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ANALYSIS OF THE IMPACT OF TRANSPORTATION INFRASTRUCTURE DEVELOPMENT ON TRAFFIC PERFORMANCE IN NTB PROVINCE

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ABSTRACT

Transportation development is carried out with the construction of various infrastructures. In order to support the realization of safe and peaceful conditions, it is necessary to provide transportation infrastructure and facilities to support the acceleration of regional development, including underdeveloped areas and border areas. then the role of transportation is needed to bridge the gap and encourage the distribution of development results. Development of transportation infrastructure is also being carried out in West Nusa Tenggara Province, which is experiencing transportation development. It was noted that from 2016 to 2020 there were 49 infrastructure developments and developments in both the traffic and road transport sector as well as the ASDP sector. The purpose of this study was to evaluate and determine the impact of existing transportation infrastructure development in West Nusa Tenggara Province in the period 2016 to 2020 through aspects of benefits and traffic performance. The method used is quantitative by obtaining data which is then analyzed by gap analysis. The results of the study show that in the administrative aspect, the usability aspect, and the road performance aspect, it has a good impact on the community, even though in the road performance aspect there are several national roads that do not meet the network speed target.

Keywords**:** transportation program evaluation; transportation infrastructure; transportation

INTRODUCTION

Transportation is an important part of people's lives, because without transportation, other sectors cannot run well. Transportation becomes a node in connecting, binding and knitting various kinds of diversity and running the economic wheel. Transportation has a very broad scope because it covers all aspects of people's lives and the development of transportation is both in line with population growth and economic growth (Palilu 2019). Transportation development is carried out by the construction of various infrastructures, such as roads, terminals, ports, arrangements and various facilities to support an efficient, safe and smooth and environmentally sound transportation system (Kadarisman, Gunawan, and Ismiyati 2017). This efficient transportation system uses economic considerations as a reference in investing in transportation facilities and infrastructure. The development of various types of transportation infrastructure cannot be separated from regional planning and growth because it has a large role in supporting community activities. A good, planned and coordinated system will increase the effectiveness and efficiency of the urban transportation system. To support the realization of public welfare, transportation operators play a role in promoting equitable development, serving the needs of the wider community, both in urban and rural areas, at affordable prices, supporting the improvement of people's welfare in remote and remote areas, as well as expediting the distribution of goods and services and encouraging the growth of economic sectors. national level (Nugroho and Malkhamah 2018).

In order to support the realization of safe and peaceful conditions, it is necessary to provide transportation infrastructure and facilities to support the acceleration of regional development, including underdeveloped areas and border areas. then the role of transportation is needed to bridge the gap and encourage the distribution of development results. Availability of inter-regional transportation services that encourage and increase inter-regional trade, reduce price

differences between regions, increase mobility and equal distribution of labor to encourage the creation of equal opportunities for regional development. Equitable distribution of transportation services in a fair and democratic manner is also intended so that every level of society can obtain the needs of transportation services easily and affordably.

In responding to this, the government, especially the Minister of Transportation, has set various strategies, including the Decree of the Minister of Transportation Number KP 873 of 2017 concerning the Review of the Strategic Plan of the Ministry of Transportation for 2015-2019, in which the regulation contains the policy directions and strategies of the Ministry of Transportation for 2015-2019 in development. the transportation sector refers to the direction of national transportation development policies set out in the 2015-2019 National Medium-Term Development Plan (RPJMN) (Ministry of Transportation 2019). These policies and strategies are also synergized with development policy directions based on the Ministry of Transportation's 2005-2025 Long-Term Development Plan (RPJP), which is one of the logical lines of sustainable transportation sector development planning. In fact, currently the government through the Directorate General of Land Transportation has prepared a budget for the development of transportation infrastructure for 2020-2024 in the amount of 36,811.11 billion rupiahs which includes land transportation connectivity infrastructure programs, land transportation service activities, land transportation safety and security activities and technical support activities land transportation (Transportation 2019).

Development of transportation infrastructure is also carried out in West Nusa Tenggara Province with a population of around 3,669 thousand people, which continues to experience transportation development. It was noted that from 2016 to 2020 there were 49 infrastructure developments and developments in both the traffic and road transport sector and the ASDP sector (Dirjen Hubdat 2021). West Nusa Tenggara is also currently in the world's spotlight because there is the Mandalika Circuit which is a worldwide tourist destination so of course this is also a stimulus for the government in building and developing existing transportation infrastructure in West Nusa Tenggara. Given the size of the investment and government programs implemented in West Nusa Tenggara, it is necessary to evaluate the implementation of the program, whether the program is capable of having a direct impact on the community or not. So of course it becomes an important thing to do so as to be able to fulfill the national development plan proclaimed according to the President's directive. The evaluation carried out is of course in accordance with the aspects of the benefits and performance of existing traffic with or without the development of transportation infrastructure. Based on this, the researcher wants to conduct an analysis of Infrastructure Development that has been carried out by the government through the Directorate General of Land Transportation in West Nusa Tenggara Province in the 2016 – 2020 period.

