs, (4) municipal water needs, (water needs for schools, places of worship, hospitals, offices, hotels, and restaurants) (5), water needs for industry and its development, (6) water needs to consider the possibility of water loss. Until now, the availability of raw water in Sabu Raijua Regency comes from 2 types of things, namely; existing water sources, in the form of reservoirs, springs or other water sources, and water potential that can be developed, in the form of surface water (from rainfall) and ground water (BWS NT II, 2011).

Table 1. Analysis of Community Water Needs in Sabu-Raijua Regency Until 2030

District	Domestic, Municipal and Industry (MCM)			Agriculture (Crops and Livestock)			
	D	M	I	Optimalization	Land Development (Ha)		
					Potential (Ha)	Potential (MCM)	Available (Ha)
Sabu Barat	2.08	0.40	0.00	2.60	1,800	16.09	10,052.51
Sabu Tengah	0.45	0.15	0.00	0.48	4,000	3.37	3,923.59
Sabu Timur	0.47	0.28	0.00	0.87	3,500	5.31	2,617.00
Sabu Liae	0.79	0.29	0.00	0.56	720	6.61	3,692.46
Hawu Mahera	1.22	0.32	0.00	4.73	230	2.11	3,331.60
Raijua	0.83	0.15	0.00	0.06	140	8.71	2,326.32
Pulau Sabu	5.01	1.44	0.00	9.24	10250.00	33.49	23617.16
Pulau Raijua	0.83	0.15	0.00	0.06	140.00	8.71	2326.32

Source: Identification of Raw Water Sources in Sabu Raijua Regency BWS NT II, 2011

A study by the Nusa Tenggara River Basin Center II (BWS NT II) found that fulfilling DMI (Domestic, Municipal and Industrial) needs was very effectively fulfilled through the development of dug wells. For effective agricultural development by using water traps (embungs) and dug wells on agricultural land (BWS NT II, 2011).

From a policy standpoint, the actual division of authority and responsibility in water governance is regulated in the Regulation of the Minister of Public Works and Public Housing of the Republic of Indonesia Number 14/PRT/M/2015 concerning Criteria and Determination of Status of Irrigation Areas in article 8 paragraph 1 of the regulation.

The criteria for dividing authority and responsibility for irrigation development and management can be seen in the table below:

Table 2 Criteria for Irrigation Area Authority

No.	Area of Irrigation Area	Authority/Responsibility
1.	>3000 ha and across provinces	Central Government
2.	1000 – 3000 ha and across districts	Provincial Government
3.	<1000 ha	Regency/City Government

Source: Permenpupr Number 14/PRT/M/2015

In Sabu Raijua Regency, until 2023 there are 3 types of ponds based on the source of funds for the construction of the ponds, namely APBD I, APBD II and APBN funds through BWS Nusa Tenggara II Region so that the strategy/policy for the management of the pond in Sabu Raijua Regency which, if the pond is built using APBD I and II funds of Sabu

Raijua Regency, the responsible agencies as managers are related agencies in Sabu Raijua Regency with the maintenance budget submitted to the PUPR Service of Sabu Raijua Regency or using village funds whereas if the reservoir is built by BWS Nusa Tenggara II, the management is handed over to the village with maintenance returned to BWS Nusa Tenggara II.

The embung construction process is carried out by dividing responsibilities between BWS and the local regional government. In the plan to build a reservoir in the Regency, solving social problems and land issues is a matter for the Sabu Raijua Regional Government. The Nusa Tenggara River Basin II Center prepares designs and seeks funds for the construction of reservoirs/reservoirs. This causes a long span of policy control and poor policy strategies that have an impact on the failure to achieve the integrity of the development of reservoirs for the availability of raw water for agriculture in the region or (Araral and Yu, 2012: 3-9) as a policy that is considered short-sighted or an inappropriate policy choice.

Thus, water governance towards sustainability implies addressing conflicting policy issues finding consensus between the interests of the various parties involved in thresholds set by ecosystems, and encouraging the use of participatory methods in decision-making processes (Challies and Newig, 2019) and not the other way around like the findings of researchers in Sabu Raijua Regency.

Institutional Layer

a. Organization

Organization where within the organization there is a clear division of roles and responsibilities in the construction of reservoirs for water supply security for agriculture in Sabu Raijua Regency, NTT Province.

