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Analysis of Domestic Component Level (TKDN) and Company Benefit Weight (BMP) in Construction Projects

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Abstract. *In the world of construction projects, good project management is required, including the use of domestic products. The government encourages the use of domestic products through the program to increase the use of domestic production (P3DN). The amount of domestic content in commodities, services, and the combination of products and services can be used to measure the use of domestic products. This quantity is called the Domestic Component Level (TKDN). Company Benefit Weight (BMP) is an award given to industrial companies that invest and produce in Indonesia. This research aims to calculate the amount of TKDN and BMP for the Muhammadiyah Ahmad Dahlan Kediri Hospital construction project. With reference to the Ministry of Industry of the Republic of Indonesia's Regulation No. 16 of 2011 regarding Provisions and Procedures for Calculating Domestic Component Levels, the research employs a descriptive quantitative methodology to compute and analyze Domestic Content Levels (TKDN). The results of analytical calculations show that the TKDN percentage is 69.65% and the BMP percentage is 3%. This research concluded that the total TKDN and BMP was 72.65%, thus meeting the minimum limit for the sum of TKDN and BMP of 40%.*

Keywords: *Domestic Component Level, Company Benefit Weight, Construction Projects*

INTRODUCTION

A series of activities that can produce unique products, services, or results is one definition of a project (Putra et al., 2019). The project aims to serve the needs of customers or service users (Utama & Syairudin, 2020). To carry out these construction projects, good project management is needed. Construction management, or project management, refers to how project managers can apply the day-to-day resources available in a construction project appropriately. The resources used in a construction project can be classified into labor, materials, equipment, funds, and techniques (Ervianto, 2023). The use of domestic products is one component of project management that must be considered. Domestic products are goods and services made by domestic industry, including design and engineering. The quantity of domestic goods and services, or a combination of goods and services, can be used to gauge the use of domestic products. This quantity is called the Domestic Component Level (TKDN). The purpose of this research is to investigate how TKDN is used in Indonesian construction project

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management. One of the construction projects that is interesting to research is the Muhammadiyah Ahmad Dahlan Kediri Hospital construction project.

THEORITICAL REVIEW

Provider of Construction Goods and Services

The government needs goods and services that meet its wishes and objectives, so the commitment-making official (PPK) represents the government in searching for and determining providers. We work to agree on price, time, and quality that is fair, efficient, and of the highest caliber using the techniques and procedures specified by PPK (Situmeang, 2017). Purchasing goods and services is not confined to a particular set of rules. This is because the series of activities involved in selecting and purchasing goods and services is very complex, including the stages of budget design, management of available funds, implementation of purchases by a predetermined budget, as well as accountability for the results of these purchases both from an administrative and technical perspective (Faisal et al., 2017). Construction service providers have other names, such as contractors or contractors, with the difference that contractors are usually managed individually, while contractors are managed collectively by groups of people or business entities. For Indonesia, the building industry is a crucial service sector. One of the service industries in Indonesia that has a lot of forward and backward linkage value is construction services, which shows its importance (Nugraheni et al., 2021). To carry out a construction project, the planning or workmanship cannot be separated from several parts, such as materials and labor. The use of simple materials, which previously could only be used in one construction process, will be more profitable if done with current technology. Therefore, the use of simple materials in the construction process is very profitable, especially if the materials used are made domestically. The construction workforce includes every individual who participates in project execution, from professionals to manual laborers. Labor allocation needs to be arranged according to specific skills to ensure that work results are more effective and efficient (Putrianti, 2021).

Unit Price Analysis of Work

In the construction context, costs play an important role. Inaccurate cost estimates can hurt the project (Riwibowo et al., 2023). Therefore, the importance of unit price analysis cannot be ignored to ensure the smooth running of the project, especially in terms of cost management. Unit price analysis is a measure that shows the unit value of materials, tools, and labor costs. It can be used as a basis for planning or pooling job costs. According to the Minister of Public Works and Public Housing Regulation Number 8 of 2023 concerning Guidelines for Preparing

Cost Estimates for Construction Work in the Public Works and Public Housing Sector, the basic unit price (HSD) is the element unit price of the work unit price per certain unit. According to (Diah, 2021), in the basic unit price (HSD), there are several components, namely HSD for materials, HSD for tools, and HSD for labor. The unit price calculation for work can be calculated as follows:

$$AHSP = (harga\ satuan\ upah\ pekerja\ x\ koefisien) + (harga\ satuan\ bahan\ x\ koefisien) + (harga\ satuan\ alat\ x\ koefisien) + (biaya\ umum\ dan\ keuntungan) \quad (1)$$

Technical specifications

As time goes by, humans make construction materials from industrial products or human work derived from natural resources. Apart from that, humans use objects available in nature as materials for building infrastructure, such as stone, soil, and wood. After finding excavated materials, these materials can be used to make items or tools that support buildings, such as metal, and process the excavated objects (Tanubrata, 2015). Technical specifications are very important in construction work because they determine the quality, quantity, and cost of the materials and work required.

