

Technical Guidance for Making Budget Plans in Kedungrejo Village, Rembang Regency

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ABSTRACT

In building a village infrastructure, it is necessary to calculate the costs contained in the Budget Plan (RAB) according to the standards set by the government. The RAB provides an overview of the costs required to construct a structure or building. In addition, from the calculation of the RAB, it can also be seen that the building material requirements, manpower, and the schedule needed to complete the project. The purpose of this technical guidance is to increase the role and understanding of village officers and youth organizations in making RAB. Technical guidance is carried out by providing explanations and technical assistance directly to partners in making the RAB for the physical infrastructure project for the concrete pavement access to the mosque. The results of the technical guidance showed that there was an increase in the understanding of partners in making RAB by 70%. In addition, 50% of partners believe that they can independently make RAB for a similar project. Armed with this understanding, it is hoped that in the future partners can play a greater role in the village's physical development process starting at the planning, construction, and supervision stages of the project.

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INTRODUCTION

Located between the main roads of Rembang Regency and Blora Regency, Kedungrejo Village, which has a population of 2,438 people and consists of 4 hamlets, is one of the villages that is strategically located from an economic perspective (Pemkab Rembang, 2012). The Rembang-Blora road section is a logistics route for the activities of the Indonesia-Rembang Cement Factory and PT. Pertamina in Blora Regency. In addition, not far from Kedungrejo Village, the Diponegoro University (Undip)-Rembang PSDKU Campus has also been established. With the operation of the Undip-Rembang PSDKU Campus, it is predicted that it will also encourage economic empowerment activities for communities around the campus through boarding houses, photocopy, laundry, restaurants, and so on. The existence of this economic potential encourages Kedungrejo Village to continue to improve facilities and infrastructure through village physical infrastructure development projects, both sourced from government funding in the form of village funds and funding from the private sector.

Government programs through village funds are very useful for village communities (Kusmana & Ismail, 2018). The development of village infrastructure through village funds can encourage the economic activities of rural communities. With village funds, the community can be directly involved in village development activities (Djiko & Dalensang, 2021). In building a village infrastructure, it is necessary to calculate the costs contained in the Budget Plan (RAB) according to the standards set by the Government. RAB is a calculation of the costs needed for a plan related to the implementation of a particular development or project (Pusdiklat SDA & Konstruksi (b), 2017). The RAB provides an overview of the costs required to build a structure or construction (Pusdiklat SDA & Konstruksi (a), 2017). In addition, from the RAB calculation, it can also be seen the building material needs, manpower to the schedule to finish a project.

Village Human Resources (HR) are needed who are capable and competent in making RAB. Rab is an important thing that must be controlled by village officers to achieve the quality, cost, and time (Ulfiyati, Amin, R, & Utami, 2018). The roles and responsibilities of making RAB are usually only given to the field officer, who is the head of the development section. This of course is a problem in the implementation, considering the limited human resources villages that are capable of making RAB. Village human resources through village officer organizations and youth organizations (Karang Taruna) are the pillars of the strength of village development (Humas Setda Rembang, 2014). Participatory development for public interest by involving the community (Akbar, Suprpto, & Surati, 2018), including elements of youth organizations to support work unit village officers both in the process of planning, the construction of the until to the stage supervision of any project. So that the role and ability of village officers and youth organizations in terms of RAB becomes important as the key to improving village infrastructure development.

The problem faced by Kedungrejo Village, Rembang District, Rembang Regency at this time is the lack of human resources who are able and understanding in making the RAB for physical projects.

Where in a development plan financed with village funds, administratively and technically must be equipped with RAB documents. The limitations of human resources, both in terms of quality and quantity, cause problems during the implementation of activities in the form of revising the RAB document which is quite time-consuming. The misunderstanding factor in making and reading design drawings is one of the early indications of difficulties that are often experienced by village officers (Irwansyah, Irawan, & Isma, 2019). The difficulty in calculating the volume is also another problem in making RAB. The existence of these difficulties is the basis for conducting technical guidance for making RAB for village officers and youth organizations.