Based on the research results, it is known that from an organizational aspect there is no clear division of roles and responsibilities between institutions, the private sector and the community related to the utilization of pond water for water supply security for agriculture in Sabu Raijua Regency, NTT Province, so this finding is in line with the findings (Brown and Farrelly, 2009; van Dijk, 2012) that the sustainable development of the water sector generally experiences challenges related to institutions which are illustrated in the facts on the ground that the community has not been actively involved in the operation and maintenance of Water Resources (SDA) infrastructure facilities that have been built and still low increased performance due to minimal intervention from the government while in the opinion of Lam (1998)) social norms in the form of inter-organizational cooperation is a key mechanism for ensuring and maintaining water infrastructure as well as for restraining excessive water use.

b. Instruments

Instruments can be assessed by the existence of supporting facilities and based on the results of observations and interviews conducted by researchers it is known that from the instruments side, the construction of embungs for water supply security for agriculture in Sabu Raijua Regency, NTT Province did not receive assistance from facilities and infrastructure that support the sustainability of the embungs. dams, which causes the embungs to be poorly maintained, characterized by damage to taps, pipes and channels, and currently many of the embungs that are not maintained are silting up, thereby reducing

the amount of annual water storage and impacting the availability of water for agriculture in Sabu Raijua Regency. The absence of an operating and maintenance system also results in embungs often becoming mere monuments.

Relational Layer

a. Cooperation

Cooperation concerns whether the existing policy stakeholders involved in making decisions about the water management process (namely agricultural water users and political actors selected as components of water management) are farmers, heads of local farmer groups, village representatives, and agricultural facility monitoring officers. As part of the governance component, core actors play an important role in implementing water governance if they are appropriately involved. One way farmers and other key actors are involved in water governance is through water user associations.

From the results of observations and in-depth interviews conducted by researchers, it is known that the construction of embungs for water supply security for agriculture in Sabu Raijua Regency, NTT Province, from the cooperation aspect, does not involve existing policy makers in making decisions regarding the water management process.

Farmers, heads of local farmer groups, village representatives are not always involved in every decision-making activity, it was even found that when decisions were made, farmers, heads of local farmer groups themselves violated these decisions, such as stealing water, destroying water distribution facilities in reservoirs and unequal distribution of water. distribution of water so that in some reservoirs no water user association is found, farmers are excluded from governance and decision making, resulting in poor implementation of water management policies (Mukherji et al, 2009) whereas according to Djumaboev et al (2017) trust and communication are greater. This will provide an important contribution to effective collective action and long-term sustainability of water use for agriculture as the main objective of the construction of hundreds of reservoirs in Sabu Raijua Regency according to research results (Wadu et al, 2023).

This finding is in line with findings in the Saemangeum project in Korea where farmers were not involved or involved themselves in water management causing institutional governance to be ineffective (Kim et al, 2017). Thus, the involvement of core actors (farmers and other agricultural water users) as part of the agricultural water governance component is very important to achieve significant success in the design of water institutional governance even though several findings state that resource management in various places in the world tends to lead to centralization and adoption of science that ignores practices at the local level (Berkes, 2002).

Factors Inhibiting Water Governance in Building Reservoirs for Resilient Water Supply for Agriculture in Sabu Raijua Regency, NTT Province

Water governance mechanisms in institutions that are not functioning will ultimately result in inefficient water use and the potential for conflict in water allocation. This is in accordance with the opinion of Homer (1994) and Gleick (1993) that scarcity of natural resources will trigger conflict. Water as an essential material in human life is a resource needed by all groups which is capable of causing economic competition and social conflict because of its fulfillment. Therefore, managing water needs is not only viewed from economic aspects but how water is

managed using environmental principles to achieve prosperity with institutional practices in making policies based on environmental sustainability and equal distribution justice (Koudstaal, Rijesberman and Savenije, 1992).

Therefore, based on the results of research conducted by the author, several factors inhibiting water governance in the construction of reservoirs for water supply security for agriculture in Sabu Raijua Regency, NTT Province were found, namely as follows:

Climate and Geographical Conditions

Regarding water needs in NTT, the Head of the NTT provincial Public Works Department stated that NTT needs 2 billion m³ per year and currently 539 million m³ is available. NTT experienced a deficit of up to 1.5 billion m³ (Pos Kupang, 2014). Thus, the water supply authorities (PU and BWS) stated that NTT needed 60 dams and 4,000 ponds to overcome this deficit (Pos Kupang, 2014). From this need, until 2021 1086 ponds have been built throughout the province of NTT and one of the districts that is very serious about building reservoirs to provide clean water for the people in NTT Province is Sabu Raijua Regency.

