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Community service: Creation of village concrete pathways

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***Abstract*---**Roads are important infrastructure for human movement and are connecting access between regions. Good road infrastructure will make it more comfortable and easier for road users to move from one place to another. Good road conditions will have a beneficial impact from an economic perspective on the progress of an area. The condition of the roads in the Jagaraga village area is currently still worrying. There is a section of road which is currently still a rocky dirt road which is the access that must be passed by the people of Jagaraga Village. This condition gets worse when the rainy season enters and the dirt road will become muddy and even slippery when traversed. This is the reason for carrying out Community Service in Jagaraga Village. This community service activity was carried out by the Community Service Team together with the community to work together and work together to repair roads in the village area with concrete materials. Concrete structures were chosen for making village roads because the main material sources, namely sand and split, are easily available in Jagaraga Village. The energy potential and spirit of cooperation of the village residents is also still very high. This service to the community in Jagaraga Village takes the form of assistance in road construction which consists of concrete

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mixing methods, implementation stages, and proper maintenance of the concrete with the community as the staff carrying out the road construction work.

Keywords---community service, concrete roads, mobility, regions, road construction.

Introduction

Roads are important infrastructure for human movement and provide connecting access between regions. Good road infrastructure will make it more comfortable and easier for road users to move from one place to another (Fraser et al., 2006; Gao & Wu, 2017; Karpouzoglou et al., 2020). Road infrastructure has an important role in supporting the activities and socio-economics of the surrounding community. Good road conditions will also have a beneficial impact in terms of the economy and progress of an area. Agricultural production and industrial products will be distributed quickly and smoothly if road access in an area/region is passable and comfortable. People's mobility in and out of the area will also be higher.

Village roads can be categorized as roads with the function of local roads but have lower total vehicle capacity and weight (Zhang et al., 2022). The meaning of the local function of rural areas is as a liaison between villages or marketing locations, a liaison for residences or housing, as well as a liaison between villages and sub-districts/districts/provinces. The benefits of improving/building village roads for rural communities include facilitating relations and communication with other places, making it easier to send production facilities to villages, making it easier to send production products to markets, both in the village and outside, and improving social services, including health, education and counselling (Lin & De Meulder, 2012; Markantoni et al., 2018; Seyfang, 2010).

Currently, on several roads in Jagaraga village, you can still find roads that are in poor condition because they are still dirt and rocky roads. Even though the connecting road is not the main road and is not very wide, it is an alternative way to get to the neighbouring village. The condition of the road, which is still a dirt road, will become even more worrying when the rainy season comes because the road will become very muddy and slippery. Figure 1 shows the condition of the roads in the Jagaraga Village area, which are still dirt roads. This condition of course hampers the mobility of residents to use this access road and needs immediate treatment so that the road connecting Jagaraga Village to neighboring villages can be repaired immediately.

Figure 1. Condition of Existing Road Connecting Jagaraga Village

Village connecting roads are generally concrete rebate roads. Concrete rebated roads are roads made from concrete layers with a quality that is not too high, namely around 10 MPa or 100-125 kg/cm2 when viewed from its compressive strength. The mixture used in making rebate concrete generally uses a ratio of 1 cement: 2 sand: 3 split/coral. Lack of experience and knowledge regarding the correct manufacture of concrete is often a factor causing the non-uniformity of the quality of the concrete produced. The materials used to make concrete are generally made from materials that are easily obtained in the area, so they often do not meet the requirements of building materials for concrete.

Therefore, community service activities are carried out by the Community Service Team. In this activity, the Community Service Team together with the community, especially Jagaraga Village residents, made a road connecting the village using a concrete rebate road. With this community service activity, it is hoped that we will be able to assist in the construction of one of the roads connecting Jagara Village to neighbouring villages which is planned to use concrete construction starting from how to choose the appropriate material for making concrete rebates, the process of making the mixture, making (executing casting in the field) to with proper maintenance of concrete work (Aggarwal, 2018; Bodorkós & Pataki, 2009; Fagerholm et al., 2012). Cooperation and cooperation are the keys to this Community Service activity.

This service to the community also has benefits, namely that the community can know how to make concrete mixes, carry out casting and properly care for concrete so that the road quality is as expected. The transfer of knowledge regarding concrete construction used for roads from the Community Service Team to the Jagaraga village community will occur so that the community will also understand and understand more about the construction of road structures using concrete structural materials.