With the increase in the role of village officers and youth organizations through the technical guidance on making RAB in Kedungrejo Village, it is expected to increase the capacity of village human resources in making RAB. In the future, village officers, and youth organizations are expected to be able to make RAB independently. Furthermore, youth organizations can also play an active role as a technical team in planning and supervising village development projects. So that village development activities can run smoothly, in an orderly, transparent, participatory, and accountable manner (Nurfaisal, Mutiarin, & Sakir, 2019).

LITERATURE REVIEW

Improving the capacity of village human resources in supporting infrastructure development is important in the context of accelerating the preparation of human resources capable of carrying out field technical activities. Village human resources in the form of village officers and youth organizations can become the backbone of the village in supporting village development. Youth organizations can play a role in facilitating village youth to improve their skills and expertise in certain fields (Suprayoga, Iswoyo, & Syahrial, 2016). According to Rahmi et al., (2019), youth organizations also have a social responsibility role in implementing development for the welfare of the community. In terms of village infrastructure development, the role of youth organizations is vital to support the planning, construction, and supervision of physical development projects. Youth organizations can be trained to make design drawings of buildings or structures and calculate RAB so that they can help develop the ability and empowerment of youth organizations.

RAB is one of the instruments in the development of village physical infrastructure. Through RAB, you can know the details of planning a project including the costs and time required to finish the project. Dagustani and Kurniawan (2016), provided RAB training for Neglasari Village officers, Bandung City. This training is intended to help meet the needs of village officers in making RAB. After participating in this training, it was concluded that participants can understand and calculate the volume, unit price analysis, and calculate RAB. In addition, this training also obtained an understanding of principles in calculating RAB between interested parties.

Ulfiyati, Amin, R, & Utami, (2018) also conducted training for the preparation of RAB for infrastruc-

ture projects for village officers. The training was held in Karangbendo Village, Rogojampi District, Banyuwangi Regency. The purpose of this training is to assist village officers in calculating RAB for building projects, roads, and canals by applicable standards. This training resulted in an increase in the understanding and ability of village officers in making RAB. Furthermore, an understanding and common perception were also obtained in calculating the RAB for village officers. Furthermore, with an increase in the capacity of village officers, it can support the infrastructure program proposed by the village.

Irwansyah, Irawan, & Isma, (2019), assisted in making designs and RAB for gampong officers and youth organizations. Community partnership program activities were carried out in Kuala Geulumpang Village, Julok District, East Aceh Regency. This community service activity is intended to help prepare technical personnel from both village officers and youth organizations to be able to design drawings and RAB for gampong infrastructure. As well as preparing human resources capable of supervising and evaluating technical projects. The results of the mentoring show that this kind of activity can help facilitate the gampong government regarding physical infrastructure projects that are being planned.

MATERIAL AND METHOD

The participants who took part in the technical guidance for making RAB in Kedungrejo Village were 10 people consisting of 8 village officers and 2 members of youth organizations. This series of activities lasted for 1 day and was carried out at the Kedungrejo Village Office. This technical guidance activity was carried out by a team of 2 lecturers and assisted by 2 students as a support team. The stages of this community service activity are divided into two stages, that is the introduction and socialization stage, and the implementation stage as shown in Figure 1.

The introduction and socialization stage is carried out by analyzing community needs related to village development which is a priority for the preparation of the RAB. This activity was carried out by direct site survey to determine the conditions and needs of the field in Kedungrejo Village. After that, socialization was carried out with partners in terms of the idea of strengthening the role of village officers and youth organizations as well as improving the quality of village human resources through technical guidance for making RAB. After conducting the socialization, it was followed by coordinating the determination of the schedule, location, facilities, and infrastructure in the implementation of technical guidance. Due to the Covid-19 pandemic, extra coordination is needed to carry out the technical guidance for making RAB, which continues under strict health protocols.

