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Tambakrejo Area Community Empowerment

As a Smart and Disaster Resilient Village in Semarang City

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Abstract
Tambakrejo Village is one of the areas in Semarang City that is often affected by flooding, administratively it is included in Gayamsari District. Being in a coastal area with an elevation close to sea level means that the Tambakrejo District area has the risk of flooding and tidal problems, where tidal disasters have so far submerged more than 2.5 hectares of land with 25 residents' houses lost. Flood and tidal conditions directly or indirectly affect all aspects of people's lives. The impact of disasters results in damage to facilities and infrastructure, disruption of social activities, education and public health. If this continues, it is feared that it will increase community vulnerability and decline . The aim of the DPIK program is to increase community capacity to have the independent ability to adapt in facing potential disasters and other impacts of climate change, through the Smart and Disaster Resilient Village movement.

Keywords: Smart and Disaster Resilient Village; poor areas; Adaptation and Mitigation

INTRODUCTION

The city of Semarang, which is located on the North Coast of Java, is one of the cities affected by climate change with the frequency of floods and tidal waves occurring almost every year. This makes the Semarang coastal area a climate spot and included in the national climate resilience priority program [1]. As happened at the beginning of 2023, several coastal areas of Semarang were hit by large floods that lasted for several days. This condition certainly has an impact on the social and economic life of the community [2] starting from health levels, livelihood activities to decreasing income levels [3].

One of the coastal areas of Semarang City which is often affected by floods and tidal waves is Tambakrejo Village (partner service area), administratively included in Gayamsari District. Tambakrejo Subdistrict is geographically located in the coastal area of Semarang City with an area of 74.25 hectares with an elevation ranging from 1.5 – 2.8 MDPL. The total population is 10,370 people (3481 families). The administrative area consists of 9 RWs and 54 RTs, which is one of the densely populated sub-districts and is included in poverty-prone sub-districts where as many as 11.8% of families are poor families. (above Semarang City's poverty index of 4.25% in 2022). Most of the population earns their living as laborers (45% in construction and industry), services (42%), and the rest as civil servants, traders and others. The geographical condition of Tambakrejo Village is traversed by two rivers, namely the East Flood Canal River (BKT) which extends on the west side and the Tenggang River which divides the settlement. These two rivers are the outlets of the Tenggang River Watershed (DAS) 25,475 km² and the Babon Sub-Watershed 88.96 km 2 .

Being located on the Semarang Coastal Plain with an elevation close to sea level means that the Tambakrejo District area has problems in the environmental sector , namely the risk of tidal flooding which has occurred since 2010 and as the years go by, tidal water is becoming more widespread. To date, the tidal disaster has submerged more than 2.5 hectares of land with the loss of 25 residents' houses, especially as the land subsidence phenomenon that occurs has an impact on the land surface

decreasing and making it easier for sea water to enter at high tide [4]. The tidal disaster and land subsidence that occurred apart from having an impact on the loss of several houses also made most of the Tambakrejo Village area slum and unhealthy because there were lots of standing water in several locations [5,6].

Furthermore, apart from being a regular flood, the Tambakrejo Village area is also often affected by flood disasters, especially if there is high intensity rain [7,8,9] . Like the flood that occurred on January 2 2023, 2,000 residents' houses in the area were submerged in water, and as many as 17 families had to take refuge in prayer rooms and sub-district offices . Apart from inundating residential areas, floods also hit road infrastructure which disrupts accessibility and damaged roads with holes due to being submerged in water [10,11,12] . The flooding that occurs in this area is more caused by a drainage system that is not functioning, so that when it rains with high intensity the water cannot flow to the outlet and this results in puddles [13,14,15] . Moreover, if the rain occurs at the same time as high tide, the area is quickly submerged by rainwater and sea water [16].

