

Research Paper/Technical Note/Review Article

# The Impact of Village Fund Utilization on Embung Agricultural Infrastructure Development on Community Socio-Economic Activities

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## ABSTRACT

One of the agents and development of the Indonesian government nationally is to develop Indonesia from the margins that are considered left behind by strengthening regions and villages within the framework of a unitary state through the policy of Law Number 6 of 2014 concerning Villages. Utilization natural resources is one of the main aspects to achieve the objectives of rural development, namely improving the welfare of rural communities and the quality of human life and reduce poverty. This study aimed to describe the effect of utilization village fund on Embung infrastructure development to the public economy. The method used in this research is a qualitative descriptive analysis method. Aspects of the easel d i priorities in this study consisted of that aspect of the planning, environmental, infrastructure aspects, institutional aspects, social aspects and the economic aspects. The result show that the existence of infrastructure E mbung very helpful, because on rainy season, as a place to hold water, on the drought, as the need for irrigation to irrigate the fields, the fields d early for their daily needs.

## 1. Introduction

One of the national development agendas of the Indonesian government is to develop Indonesia from the margins that are considered left behind by strengthening regions and villages within the framework of a unitary state through the policy of Law Number 6 of 2014 concerning Villages. The Village Law Law was born with the spirit of democracy that must be built from communities in rural areas. Each village has different problems, so the development process carried out must be in accordance with its characteristics and problems, differences in development need to be made to accommodate the characteristics and capabilities of each region. Building from the village is one of the

commitments of the central government to bring a just economic distribution. The Ministry of Finance (2017), Law Number 6 of 2014, places villages at the forefront of development and improving community welfare. Villages are given the authority and adequate sources of funds in order to manage the potential of their natural resources to increase economic income and community welfare. Every year the central government budgeted a large enough Village Fund to be utilized and managed by the Village.

Village development depends on complex economic, social and cultural processes (Li et al 2019). The priority for the use of Village Funds related to village infrastructure development is based on the conditions and potential of the village (Vitasurya V.R., 2016; Zhang

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& Xu, 2016). The Village Law provides several provisions to increase village authority in managing land and natural resources (Watts J.D. et al 2019). Utilization of natural resources is one of the main aspects to achieve village development goals, namely improving the welfare of rural communities and the quality of human life as well as poverty alleviation. Water is one of the natural resources indispensable for human life, especially in the agricultural sector. Limited availability of water resources and an increase in water demand will lead to competition among users of water resources which will strengthen the economic value of water. Water Resources is a potential that can be managed to improve the welfare of rural communities. Water resources in the village can be maximally utilized to drive the village economy, expand employment opportunities and increase the income of village communities.

There are still many villages in Indonesia that do not have a water reserve system. The availability of water tends to decrease and the demand for water is increasing, so that water resources need to be managed by taking into account social, economic and environmental functions. Water is not only for household needs, but also for agricultural needs and food production in rural areas.

The construction of an embung (small dam) for agriculture is one of the priority scales for utilization and use of the Village Fund (Permendes Number 19, 2017) with the hope that the planting period owned by farmers can increase if the village has Embung infrastructure. The embung functions as a raw water storage building, maintains groundwater quality and prevents flooding to serve one or several hamlets in one village. Embung is very effective in overcoming water shortage areas, both raw water and irrigation to increase agricultural production in the village. The purpose of the Embung development is to create a raw water supply system to supply water for the needs of the villagers and irrigation water for agricultural crops as well as to collect rainwater and run off in the surrounding area as well as other possible water sources such as rainwater, eyes. water and rivers. Saadi Yusron (2013), Embung or small-scale reservoirs are very important in the history of agricultural development. Permen PUPR (2018), the existence of the Embung apart from being used for irrigation of rice fields is also beneficial for water conservation which can be used as a source of raw water and a source of water for livestock, especially during the dry season as an effort to achieve water security and food sovereignty. Water security answers the community's need for water in line with the rapidly increasing population and in response to developments in water-related disasters that often occur.

The problem faced by the people of Pattiro Hamlet, Rompegading Village, Maros Regency is the availability

of water, especially during the dry season, both to irrigate fields, fields and to meet their daily needs. Farmers in Pattiro hamlet only rely on rainwater and river water as a source of water. During the rainy season, a lot of river water is wasted, fields and rice fields are submerged in water and even causing flooding, because there is no container to store water.