The second stage is the implementation of technical guidance, which is the preparation and exposure of materials regarding the making of RAB for the physical project of concrete rebate pavement. Technical guidance activities are carried out to convey material on the basics of preparing RAB as an initial stage that must be met. Moreover, the process of question and answer and discussion brings up the occur-

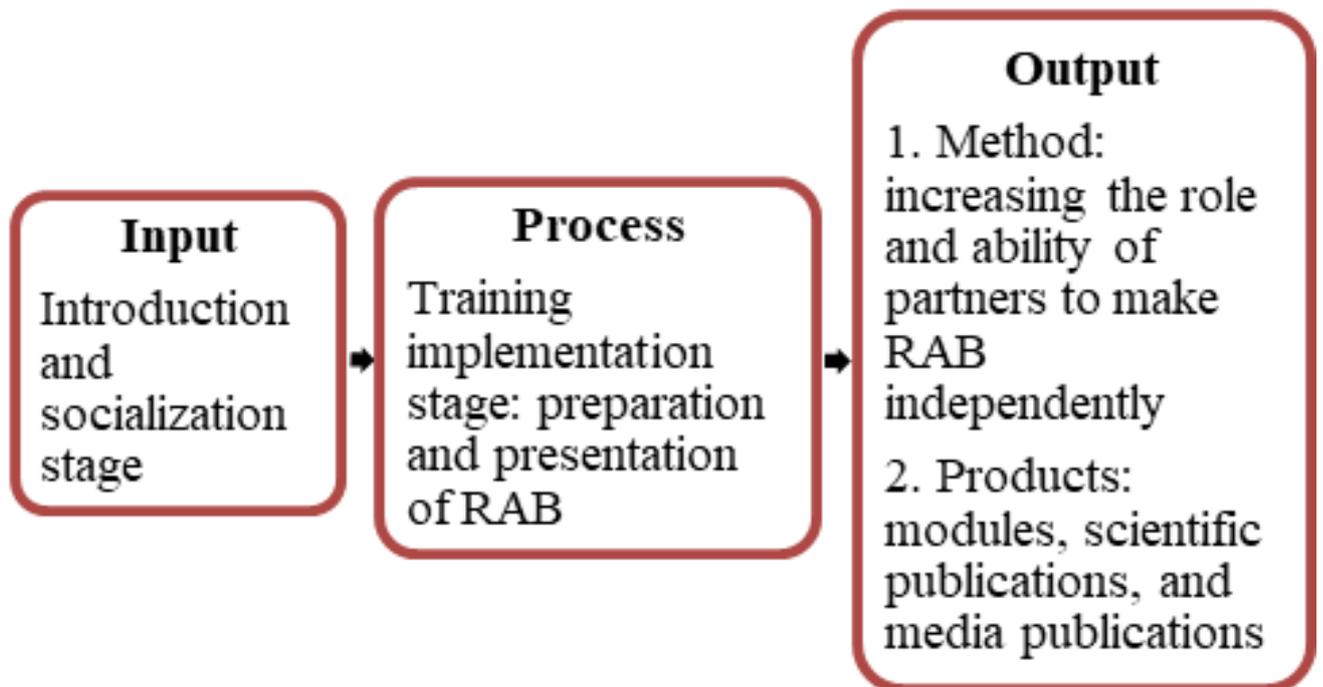


Figure 1.
The Flow of Stages of Community Service.

rence of two-way communication and understanding of the specifics of the material presented. The speech method combined with mentoring by the community service team assisted by students and the provision of the RAB calculation module is expected to optimize the overall presentation of the material. The next stage is the practice of making RAB for the physical project of concrete rebate pavement by providing direct assistance to each participant. Students help provide intensive mentoring assistance to each participant to ensure the material provided has been conveyed, and to determine the participant's level of understanding. It is hoped that with the direct practice simulation, participants can understand the calculation flow and make RAB independently.

RESULT AND DISCUSSION

From the surveys that have been carried out on village officers and youth organizations, information is obtained that the preparation of the RAB is still quite difficult if it is carried out independently without any assistance. Especially for the calculation of RAB for village physical infrastructure where many work items require unit price analysis. The limitations of human resources in understanding the RAB resulted in the preparation of the RAB being less than optimal, for example, errors, corrections, and revisions in the field were quite time-consuming.