Budget Plan

In the world of construction, the volume measurement process is a critical aspect. Mistakes in calculating the volume of material or work can lead to significant financial losses (Novita & Pangestuti, 2021). The volume of work on a construction project is needed to calculate the planned cost budget (RAB), which will later be multiplied by the unit price of the work. Work unit price (HSP) is the result obtained from a calculation process that involves various factors. These factors include the assumptions made, the sequence of work activities, and the application of labor, material, and equipment costs (Diah, 2021). The cost budget plan (RAB) is a document that contains estimates of the costs required to complete project construction. Computed from the work unit pricing (AHSP) analysis, RAB is the result of multiplying the work volume by the work unit price.

Domestic Component Level (TKDN)

According to Government Regulation No. 29 of 2018 concerning Industrial Empowerment, domestic products are goods and services, that are made or carried out by companies that invest and operate in Indonesia, use all or part of Indonesian workers, and process using raw materials or components that are entirely or some of it comes from within the country. What is known as the domestic component level (TKDN) is the percentage of

domestic content that is found in products, services, or both. The amount of the domestic component in any commodity or service determines the domestic component level (TKDN) (Dharmayanti et al., 2022). Industrial companies that are innovative and produce in Indonesia are given a value known as the company's benefit weight (BMP). The TKDN and BMP values are used to determine whether domestic products must be used.

Users of domestic products are required to use domestic products with a combined TKDN and BMP value of at least 40% (forty percent) when procuring goods or services, in accordance with Government Regulation Number 29 of 2018 concerning Industrial Empowerment. In addition, at least 25% (or twenty-five percent) of the total value of goods must be produced domestically.

Construction projects use a combination of products and services to determine the TKDN value. The combined components of products and services originating from and carried out within the country include the use of basic materials, plans, and engineering, which includes components of manufacture, processing, integration, and completion of work. In addition, services that use labor, including experts, work tools, and supporting facilities, up to final delivery (Kementerian Perindustrian Republik Indonesia, 2022). The TKDN value for an item or industrial product based on a TKDN certificate can be seen on the Ministry of Industry's website for Increasing the Use of Domestic Production (P3DN). According to Regulation of the Minister of Industry of the Republic of Indonesia No. 16 concerning Provisions and Procedures for Calculating the Level of Domestic Components, which states that second-level goods produced by domestic producers are assessed as 100% natural materials such as sand and gravel. For TKDN services such as domestic workers, it is stated as 100%, conversely, for TKDN services for foreign workers, it is stated as 0%. Meanwhile, the determination of domestic components for work equipment or work facilities is presented in Table 1.

Table 1 Domestic Components for Work Equipment/Work Facilities

MADE IN	OWNED	KDN
DN	DN	100%
DN	LN	75%
DN	DN+LN	75% + (25% x Proportional Share DN)
LN	DN	75%
LN	LN	0%
LN	DN+LN	Proportional Share DN

Description:

DN = Dalam negeri

LN = Luar negeri

KDN = Komponen dalam negeri

An example of a recapitulation of the combined TKDN assessment of goods and services is presented in Table 2.

Table 2 Format for Recapitulation of Composite TKDN Calculation for Goods and Services

Description		Combined Value of Goods and Services (Rp)		TKDN (%)		
		KDN	KLN	TOTAL (Ribu Rp)	Goods/ Services	Combined
Goods						
I.	Direct Materials (Raw Materials)	(1A)	(1B)	(1C)	(1D)	
II.	Equipment (Finished Goods)	(2A)	(2B)	(2C)	(2D)	
A.	Sub Total Items	(3A)	(3B)	(3C)	(3D)	
Jasa						
III.	Project Management and Engineering	(4A)	(4B)	(4C)	(4D)	
IV.	Work Tools/Work Facilities	(5A)	(5B)	(5C)	(5D)	
V.	Construction and Fabrication	(6A)	(6B)	(6C)	(6D)	
VI.	General Services	(7A)	(7B)	(7C)	(7D)	
B.	Sub Total Services	(8A)	(8B)	(8C)	(8D)	
C.	Total Cost (A+B)	(9A)	(9B)	(9C)	(9D)	(9E)