In dealing with the problems of disasters that occur, so far the Semarang City government and the community have also made mitigation and adaptation efforts to reduce disaster risks, but these have not been optimal. Efforts that have been made include elevating the house and using a pump house which is still not able to work optimally, especially during high tides and high intensity rain [17,18]. Moreover, the Disaster Preparedness Group (target partners) which was formed in 2020, has been inactive in recent years. So that when a disaster emergency response occurs, it is mostly carried out by related stakeholders , such as the Semarang City BPBD, TNI, Polri, LPPM UNNES and several volunteers.

Flood and tidal disasters have an impact on aspects community education in Tambakrejo Village, where 5 elementary schools (target partners) with a total of 911 students were affected. The frequency of flood and tidal disasters that occur inundates access to schools, disrupts the teaching and learning process (PBM), damages school buildings and existing teaching aids. This condition will of course also affect the level of quality of education, which also affects the quality of human resources, especially student children [19]. Another variety of problems in the education sector is the readiness of educational units to implement the Independent Curriculum and not all teachers in elementary school education units have received training on implementing the independent curriculum. Specifically, the teachers conveyed learning problems and challenges in integrating literacy and numeracy concepts in the preparation of the Minimum Competency Assessment (AKM), where students were less interested in learning about numbers, lazy with reading and story questions, as well as the limited learning media (props) available. makes teachers more likely to only use power point.

Potential public health problems also arise due to disasters, resulting in a decline in people's quality of life. One of the health problems resulting from disasters is the potential increase in the incidence of infectious and non-communicable diseases, such as diarrhea, dysentery and ARI [20]. Based on information from the Village Health Forum (FKK) (target partners), floods and tidal waves in Tambakrejo Village have caused the environment to become less comfortable, people have experienced many health problems such as itching and diarrhea and are prone to dengue fever and leptospirosis.

Based on the existing conditions in the area, the Partnership Innovation Product Diffusion (DPIK) program in Tambakrejo Village aims to create a Smart and Disaster Resilient Village. Smart and Disaster Resilient Village is an empowerment model to form individual families and communities to be able to help themselves and play an active role in realizing education, health and an environment that is responsive and resilient to various forms of disasters.

METHOD

DPIK community service activities carried out in Tambakrejo sub - district , Semarang City , are carried out using several methods approach which is done in a certain way together , that is :

a . B e r b a s i s Group , s e shed do n't know what n And type activity Which will This is done by all partners according to the field they are working on use group . By the way used training program which includes: Training and n accompaniment , p e r e n ca n aa n, implementation , and so on mon i toring activity .

b. Comprehensive , to increase the knowledge and skills of all service partners, which has an impact on skills in their respective fields, namely: education, health and disaster. This activity is carried out to develop existing natural resources and human resources, as well as providing

infrastructure facilities according to the needs of each sector.

The following describes the steps in the method of applying science and technology offered to overcome the priority problems faced in Tambakrejo Village in each sector, described as follows.

1. Education Sector : Improving the quality of teachers in implementing the independent curriculum based on local potential. The workshop activities began with a review of the implementation of the Merdeka Curriculum, followed by an introduction to mathematical manipulative props for understanding concepts and principles (grades 1-6), as well as an introduction to manipulative props for games, developing students' thinking skills (creativity), demonstrations, and practice. accompaniment. Apart from that, training and facilitation for the Disaster Safe Education Unit (SPAB) was also provided.
2. Sector : Increasing the capacity of health cadres in health services and promotion. Training and mentoring services and health promotion. Apart from that, health support equipment for health services is also provided; Diffusion of TB screening technology using "Sikribo", as well as free treatment activities
3. Sector : Increasing community capacity in disaster management. Counseling and assistance regarding Disaster Preparedness Groups, Procurement of supporting infrastructure, including disaster-prone maps, evacuation route information boards, construction of food and medicine warehouses

Evaluation of program implementation and sustainability is carried out through various observation and interview methods to determine developments and seek feedback from partners to improve activities.