To solve this problem, the Rompegading Village government budgeted the Village Fund to address complaints and problems faced by the people of Dusun Pattiro by building.

## 2. Literature Review

Law Number 6 of year (2014), Village Funds are funds sourced from the State Revenue and Expenditure Budget intended for Villages that are transferred through the district Regional Revenue and Expenditure Budget, which are used to finance governance, implementation of development, community development and community empowerment village.

Embung is beneficial for the community because it is a water storage building that can function as irrigation, raw water and industry. Good water resource management will be able to support people's lives (Anjasmoro et al, 2017). Furthermore, Kodoatie et al (2005) in Anjasmoro et al (2017), around 2.53% of the water on this earth can be utilized at low cost, such as lake water, rivers, reservoirs and shallow groundwater sources. Efforts are needed to maintain its existence for the continuity of life, civilization now and in the future.

Maizir (2016), to take advantage of wasted water during the rainy season, it is necessary to build an embung. The dimensions and holding capacity of the embung provide benefits to the supply of water flow during the dry season and is an effort to conserve land, water and reduce flooding in the rainy season with high intensity. To obtain a sufficient water storage capacity, the construction of an embung is not only by building a high dam, but the construction of an embung can be adjusted to a valley or basin in accordance with the topographical conditions of the area.

Floren at al (2019), data from the Directorate of Water Management, that in Indonesia the need for water for irrigation reaches 81.4% of the total water demand, where the agricultural sector is the sector that uses the most of this water need. To achieve an increase in agricultural output in rural areas, a support system is needed, such as adequate infrastructure. In order to achieve water security and food sovereignty, it is very necessary to build a water reservoir through the construction of a dam or embung.

### 3. Methodology of Research

The approach used in this research is a qualitative approach, namely research whose data is in the form of words derived from interviews, report notes and documentation, or research in which prioritizes analysis of an event or process as it exists in a natural environment to obtain the profound meaning of the process. Nazir (2013), the descriptive method is a method in examining the status of human groups, a subject, conditions, and current events.

The data collection method was carried out by observation and in-depth interviews with key informants, namely farmers, community leaders and local village government.

The data analysis method used in this research is a qualitative descriptive method, because a qualitative descriptive study will analyze an event, a phenomenon and the social conditions of the community. The analysis was carried out on 5 aspects, namely planning aspects, environmental aspects, infrastructure aspects, institutional aspects, social aspects and economic aspects.

### 4. Result and Discussion

#### 4.1 Results

The construction of embungs in agricultural production centers has proven effective in increasing farmer productivity (Ismail, 2018). The embung functions as a raw water storage building, maintains groundwater quality and prevents flooding to serve one or several hamlets in one village.

Farmers in Pattiro Hamlet greatly benefit the existence of the Embung. In the rainy season, the Embung functions as a container to collect rainwater, springs and river water to prevent flooding. During the dry season, the water reserves in the embung can be used by farmers to meet irrigation needs on productive land for irrigating rice fields, fields and for daily needs, such as bathing, washing and watering plants. Farmers can also plant vegetables in the same area as during the rainy season. Because most of the people of Pattiro Hamlet work as farmers who own the rice fields and fields around Embung. The area of rice fields and fields / gardens that can be irrigated by the Embung in Dusun Pattiro is around 1.5 ha. Provision of water to meet basic daily needs and agricultural irrigation for the people is a top priority above all other water needs.

The Head of Rompegading Village, Arfah, S.Pd, said that for a long time the residents of Pattiro hamlet had always proposed the construction of an embung in their area, but with budget constraints, only in 2018 we were able to finance the construction of an embung from the Village Fund. Because when the dry season arrives, the springs in Pattiro hamlet experience drought and the river experiences a lack of water discharge.

The priority aspects in this research consist of:

#### 1. Planning Aspects

With the existence of the Village Fund, the people of Pattiro hamlet proposed the construction of the Embung through hamlet deliberations which were then agreed upon during the village development planning deliberations (Musrenbangdes), after that, the Embung development proposal was included in the Village Medium Term Development Plan (RPJMDes), at a later stage a Work Plan was drawn up. Village development for Embung development. Because every activity that uses the Village Fund budget must go through several stages of the process, starting from a clear planning, implementation and evaluation process.