From the table that has been presented, the following calculations can be obtained:

$$(9E)\ \%TKDN = \frac{Total\ combined\ value\ of\ KDN\ (9A)}{Total\ combined\ costs\ (9C)} x100\% \quad (2)$$

Company Benefit Weight (BMP)

BMP is the compensation value given to industrial companies that invest and produce in Indonesia. The number of TKDN and BMP must reach 15% (fifteen percent). If the total yield is 40% (40 percent), domestic products must be used. The calculation of the weight of company benefits (BMP) is presented in Table 3.

Table 3 BMP Calculation Recapitulation Format

NO	FACTORS DETERMINING COMPANY WEIGHT	CRITERIA	WEIGHT	MAXIMUM WEIGHT LIMIT	BMP VALUE (%)
I	Empowering Micro and Small Enterprises including Small Cooperatives through partnerships	Minimum IDR 500 million	5%	30%	4,50%
		Each multiple is IDR 500 million	5%		
II	Ownership of certificates: occupational health and safety (SMK3/OHSAS 18000) (30%);	Don't Have	0%	20%	3,00%
		Have	6%		
	environmental management (ISO 14000) (70%)	Don't Have	0%		
		Have	14%		

NO	FACTORS DETERMINING COMPANY WEIGHT	CRITERIA	WEIGHT	MAXIMUM WEIGHT LIMIT	BMP VALUE (%)
III	Community Development	Minimum IDR 250 million	3%	30%	4,50%
		Each multiple is IDR 250 million	3%		
IV	After Sales Service Facilities	Minimum investment IDR 1 billion	5%	20%	3,00%
		Each multiple of IDR 1 billion	5%		
Total				100%	15%

RESEARCH METHODOLOGY

This research is a descriptive quantitative study that aims to calculate and analyze the domestic content level (TKDN) in the Muhammadiyah Ahmad Dahlan Kediri Hospital construction project. Quantitative research prioritizes empirical data that can be measured with numbers or facts (Zikriadi et al., 2023). This research uses quantitative descriptive analysis to analyze the data, namely by calculating and interpreting the TKDN value of labor, the TKDN value of materials, and the TKDN value of equipment based on the formula stipulated by the Minister of Industry of the Republic of Indonesia No. 16 of 2011 concerning Provisions and Procedures for Calculating Domestic Component Levels. This research only calculates structural work without involving architectural, mechanical, electrical and plumbing (MEP) work on construction projects. The research flow chart is shown in Figure 1.