RESULTS AND DISCUSSION

From the DPIK community service activities that have been carried out, the team obtained the following results:

1. Improving Teacher Quality in Implementing the Independent Curriculum Based on Local Potential

The Merdeka Curriculum has the main characteristics; (1) project-based learning to develop soft skills and character according to the Pancasila student profile; (2) Focus on essential material so that there is sufficient time for in-depth learning of basic competencies such as literacy and numeracy; (3) Flexibility for teachers to carry out differentiated learning according to students' abilities and make adjustments to local context and content. Every school is required to implement it with very varied school conditions, including elementary schools in Tambakrejo Village which were affected by flooding, which should always feel safe and comfortable in receiving optimal learning services. Flood disaster conditions that are not easy to overcome and avoid for every resident of Tambakrejo Village require the intelligence of residents to anticipate and overcome them. Strengthening the quality of Human Resources (HR) in Tambakrejo Village can be done from an early age by strengthening the quality of basic level education for elementary school age children. Quality learning is the solution to overcome this. In accordance with existing conditions, various related research results that have been carried out are applied to improve the quality of learning at Tambakrejo Elementary School, especially mathematics subjects. Strengthening mathematics learning accompanied by facilitation of literacy corners is expected to strengthen students' basic literacy and numeracy competencies [21]. The need for innovation colors the implementation of learning or activities in schools, motivating student learning [22]. As the main activity in dealing with problems in the field of education related to literacy and numeracy skills, workshop activities for implementing an independent curriculum based on local potential are focused on mathematics material, manipulative teaching aids, and the design and implementation of activities both in learning and outside learning activities with a game agenda. as a fun competitive activity, and requires students to think towards higher level thinking skills (such as critical, creative) [23,24]. The use of manipulative teaching aids helps and strengthens students in understanding concepts, skills and attitudes [21, 25-27].

During the activity process, it was observed that all participants (teachers, not except the Principal) were enthusiastic, active and gave positive responses. Participants have been able to participate in simulation activities systematically (ordered) and correctly. In addition, the teacher has been able to apply activities using manipulative props (Tangram-7) to students, and students have given positive responses, have carried out activities neatly and enthusiastically).

Figure 1. Teacher is able to carry out a simulation of the use of manipulative teaching aids systematically and correctly

Figure 2. Teachers are able to apply manipulatives (Tangram-7) to students well

Because the position of SD Tambakrejo 03 is in an area prone to flood and tidal disasters, training and facilitation for the Disaster Safe Education Unit (SPAB) was also provided. With this SPAB training, it is hoped that the school community will play a role in adapting and mitigating disasters in their environment. Training is given to teachers, with the hope that teachers can help provide disaster education to students who are residents of Tambakrejo. With this training, it is hoped that schools can implement standard facilities and infrastructure, as well as a culture that is able to protect school residents and the surrounding environment from the dangers of disasters.

Figure 3. Photo of SPAB training

To better understand disasters in the area, posters about disasters were also provided at SD 03 Tambakrejo. The poster contains an introduction to disasters, climate change, steps when facing floods, and recognizing the difference between floods and tidal waves.

Figure 4. Learning media poster for the SPAB campaign

2. Increasing the Capacity of Health Cadres in Health Services and Promotion

To further increase the human resource capacity of health cadres in the Tambakrejo sub-district, training and assistance for Family Health Forum (FKK) cadres has been carried out in identifying the presence of TB in the Tambakrejo community. Identification using the Sikribo application (..o, which is a health information system that has been integrated with a smart phone. So that the characteristics of residents infected with TB can be directly entered into the system and immediately recorded in the Gayamsari Health Center data base, Semarang. There is a Sikribo system It makes it easier for FKK cadres to detect citizens who have TB symptoms, so that hopefully they can be anticipated with treatment as early as possible.