#### 2. Environmental Aspects

The existence of water follows the hydrological cycle according to weather conditions in an area, which will cause the availability of water to be uneven at any time in each region (Law Number 17 of 2019). The dominant land uses in the Pattiro hamlet are forests, gardens and rice fields. Meanwhile, the type of soil found in the Pattiro hamlet is a fertile humus soil type to support community agricultural activities. The water sources for agricultural activities are rainwater, springs and river water, so that the level of dependence of farmers in Pattiro Hamlet on Embung is very high, especially for irrigating rice fields and fields / gardens during the dry season. In addition, the Embung is very useful to meet the daily needs of the community, such as bathing, washing, watering plants and sanitation, so that the environment is not dirty, because water and sanitation are an important unit in human life. Before the Embung, the people of Pattiro hamlet were used to defecating in rivers, forests and bushes. However, after the Embung was established, the people of Pattiro hamlet already made latrines, although not all of them. With good sanitation, it will be able to improve the health, nutrition and productivity of the community.

#### 3. Infrastructure Aspects

The construction of an embung in Pattiro hamlet, Rompegading Village, Maros Regency utilizes the Village Fund for the 2018 fiscal year, at a cost of Rp.

156,011,500. with an area of 12.5 meters and a length of 11 meters which has a depth of 2.5 meters.

. Village development activities must be managed by the Village by utilizing human resources in the Village as well as natural and environmental resources in a sustainable manner (Law Number 6 of 2014). The construction of the Embung infrastructure for agricultural activities in the Pattiro hamlet was welcomed by the community, because the village government had also built tertiary irrigation channels that reached the rice fields. The construction work for the Embung was done by local residents themselves with a self-managed pattern. Natural materials (river stones and sand) and workers (craftsmen and laborers) come from within the Pattiro hamlet. Meanwhile, the fabrication materials were imported from the sub-district capital, because they were not available from inside the hamlet and village. so that the quality of the infrastructure building is not in doubt. Saadi Yusron (2013), An important thing to note is the problems that will occur after construction, because the budget for operation and maintenance of buildings is limited. Routine checks should be carried out on the structure of the Embung building to minimize damage as early as possible before larger damage occurs, which will result in the use of a larger budget. The emergency preparation plan should be discussed and disseminated to all related parties to raise awareness of potential hazards in the event of damage to the Embung building.

One of the farmers working on the Embung project, Ahmad dg. Kulle, said that this is the first time there is a construction project in our village where the work is done by the community themselves, usually we are just spectators, because other projects are done by contractors who are masons and laborers not from our village. If this is the case, we will work on building construction with good quality, because we are the ones planning, implementing and preserving development in our region. We really felt the benefits of the Village Fund in the construction of the Embung, because we were unable to collect the cost of building a water storage tank at this cost.



Figure 1. The Constuction Process on Pattinro Village



Figure 2. The Embung construction in patinro Village

#### 4. Institutional Aspects

To carry out maintenance activities for the Embung building in the Pattiro hamlet, the people who have paddy fields and fields around the Embung building, form a maintenance team to maintain the Embung building by collecting a fee from the farmers, because the village government no longer prepares costs for maintenance.

The Head of Rompegading Village, Arfah S.Pd, said that the maintenance team and the people living around the Embung must play an active role in carrying out regular maintenance, so that the Embung building does not suffer damage and silting. If it is not properly maintained, in a long time the water discharge will decrease which results

in the function of the embung not being optimal. Soemitro & Suprayitno (2018), to support the development of embung infrastructure utilization is very much determined from its management aspect. Maintenance activities are one of the important chains in the management of the reservoir, because without adequate and well-planned maintenance activities there will be negative impacts, including damage to the embung building before the design age is reached, disruption of the existence and function of water sources / environment, cost burdens rehabilitation / improvement is getting heavier over time, decreasing performance of services to the community and failure of development goals. The maintenance team that was formed to carry out the maintenance of the post-construction embung building so that the embung can continue to function properly, namely:

Person in Charge: Head of Rompegading Village Maintenance Team Leader: Amir L.