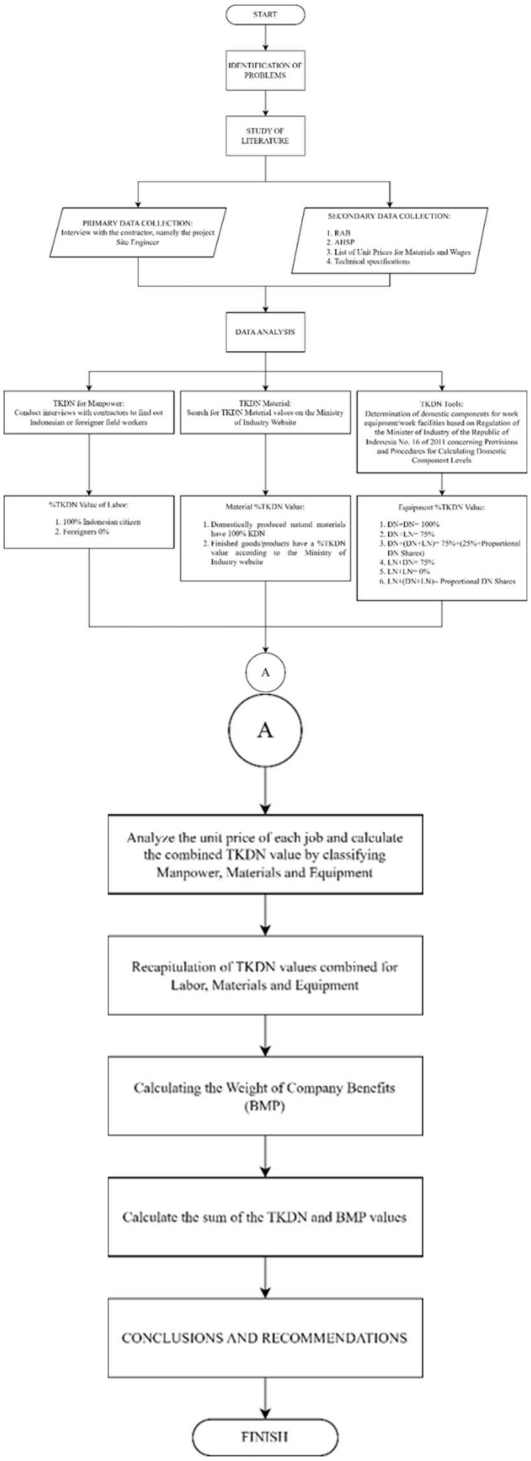

Figure 1 Flowchart

RESULTS AND DISCUSSION

Domestic Component Level

The calculation at the domestic component level (TKDN) includes several calculation components such as labor, materials, and tools. These components can be obtained from budget plan (RAB) data obtained from the Muhammadiyah Ahmad Dahlan Kediri Hospital

construction project. The TKDN calculation refers to the regulation of the Minister of Industry of the Republic of Indonesia No. 16 concerning Provisions and Procedures for Calculating Domestic Component Levels.

The TKDN calculation in the RAB is a combined TKDN calculation for goods and services by classifying TKDN components such as labor, materials, and tools. In the Muhammadiyah Ahmad Dahlan Kediri Hospital construction project, there are several sub-works calculated in this research, including:

1. Preparatory Works, Infrastructure and Support
2. Foundation Works
3. Ground Works
4. Reinforced Concrete Works
5. Roofing Works

In the sub-jobs, there are also work items for each sub-job. Each work item is priced per unit through AHSP so that the price per unit value for the work is obtained.

In calculating work unit price analysis (AHSP) there are several components such as labor, materials, and tools. these components. Each component has a TKDN value based on the previous explanation so that the domestic component cost (KDN) for one work item is obtained. An example of work unit price analysis (AHSP) for concrete work items using Ready Mixed and concrete pumps is in Table 4.

Table 4 TKDN Calculation for Concrete Work Items Using Ready Mixed and Concrete Pumps

No	Description	code	Unit	Koef.	Unit Price	Total Cost	Information	TKDN	Cost	
									KDN	KLN
					Rp	Rp			Rp	Rp
a	B	c	d	e	f	g=e x f	h	i	j= g x i	k= g - j
A	**MANPOWER**									
	Labor	L.01	OH	1,0000	92.724,60	92.724,60	WNI	100,00 %	92.724,60	0,00
	Bricklayer	L.02	OH	0,2500	107.724,60	26.931,15	WNI	100,00 %	26.931,15	0,00
	Craftsman	L.03	OH	0,0250	112.724,60	2.818,12	WNI	100,00 %	2.818,12	0,00
	Foreman	L.04	OH	0,1000	117.724,60	11.772,46	WNI	100,00 %	11.772,46	0,00
					TOTAL EMPLO	**134.246,33**		**TOTAL KDN**	**134.246,33**	

No	Description	code	Unit	Koef.	Unit Price	Total Cost	Information	TKDN	Cost	
									KDN	KLN
					Rp	Rp			Rp	Rp
	YMENT WAGES							**POWER COSTS**		
B	**Material**									
	Ready mix K-350		m3	1,0200	926.900,00	945.438,00	PT. Uggul Jaya Beton	98,55 %	931.729,15	13.708,85
	TOTAL MATERIAL COSTS					**945.438,00**		**TOTAL COST OF KDN MATERIALS**	**931.729,15**	
C	**EQUIPMENT**									
	Concrete pumps and conveyors		m3	1,0000	80.000,00	80.000,00	LN+DN	75,00 %	60.000,00	20.000,00
						-				
	TOTAL EQUIPMENT COST					**80.000,00**		**TOTAL KDN EQUIPMENT COST**	**60.000,00**	
D	**Total manpower wages, material and equipment costs**				**(A + B + C)**	**1.159.684,33**				
E	**Overhead**			**0,0000**	**% x D**	**-**				
F	**Profit**			**0,0000**	**% x D**	**-**				
G	**Unit cost of work**				**(D + E + F)**	**1.159.684,33**		**TOTAL KDN COST**	**1.125.975,47**	

Table 7 consists of the components of labor, materials, and tools. Workers are Indonesian citizens (WNI) so the TKDN value is 100%. In terms of materials, there is ready-mix concrete K-350 from the company PT. Unggul Jaya Beton, to find out the TKDN value

for materials is on the Ministry of Industry website, so it is known that the TKDN value is 98.55%, the ready mix concrete TKDN certificate is shown in Figure 2.