From these conditions, technical guidance is focused on assisting in the preparation of the RAB for village infrastructure projects. This training is needed by the village to support the smooth development of village infrastructure projects. As for the preparation of the RAB, the village party is usually handed over to one person in charge of a third party, so it is deemed necessary to increase the role and quality of human resources in the preparation of the RAB. From these problems, then a description of the problem, solutions offered, and indicators of the achievement of community service can be seen in Table 1.

After understanding the focus and targets of community service activities, the planned series of activities are then formulated to optimize the partner's ability in making RAB. The description of the rundown and partner involvement in the community service can be seen in Table 2.

The introduction and socialization stage was carried out on September 4, 2020, by visiting the Kedungrejo Village Office. From the initial discussion activities, information was obtained regarding the priority village physical development plans that became the needs of the community. It is known that the access road to the village mosque is one of the main priorities to be proposed in village development planning. This activity is proposed considering the community's need for an access road to the mosque to be vital considering the condition of the existing road. The convenience factor for going to the mosque is a consideration, especially when entering the rainy season. So the planning of the access road to the village mosque is the focus of the technical guidance for the preparation of the RAB at this community service. The description of the condition of the existing road to the Kedungrejo Village Mosque can be seen in Figure 2.

Table 1.
Problems, Solutions, and Achievement Indicators.

No	Description	Solution	Indicator
1	Lack of understanding of RAB	Explanation to partners regarding the basics of calculating RAB	Partners understand the basics of calculating RAB
2	RAB is still quite difficult and only a few village human resources understand it	Technical guidance and assistance in calculating RAB to partners	Partners can make RAB accompanied directly by the community service team

Table 2.
Rundown and Partner Involvement in The Community Service.

No	Date	Detail of activities	The Number of participants	Partner Engagement
1	Sept 4-11, 2020	Introduction and socialization	4 participants	Active in socialization activities
2	Sept 28, 2020	Preparation and coordination of community service	By community service team	-
3	Oct 18, 2020	Preparation of training materials	By community service team	-
4	Nov 5, 2020	Technical guidance and assistance in calculating RAB	10 participants	Active in listening to the basics of RAB and able to practice directly making RAB



Figure 2.
Existing Condition of Access to Kedungrejo Village Mosque.

Continuing the previous introduction and socialization stages, on September 11, 2020, the community service team again communicated and coordinated with partners to determine the time, place, and scope of the activities to be presented at the community service. Besides that, data collection is also carried out on the number of participants who are expected to be able to participate in technical guidance activities. Information was obtained regarding the number of participants who are planning to be able to participate in this technical guidance for making RAB. The documentation of the introduction and socialization stage is shown in Figure 3.



Figure 3.
Introduction and Socialization Stage

Furthermore, on September 28, 2020, preparations and coordination with partners related to the administration and technical requirements needed in technical guidance activities were carried out. After the preparations were complete, on October 18, 2020, the community service team began compiling the technical guidance module for making RAB. The module aims to facilitate the community service team in presenting the material and assisting partners in understanding the RAB. The modules that have been compiled have been adapted to the scope of work on the construction of the concrete rebate pavement access to the Kedungrejo Village Mosque. Inside the module is also equipped with a simple basic RAB theory and analysis of unit prices.

On November 5, 2020, community service activities were carried out in the form of technical guidance on making RAB for village officers and youth organizations. This activity was held at the Kedungrejo Village Hall, Rembang District, Rembang Regency, which was attended by 8 village officers and 2 youth organizations. The technical guidance activity starts at 08.00 WIB until 12.00 WIB while still implementing health protocols. Before the community service activity began, masks and hand sanitizers were donated to partners as a form of implementing health protocols during the Covid-19 pandemic. At the beginning of the technical guidance, a pre-test was conducted with partners related to the RAB topic. The results of the pre-test were used to determine the partners' understanding of the RAB topic. The donation of masks and hand sanitizer by the community service team to partners can be seen in Figure 4.