The service aims to provide education and help community members in the process of concrete work on roads. Concrete work on roads aims to make the road

strong. This program is needed by residents to help smooth agricultural and plantation activities.

Implementation Method

This activity was carried out for 2 days, namely on 11 – 12 May 2024. The location of the activity was in Jaga Raga Village, Sawan District, Buleleng Regency. The stages of implementing this service activity include:

Stage 1: Work Preparation
Preparatory work includes; initial coordination of the service team, explanation of the duties and responsibilities of the service team, creating a work program, and creating a report format. At the preparation stage, coordination meetings were also held with related parties, to equalize understanding of the scope of work and other technical specifications.

Stage 2: Field Identification
In carrying out the survey and collecting data, the research team actively attempted to obtain accurate data which was inventoried through primary surveys in the field.

Stage 3: Data Compilation and Analysis
At the compilation and analysis stage, all data obtained in the form of primary and secondary data must be analyzed and managed and then arranged in the form of results according to the desired output.

Stage 4: Concept Formulation and Foundation and Concrete Work
At this stage, the results of the activities are also systematically prepared according to the specified format. The renovation concept was formulated based on the results survey that has been analyzed, philosophy, and foundation and concrete work program that has been prepared in the previous stage.

Discussion: During the work implementation process, formal consultations were carried out by the research team with other relevant agencies at the temple management level as well as with stakeholders and the community. Reporting: The report format in this activity is based on specified guidelines.

Results and Discussion

Activity Preparation

The activity began with a service location survey on 11 May 2024 in Jagaraga Village. The location survey aims to collect some information that will be used as a basis for implementing activities, which includes supporting facilities in the Sanggah Dadya area. Information on the condition and level of damage to the building is very important for determining the amount, type and need for materials as well as designing repair plans. Apart from that, in the initial survey, the service team also held discussions with residents to determine the schedule for implementing activities.

Figure 2. Location of roads repaired with concrete mixture

Implementation of Activities

Service activities on 11-12 May 2023 in Jagaraga village. Implementation of activities is carried out in cooperation between the service team and the surrounding community who act as service partners. Activities carried out hand in hand can increase the sense of brotherhood between the service team and activity partners. Before starting the activity, several materials (such as sand, cement, water,) and equipment (such as hoes, shovels, etc.) were imported first. After all materials and equipment have arrived at the location, the activity continues with the process of carrying out metal assembly and excavation activities. However, before starting the activity, participants received guidance from the service team regarding the technical implementation of the activity following applicable standards. This direction aims to ensure that the process of implementing activities can run smoothly and not cause waste. The process of carrying out road work using concrete can be seen in Figure 3.

Figure 3. Roadwork with concrete mixture

In road work, it can be seen that first the work of measuring the location of the road is carried out, and then the land leveling work is carried out. The measurement work can be seen in Figure 4, while the land levelling work can be seen in Figure 5.

Figure 4. Measurement Work

Figure 5. Land leveling work

Monitoring and Evaluation

Monitoring is carried out after road work activities with concrete materials have been completed. The monitoring process in this case is measurement work and concrete work. Apart from that, during road construction work with concrete mixture, supervision is carried out so that it matches the drawings. The instrument used in this evaluation process is an implementation image

The obstacle we faced during the implementation of the activity was that there was no place to store the material, so the material was stored using a temporary cover. This caused the implementation to be a bit late because the materials were transported first before the concrete was mixed. Apart from that, the conditions were hot due to sunlight and the work location was difficult to reach, but everything was managed well. The results of monitoring and evaluation are that this community service activity reflects the importance of higher education in making a positive contribution to society and preserving local culture. Bali State Polytechnic is committed to continuing to support activities and community service focused on sustainable development and preservation of Bali's unique cultural heritage.

Conclusion

Through community service activities by carrying out road work using concrete in Jagaraga Village, Sawan District, and Buleleng Regency, we can produce an understanding of road work using concrete mix. This service activity will not run well without the support of all parties, and also from the service team for the Diploma 3 Study Program, Civil Engineering Department, Bali State Polytechnic so that the implementation of this service runs well.

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