P3DN DAFTAR INVENTARISASI BARANG/JASA PRODUKSI DALAM NEGERI

PENINGKATAN PENGGUNAAN PRODUK DALAM NEGERI

HOME TKDN IK REKAPITULASI FAQ REGULASI VIDEO REFERENSI

No.	Perusahaan	Kelompok Barang	Jenis Produk	Spesifikasi	Tipe	Merk	Nilai TKDN
1.	PT. Unggul Jaya Beton	Bahan Bangunan/Konstruksi	Beton Siap Pakai	Mutu Beton K100 s/d K500	Readymix	-	98.55%
2.	PT. Unggul Jaya Beton	Bahan Bangunan/Konstruksi	Paving	PxL : 21cm x 10.5cm; Tebal 6cm s/d 10cm; Mutu Beton K300 s/d K500	Block	-	98.51%

Figure 1 Ready Mix Concrete TKDN Certificate

The equipment uses concrete pumps and conveyors made abroad and owned domestically so that LN+DN has a TKDN value of 75%. The work unit price (HSP) and total domestic component costs (KDN) in one work item in Table 7 are IDR 1,159,684.33 and IDR 1,125,975.47, which will then be calculated by multiplying the volume for the cost budget plan (RAB).

In calculating the planned cost budget (RAB), the unit price of work (HSP) and the total cost of domestic components (KDN) will be calculated by multiplying the volume, where the total amount of HSP and KDN will later be calculated to obtain the TKDN percentage. The RAB calculation is presented in Table 5.

Table 5 Example of RAB Calculation for Ground Work

NO.	Works Description			Unit	Volume	Unit Price	Total	KDN UNIT PRICE	TOTAL TKDN
						(Rp.)	(Rp.)	(Rp.)	(Rp.)
a	b			c	d	e	f= d x e	G	h= d x g
3.	**GROUND WORK**								
1	Excavation of Pile Cap Foundation soil								
	-	Type PC.2 s/d Type PC.8		M3	563,82	109.445,07	61.707.698,48	86.141,07	48.568.356,56
	-	Type Pit Lift		M3	53,67	109.445,07	5.874.360,20	86.141,07	4.623.540,14
2	Tie Beam soil Excavation								
	-	Tie beam, type TB.1 s/d TB.9		M3	287,45	109.445,07	31.459.759,86	86.141,07	24.761.073,12
3	Solid sand backfill under the Pile Cap								

NO.	Works Description		Unit	Volume	Unit Price	Total	KDN UNIT PRICE	TOTAL TKDN
					(Rp.)	(Rp.)	(Rp.)	(Rp.)
a	b		c	d	e	f= d x e	G	h= d x g
	and Tiea Beam foundations, t = 10 cm							
	-	Type PC.2 s/d Type PC.8	M3	28,01	280.994,63	7.872.000,83	280.994,63	7.872.000,83
	-	Type Pit Lift	M3	2,90	280.994,63	815.249,71	280.994,63	815.249,71
	-	Tie beam, type TB.1 s/d TB.9	M3	18,36	280.994,63	5.158.984,06	280.994,63	5.158.984,06
4	K - 100 Concrete Work Floor under Pile Cap and Tie Beam foundation, t = 5 cm							
	-	Type PC.2 s/d Type PC.8	M3	14,01	1.098.997,35	15.394.080,93	988.804,99	13.850.574,01
	-	Type Pit Lift	M3	1,45	1.098.997,35	1.594.260,50	988.804,99	1.434.409,96
	-	Tie beam, type TB.1 s/d TB.9	M3	9,18	1.098.997,35	10.088.644,53	988.804,99	9.077.093,87
5	Sandfill and Floor Plate Work - 01, EL - 0.05 m							
	a.	Solid sand backfill under the floor plate, t = 10 cm	M3	109,80	280.994,63	30.852.366,95	280.994,63	30.852.366,95
	b.	K - 100 Concrete Work Floor, Under Floor Plate, t = 5 cm	M3	54,90	1.098.997,35	60.333.305,86	988.804,99	54.283.910,91
			Total Price Rp.			**231.150.711,92**	**Total KDN Rp.**	**201.297.560,13**