The main event in this community service is the presentation and assistance in making RAB. Partners involved in this activity listened to the presentation on the basics of preparing RAB, calculating the volume or Take of Sheet (TOS), analysis of unit prices, calculating RAB, as well as calculating the needs for building materials and manpower. Besides that, participants also actively participate in the discussion and question and answer activities related to the topics that have been presented. Some of the things that the community service team and partners focus on is understanding the calculation of TOS. TOS calculation is the first step in making RAB. In the TOS calculation, partners are required to understand the volume of each work item based on design drawings. The TOS calculation can be seen in Figure 5. At this stage, activities become more lively with assistance from the community service team and direct questions and answers. This kind of discussion activity can help break the ice so that it is not one way and ensure the extent to which partners understand the topics and practice the theory that has been presented.

After the RAB presentation, the next step is to practice directly calculating RAB by partners who are accompanied by the community service team. Several computers are provided to help facilitate partners in making RAB. Assistance is carried out intensively to partners to ensure that the steps contained in the theory can be applied to the stages of making RAB. At this stage, the community service team was also assisted by two final year students of the Department of Civil Engineering, Faculty of Engineering, the University of Semarang as a support team for this training. Students play a

role in helping the community service team by providing direct assistance to partners, starting from calculating the TOS, and unit price calculations to making RAB. Several participants also seemed enthusiastic in asking questions when they had difficulty understanding the RAB or using computers.



Figure 4.
Donation of Masks and Hand Sanitizer.

Kabupaten : Rembang		Jenis Prasarana :																																			
Kecamatan : Rembang	<i>Take Of Sheet</i>	Lokasi : RT 2 RW 2																																			
Desa : Kedungrejo		Volume :																																			
1 Rabat Beton																																					
<table border="1"> <thead> <tr> <th>Panjang/P</th> <th>Lebar/L</th> <th>Tebal</th> <th>Volume = Panjang x Lebar x Tebal</th> <th>Kebutuhan Plastik = P x L</th> </tr> </thead> <tbody> <tr> <td>64</td> <td>2.5</td> <td>0.12</td> <td>19.2 m³</td> <td>160 m²</td> </tr> <tr> <td>21</td> <td>2.5</td> <td>0.12</td> <td>6.3 m³</td> <td>52.5 m²</td> </tr> <tr> <td>11</td> <td>1.8</td> <td>0.12</td> <td>2.376 m³</td> <td>19.8 m²</td> </tr> <tr> <td>25</td> <td>1.8</td> <td>0.12</td> <td>5.4 m³</td> <td>45 m²</td> </tr> <tr> <td>121</td> <td>Jumlah</td> <td></td> <td>33.276 m³</td> <td>277.3 m²</td> </tr> <tr> <td></td> <td></td> <td></td> <td>dibulatkan =</td> <td>291 m²</td> </tr> </tbody> </table>	Panjang/P	Lebar/L	Tebal	Volume = Panjang x Lebar x Tebal	Kebutuhan Plastik = P x L	64	2.5	0.12	19.2 m ³	160 m ²	21	2.5	0.12	6.3 m ³	52.5 m ²	11	1.8	0.12	2.376 m ³	19.8 m ²	25	1.8	0.12	5.4 m ³	45 m ²	121	Jumlah		33.276 m ³	277.3 m ²				dibulatkan =	291 m ²		
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Figure 5.
TOS Calculation.

Several questions related to the calculation of the volume, the determination of the coefficient of unit price analysis, and the price of materials are often asked by partners. The community service team assists partners in understanding the calculation and information on material prices. The use of computers to calculate RAB is also a problem for partners. This is because some partners are still not used to it, so they experience limitations in using computers, especially in connecting one calculation to another. The output of this technical guidance is then used as a parameter to determine the level of understanding of partners through the distribution of questionnaires. Documentation of the presentation, guidance and practice of making RAB, and documentation on technical guidance with partners can be seen in Figure 6, Figure 7, and Figure 8 respectively. The results of the RAB calculations are shown in Figure 9.



Figure 6.
Presentation on RAB.



Figure 7.
Guidance and Practice of Making RAB.



Figure 8.
Documentation on Technical Guidance for Making RAB.