Until 2021, this outermost district in Indonesia has built hundreds of ponds to solve their water crisis problems. Regarding the condition and need for water in Sabu Raijua Regency, quite comprehensive research has been conducted and identified that the problem of Regency water in Sabu Raijua is caused by rainwater that falls quickly overlapping as a surface runoff and immediately being dumped into the sea (Susilawati, 2013). The climate on Sabu Island is characterized by long dry spells with low rainfall. In a year there are only 14-116 days of rainy season. Climatic conditions are related to its location which is quite close to the Australian Continent (Sabu Raijua In figures, 2012) and this is the factor inhibiting the sustainability of the pond construction project in Indonesia's southernmost district.

Even though they work as farmers, the number of paddy fields in Sabu Raijua Regency is only 2.49%, the rest is dry land with a percentage of 97.51% and with the number of rainy days only 100 rainy days per year (BPS Sabu Raijua, 2021). So during the dry season, many rivers and streams dry up, so local residents can only use wells for their clean water supply.

Budget

In the context of the construction of ponds in Sabu Raijua Regency, the budget used comes from APBD I, APBD II, but this budget is not sufficient for the construction of large-scale reservoirs of more than 100,000 m³, while the construction of one large pond requires a budget of around Rp. 13 billion to Rp. 15 billion, but it needs to be understood that the APBD allocation is not only used for the benefit of the development of the ponds so that it results in a decrease in the degree of sustainability of the development of the ponds themselves.

The minimal budget allocation has caused the majority of the ponds built in Sabu Raijua Regency to be small to medium scale reservoirs which can only hold 15,000 to 40,000 m³ of water so that they dry faster when the dry season occurs and even some of the ponds have experienced siltation so they need to be repaired but due to the lack of funds available allocated, the reservoirs are allowed to become projects with high mortality rates.

These medium and small reservoirs are also only used as a source of drinking water for livestock and irrigation water for agriculture, while for consumption water, the community continues to use tank water at a cost of Rp. 250,000 so that it can be stated that the sustainability of the pond development project in Sabu Raijua Regency is hampered due to the lack of

government incentives to cooperate in the name of sustainable development and the lack of a strategy for allocating funds for priority programs.

Institutional Governance

Institutional governance in the utilization of these ponds is also a problem that can hamper the sustainability of the ponds in Sabu Raijua Regency with findings in the field that several large reservoirs such as the Deki, Guriola, Marepano, Lari Leokitu reservoirs are the main water sources that support the ponds. Small ponds in this district are ponds with governance responsibilities that are far away in the provincial capital of NTT, namely BWS Nusa Tenggara II Region which results in a long span of institutional control resulting in unclear management of pond water and impacts on conflicts over distribution pond water for the community so that this long span of control should be one of the important considerations that need to be considered, because it is often a problem of coordination, namely the distance between one work unit and another.

Another problem of institutional governance that hinders water governance in the construction of ponds for the resilience of water supply for agriculture in Sabu Raijua Regency, NTT Province is the unequal division of tasks where the PMD Service of Sabu Raijua Regency is only given the authority to empower the community around small ponds while For large reservoirs, authority is given to the Public Works and Agriculture Office so that it also influences the effectiveness of the utilization of the reservoir for agricultural activities by the community.

In order to maintain the sustainability of the construction of reservoirs in Sabu Raijua Regency, water as a common pool resource needs to be managed using an equal institutional model to create governance. According to Ostrom (1999), common pool resources are types of goods whose availability is limited but many parties want to use them.

Thus, management of embung water management in Sabu Raijua Regency no longer needs to be handled and dominated by a single actor or institution such as BWS Nusa Tenggara II, but with a joint management approach (Ostrom, 1999; Berkes and Folke, 2009). This is important to facilitate collaboration between actors (Berkes, 2009; Carlsson and Sandström, 2008) and is formulated in terms of the division of power and responsibility between state actors and local user communities (farmers) (Carlsson & Berkes, 2005; Carlsson and Sandström, 2008).

CONCLUSION

Water governance in the construction of reservoirs for water supply security for agriculture in Sabu Raijua Regency, NTT Province uses the theory from Van der Kerk, et al (2013: 8) with the results of research on aspects (1) the content layer is constrained by the uneven flow of information, there is no training to improve the knowledge and skills of water reservoir users and bad strategies/policies while in aspect (2) the institutional layer from the organizational side does not find a clear division of roles and responsibilities between institutions, the private sector and the community related to the use of pond water as well as instruments inadequate and in aspect (3) the relational layer on the cooperation side was found not to involve existing policy makers in making decisions about the water management process.

The inhibiting factors for water governance in the construction of reservoirs for the resilience of water supply for agriculture in Sabu Raijua Regency, NTT Province consist of a

minimal budget, less effective institutional governance and climate and geographical conditions.

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