From the example table, it is known that the total amount is Rp. 231,150,711.92 and the KDN amount is Rp. 201,297,560.13 so that the percentage of TKDN on earthworks is as follows:

%TKDN = (Total of KDN) / (Total price amount) x100%

= Rp.201.297.560,13 / Rp.231.150.711,92 x100%

= 87,08% (2)

From all calculations for each sub-job, a recapitulation of the TKDN value calculations is presented in Table 6.

Table 6 Rekapitulation of TKDN Values

No	Works Description	Price (Rp)	KDN Price (Rp)	TKDN (%)
1	Preparatory Works, Infrastructure and Support	2.151.450.000,00	1.801.450.000,00	83,73%
2	Foundation Works	3.459.387.944,00	2.538.506.371,38	73,38%
3	Ground Works	231.150.711,92	201.297.560,13	87,08%
4	Reinforced Concrete Work	12.865.928.114,93	9.045.187.904,59	70,30%
5	Roofing Works	1.427.483.573,40	438.762.645,40	30,74%
	Total	**20.135.400.344,25**	**14.025.204.481,50**	**69,65%**

Table 6 presents a recapitulation of the TKDN value calculation for each sub-job in the RAB and the TKDN value obtained is 69.65%. The TKDN percentage is calculated in the following way:

%TKDN = (Total of KDN) / (Total price amount) x100%

= Rp.14.025.204.481,50 / Rp.20.135.400.344,25 x100%

= 69,65% (2)

Each sub-job in this project produces a different TKDN number. Roofing work has the lowest TKDN value, namely 30.74% because most of the components have not been registered on the Ministry of Industry website, which results in the TKDN value for this section being 0%, affecting the overall TKDN value. Meanwhile, earthworks have the highest TKDN value, namely 87.08%, even though the tools used have a TKDN value of 75% because they are made abroad and owned domestically. Preparatory, infrastructure and supporting work should have the highest potential TKDN value because on average it uses local, but has differences with earthwork because in preparatory, infrastructure, and supporting work there is equipment and work equipment in the form of tower crane rental, whereas in earthwork it is used work equipment in the form of an excavator where the price of a tower crane is more expensive than an excavator even though it has the same TKDN value, namely 75%.

Company Benefit Weight

The weight of the company's benefits was obtained by conducting interviews with the project party, namely the Site Engineer, and the company, namely the HRD of the company that provided contractor services on the Muhammadiyah Ahmad Dahlan Kediri Hospital Construction project. The weight of company benefits is presented in Table 7.

Table 7 Company Benefit Weight

NO	FACTORS DETERMINING COMPANY WEIGHT	CRITERIA	WEIGHT	MAXIMUM WEIGHT LIMIT	BMP VALUE (%)
I	Empowering Micro and Small Enterprises including Small Cooperatives through partnerships	Minimum IDR 500 million	0,00%	0,00%	0,00%
		Each multiple is IDR 500 million	0,00%		
II	Ownership of certificates: occupational health and safety (SMK3/OHSAS 18000) (30%);	Don't Have	0,00%	20,00%	3,00%
		Have	6,00%		
	environmental management (ISO 14000) (70%)	Don't Have	0,00%		
		Have	14,00%		
III	Community Development	Minimum IDR 250 million	0,00%	0,00%	0,00%
		Each multiple is IDR 250 million	0,00%		
IV	After Sales Service Facilities	Minimum investment IDR 1 billion	0,00%	0,00%	0,00%
		Each multiple of IDR 1 billion	0,00%		
Total				20,00%	3,00%

In Table 7 it is known that the BMP value obtained is 3%. Because when I conducted the interview the company only had occupational health, safety (SMK3), and environmental management (ISO 14001) certificates. For points number one, three, and four, the company does not yet have them.

CONCLUSION

Based on the results of research conducted on construction projects, it can be concluded that construction projects have a domestic component level (TKDN) value of 69.65% and have met the minimum TKDN value requirements, namely 25%. The company benefit weight (BMP) for construction service providers has a value of 3%. The sum of the TKDN and BMP values is 72.65%, thus meeting the minimum limit of 40%.

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