RENCANA ANGGARAN BIAYA (RAB)

DESA : KEDUNGREJO NO. RAB : 01
 KECAMATAN : REMBANG BIDANG : SARANA PRASARANA
 KABUPATEN : REMBANG KEHATAN : PEMBANGUNAN JALAN RABAT BETON
 PROVINSI : JAWA TENGAH DIMENSI : P= 85 M x L = 2,50 M x T = 0,12 M
 LOKASI : RT 2 RW 2 : P= 36 M x L = 1,80 M x T = 0,12 M

URAIAN	Volume	Satuan	Harga Satuan Rp.	Jumlah Harga Rp.	Harga Total
a	b	c	e	f = b x e	g
1. BAHAN					
1.1 PPC 40 Kg	293	Zak	52,000	15,236,000	
1.2 Batu pecah 1/2	25	M3	290,000	7,250,000	
1.3 Pasir Beton (manjil)	17	M3	560,000	9,520,000	
1.4 Kayu Perancah	1	M3	3,000,000	3,000,000	
1.5 Paku Biasa 2" - 5"	9	Kg	22,000	198,000	
1.6 Papan Rando untuk diletasi	24	Lembar	9,000	216,000	
1.7 Plastik Cor	291	m2	7,000	2,037,000	
1.8 Pedel	6	M3	200,000	1,200,000	
1.9 Minyak Bekisting	3	Ltr	15,000	45,000	
1.10 Air	62,614	tr	25	1,565,350	
Sub Total 1)					40,267,350
2. ALAT					
2.1 Benang	1	Bh	10,000	10,000	
2.2 Ember Cor	12	BH	11,000	132,000	
2.3 Sewa Motor + Mobilisasi	5	Hr	300,000	1,500,000	
Sub Total 2)					1,642,000
3. UPAH					
3.1 Tukang	17	HOK	100,000	1,700,000	
3.2 Pekerja	97	HOK	90,000	8,730,000	
Sub Total 3)					10,430,000
4. OPERASIONAL					
4.1 Ketua TPK	1	Orang	500,000	500,000	
4.2 Sekretaris TPK	1	Orang	450,000	450,000	
4.3 Anggota TPK	1	Orang	350,000	350,000	
4.4 Cetak dan penggandaan	1	pkt	250,000	250,000	
4.5 Penyusunan Desain Rab	1	ls	350,000	350,000	
4.6 Papan Nama Kegiatan	1	Unit	200,000	200,000	
4.7 Prasasti	1	Unit	350,000	350,000	
Sub Total 4)					2,450,000
Biaya 1+2+3+4					54,789,350

Figure 9.
RAB Calculations.

Based on the results of the pre-test given at the beginning of the community service, it seems that there are still few partner members who can calculate the RAB. This is also in line with the minimal level of partner involvement in village physical development projects. The lack of human resources who are capable and understand the RAB also has an impact on the role of partners in village development projects. This can be seen from the still at least 20% of participants who have been involved in the construction of physical projects. Meanwhile, only 10% of participants have ever calculated RAB, as shown in Table 3.

Table 3.
Pre-Test Questionnaire Results.

No	Question	Answer (%)	
		Yes	No
1	Have you ever participated in a village physical development project?	20	80
2	Have you ever calculated RAB before?	10	90
3	Can you use a computer (Ms. Excel) to calculate RAB?	10	90
4	Can you understand the design drawings?	20	80
5	Are you interested in participating in RAB training?	100	0

The results of the evaluation conducted by the community service team at the end of the technical guidance for making RAB showed that there was an increase in understanding of the basics of calculating RAB for the participants. The questions in the evaluation questionnaire can be seen in Table 4.

Table 4.
Evaluation Questionnaire Results.

No	Question	Answer (%)	
		Yes	No
1	Do you understand the calculation of the volume?	70	30
2	Do you know how to calculate unit price analysis on TOS?	60	40
3	Do you know the total amount of building materials and manpower required for this project?	70	30
4	Do you understand the purpose of calculating the RAB (concrete rebate pavement project for access to the mosque)?	70	30
5	Are you sure and able to calculate similar RAB independently?	50	50

Based on Table 4, it is known that 70% of participants can understand the calculation of the volume of work, the need for building materials and manpower as well as the calculation of RAB. While the part that is considered difficult according to the participant's view is the unit price analysis. In the unit price analysis, participants are required to be able to determine the unit price coefficient as in the SNI unit price analysis of the Ministry of Public Works.