Figure 5. Photo of TB prevention education and TB screening training using the Sikribo system

On March 13-16, Tambakrejo Village was affected by a major flood disaster for 4 days. To alleviate the condition of the people affected by the flood, the DPIK Team has also carried out free medical activities for the people of Tambakrejo Village. Treatment was carried out immediately after

the big flood that hit Tambakrejo Village, so that after the flood various diseases emerged which people complained about, especially itching and hypertension. Therefore, the DPIK Team, in collaboration with doctors from the UNNES Health Center and Gayamsari Health Center, has provided free treatment for 110 people in the community.

Figure 6. Photos of floods and free medical treatment for residents affected by the disaster

3. Increasing Community Capacity in Disaster Management

As an area that is very prone to disasters, especially floods, the DPIK team has carried out activities to strengthen the Disaster Preparedness Group. The team, which consists of representatives from various elements of society, is expected to be able to assist the government and regional governments in implementing disaster management, both during pre-disaster, emergency response and post-disaster times, as well as tasks for handling other social problems related to disaster management in their environment. .

Apart from strengthening disaster groups, disaster risk maps in Tambakrejo Village have also been provided. This map is very important to know which areas are most vulnerable and should receive assistance when a disaster occurs. Apart from that, information boards on evacuation routes are also provided which are important as directions when a disaster occurs in the Tambakrejo area.

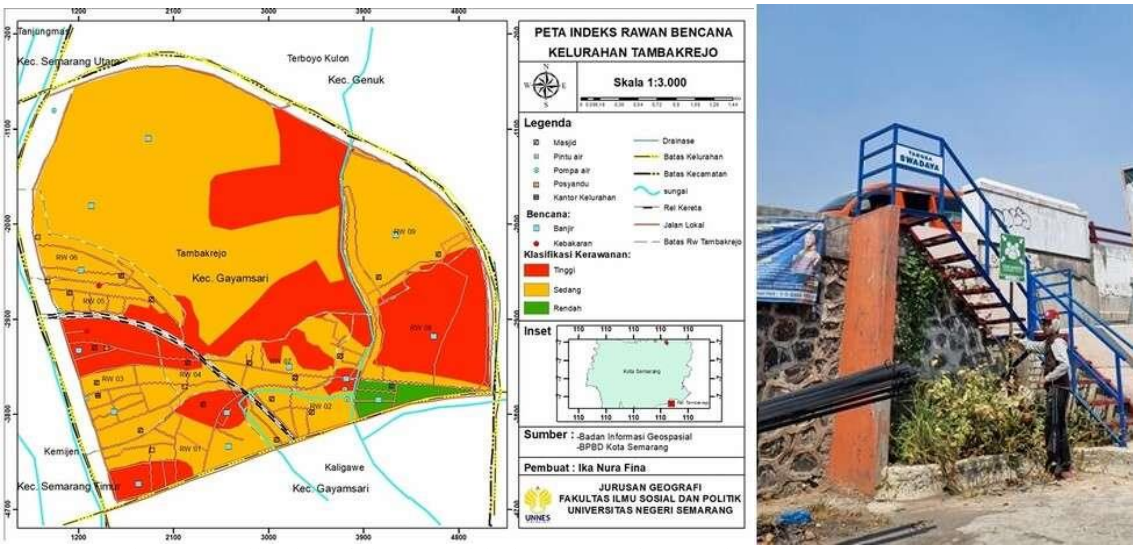

Figure 7. Facilitation of disaster risk index maps and evacuation route information boards

CONCLUSION

From the results of the service that has been carried out, it can be concluded as follows, that Tambakrejo Subdistrict has been formed into an intelligent and disaster resilient subdistrict, this condition becomes a model through community empowerment activities, so that the community is able to help themselves and play an active role. Community empowerment is carried out through: education, with the existence of an Independent Curriculum Implementation Unit Based on Local Potential. From the health sector, this is done through increasing the capacity of health cadres in health services and promotion, both FKK and Posyandu. Meanwhile, from the environmental sector, through increasing community capacity in disaster management. With this empowerment, Tambakrejo Village has become a village that is responsive and resilient to various forms of disasters

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