Maintenance Team Secretary: Prosperous

Maintenance Team Treasurer:

Agus 5. Social Aspects

Utilization of water resources for the welfare of the people must prioritize the public interest while still paying attention to social, economic and environmental sustainability functions. Before the Embung building, the people of Pattirol hamlet only relied on rainwater and river water to irrigate their rice fields and fields. Because the rice fields and plantations in the Pattirol hamlet are rainfed land. For a long time, the farmers in Pattirol hamlet were worried that the dry season would come, because it was very difficult for them to get water, due to the absence of a container to collect water. The water channel that enters the rice fields is still ground floor which causes a lot of water to be lost because it is absorbed into the ground. In addition, conflicts between households often occur due to fighting over water for irrigation.

The head of the Pattirol hamlet, Muhammad Nasir, said that prior to the Embung building, conflicts between communities often occurred in this area, as a result of fighting over water to irrigate their fields, especially during the dry season.

However, after the Embung building and the maintenance team were formed, the farmer groups distributed water fairly to the member farmers. According to the head of the Rukun Tetangga (RT) Amir L., the existence of the Embung building was very beneficial for the farmers of the Pattirol hamlet. There are about 25 farmer households that work on the land around 1.5 hectares (ha) around the Embung building. Therefore, the village

government held deliberations with the people of the Pattirol hamlet so that no more conflicts would occur due to the struggle for water for agricultural land, the entire community agreed with the results of the deliberations.

Most of the paddy fields and fields in Pattirol hamlet are rainfed, so that the Embung will become a container for water supply to rainfed land in a sustainable manner.

#### 4.2 Discussions

In the long term, Embung agricultural infrastructure will improve the quality and yield of agriculture during the dry season and the rainy season for farmers. Likewise in Pattirol hamlet, the existence of the Embung which is budgeted from the Village Fund, has greatly benefited farmers. Prior to the Embung, during the rainy season, floods damaged farmers' rice crops and during the dry season, there was a shortage of water. In addition, farmers in Pattirol hamlet can only harvest rice and crops once a year. However, after the Embung was established, the farmers in Pattirol hamlet could harvest three times a year, because the rice fields in Pattirol hamlet were rainfed rice fields. One crop of rice and two crops of secondary crops, such as peanuts and corn. Apart from rice and secondary crops, farmers who live around the Embung building can plant vegetables, such as long beans, cabbage, spinach, water spinach and other vegetables as well as a source of drinking water for farmers' pets, such as cows, buffaloes, goats, chickens and ducks. This means that the Pattirol hamlet farmers who are around the Embung building can increase their income from farming. The government hopes that the construction of an embung in the Pattirol hamlet can increase farmers' food production. Thus agricultural income can increase and can create other sources of income. If the Embung is well managed, combined with the surrounding hilly areas with a beautiful natural panorama, it can be developed as an agricultural and plantation tourism object by the surrounding community.

#### 5. Conclusions

The level of dependence of farmers in Pattirol hamlet on Embung is very high, especially for irrigating rice fields and fields / gardens during the dry season. In addition, the Embung is very useful to meet the daily needs of the community, such as bathing, washing, watering plants and sanitation, so that the environment is not dirty, because water and sanitation are an important unit in human life. Before the Embung, the people of Pattirol hamlet were used to defecating in rivers, forests and bushes. However, after the Embung was established, the

people of Pattiro hamlet already made latrines, although not all of them.

The construction of an embung in Pattiro hamlet, Rompegading Village, Maros Regency utilizes the Village Fund for the 2018 fiscal year, at a cost of Rp. 156,011,500. with an area of 12.5 meters and a length of 11 meters which has a depth of 2.5 meters. The construction of the Embung infrastructure for agricultural activities in the Pattiro hamlet was welcomed by the community, because the village government had also built tertiary irrigation channels that reached the rice fields. The construction work for the Embung was done by local residents themselves with a self-managed pattern. Natural materials (river stones and sand) and workers (craftsmen and laborers) come from within the Pattiro hamlet. Meanwhile, the fabrication materials were imported from the sub-district capital, because they were not available from inside the hamlet and village. so that the quality of the infrastructure building is not in doubt.

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