After participating in the technical guidance for making RAB, it was found that 50% of participants were confident and able to independently make RAB for similar projects. While the remaining 50% felt they did not dare to make RAB independently and still felt the need for help so that there were no errors in the calculations. Looking at the comparison of the results of the questionnaire before and after the technical guidance as shown in Table 3 and Table 4, it can be seen that the level of understanding of partners has increased based on indicators number 2 and 4 as shown in Figure 10.

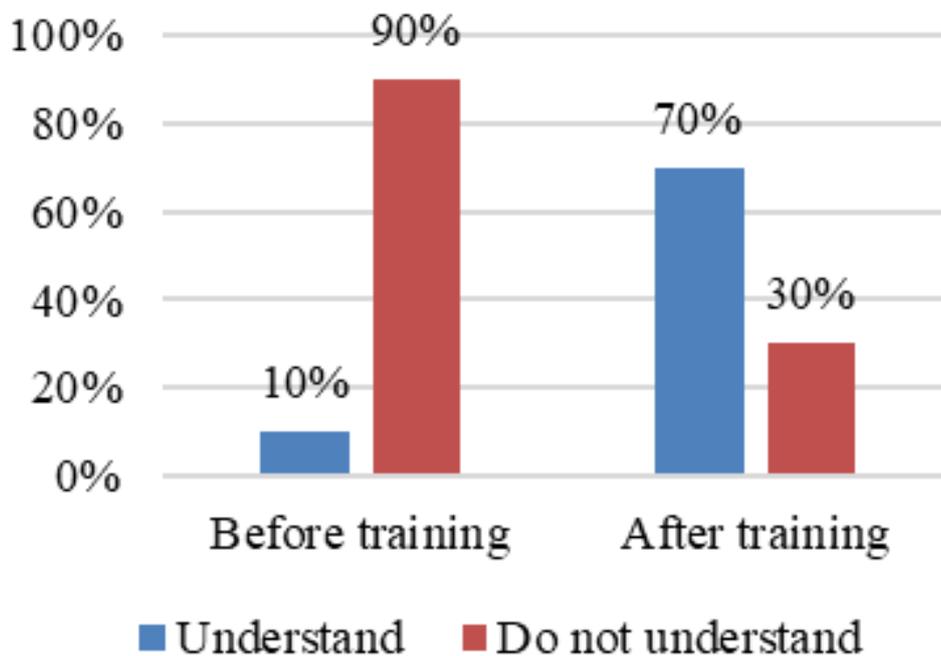


Figure 10.
Partner's Level of Understanding in Calculation of RAB.

As a follow-up to this technical guidance, the community service team monitored the plan for the construction of a concrete rebate pavement. Monitoring is carried out in the form of providing suggestions and input so that the plans that have been carried out can be included in the discussion of the village development plan deliberation (Musrenbangdes). Finally, in April 2021, the construction project for the concrete rebate pavement access to the Kedungrejo Village Mosque could be implemented. The realization of the project is shown in Figure 11.



Figure 11.
Realization of the Access Road to The Kedungrejo Village Mosque.

CONCLUSION AND RECOMMENDATION

The implementation of community service for technical guidance in making RAB has run successfully. Through this community service, participants from village officers and youth organizations can increase their ability and understanding of making RAB, especially for physical infrastructure projects. In addition, village officers and youth organizations also gain additional knowledge in terms of making RAB optimize the realization of village development. On the other hand, there is also an increase in the quality and quantity of village human resources capable of calculating RAB.

As a suggestion, it is hoped that for future village development, there will be an increase in the role of village officers and youth organizations in planning, construction, and supervising village physical development projects. Furthermore, youth organizations can also be empowered in village physical infrastructure development projects by capturing potential private funding through corporate social responsibilities from companies around Kedungrejo Village.

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