The purpose of this research is to evaluate and determine the impact of existing transportation infrastructure development in West Nusa Tenggara Province through the aspects of benefits and traffic performance so as to minimize problems and improve development programs in the future. The scope of this research only analyzes the period of transportation infrastructure development in West Nusa Tenggara Province from 2016 to 2020.

METHOD

The research conducted is research that focuses on transportation disciplines and evaluates transportation infrastructure development programs. The method used in this research is descriptive quantitative. The quantitative method is a method that uses systematic analysis through numerical indicators that can produce systematic and factual data analysis (Syahrum

and Salim 2017). According to Zellatifanny & Mudjiyanto (2018) defines quantitative descriptive research as research that analyzes data in numerical or numerical form for certain phenomena which are then systematically explained through certain concepts and indicators. In this study using indicators on the aspects of benefits, administration and traffic performance.

The data collection technique in this study was to conduct a primary data survey. Data collection was carried out by adjusting the required data from the indicators and variables to be used in conducting the analysis. Data collection is divided into two types, namely primary data collection and secondary data collection. Primary data collection was obtained from the results of observations, interviews and distributing questionnaires, while secondary data collection was obtained from the results of literature surveys such as books, journals, and articles and surveys of agencies related to research. Secondary data was collected in order to obtain data related to the construction of facilities and infrastructure for the Directorate General of Land Transportation for 2016 – 2020 through a literature review. This study uses secondary data which refers to studies carried out by the Directorate General of Land Transportation, especially the Land Transportation Management Center for Region XII of Bali and West Nusa Tenggara Provinces (Dirjen Hubdat 2021).

The analysis used is closely related to the performance measurement evaluation analysis, namely the evaluation used to measure the performance of policies/programs/activities by comparing achievements with their targets. Performance measurement evaluation is carried out using the Gap Analysis method. This method compares performance achievements (what has been achieved) with performance targets (what must be achieved). Gaps can occur if the performance results are different from the performance targets, or the results achieved during implementation are different from the expected results in planning (Permen PPN No. 1 of 2017). In the evaluation there are 3 (three) aspects studied, namely the administrative aspect which includes the realization of the program, the benefit aspect covering the public's perception of the development of the Directorate General of Land Transportation in West Nusa Tenggara Province, and the traffic performance aspect related to accessibility indicators.

Tabel 1.
Kategori Gap Analisis

No	Klasifikasi	Keterangan
1	Apabila target tercapai ≥95%	Sudai tercapai atau on track
2	Apabila mencapai target 95% - 75%	Cukup dan Perlu Peningkatan
3	Apabila target mencapai < 75%	Buruk

RESULTS

Inventory of the Development Program of the Director General of Hubdat, Province of West Nusa Tenggara

The administrative aspects in this study include an inventory of the development program of the Director General of Hubdat for the Province of West Nusa Tenggara which contains the financial realization and physical realization of the existing land transportation infrastructure development in West Nusa Tenggara during the 2016 – 2020 period:

Table 2.
Inventory of Directorate General of Hubdat Development Program in NTB Province 2016 - 2020

Year	Activity Ceiling	Contract value	Financial Realization	Financial Realization	Physical Realization
2016	27,868,811,000	26,520,808,964	26,520,808,964	100	100
2017	23,750,914,000	23,024,824,500	23,024,824,500	100	100
2018	28,720,020,000	28,620,023,000	28,480,582,000	99.77	100
2019	12,429,037,000	12,390,840,000	12,390,840,000	100	100
2020	27,003,167,000	26,731,942,505	26,598,372,897	99.5	100
Total	119,771,949,000	117,288,438,969	117,015,428,361	99.77	100

Table 1, it can be seen that in the transportation infrastructure development program the Director General of Hubdat in the Province of West Nusa Tenggara has a financial realization of 99.77 and a physical development realization of 100 so that the existing financial and physical realizations are close to the suitability of the program launched by the Director General of Hubdat. The highest ceiling value was recorded in 2018 of 28.7 billion rupiah. Based on the results of financial realization and physical realization, the administrative aspects of infrastructure development are in the category of "Achieved or on target" because the realization rate exceeds 95%.

Community Perceptions of the Development of the Directorate General of Hubdat in the Province of West Nusa Tenggara

Public perception is part of the benefit aspect of transportation infrastructure development by the Directorate General of Hubdat. This aspect of benefit consists of: capacity building, connectivity, accessibility, safety, security, and services. And the following is the result of rublic perception of the development of the Directorate General of Hubdat in the NTB Province from 2016 to 2020:

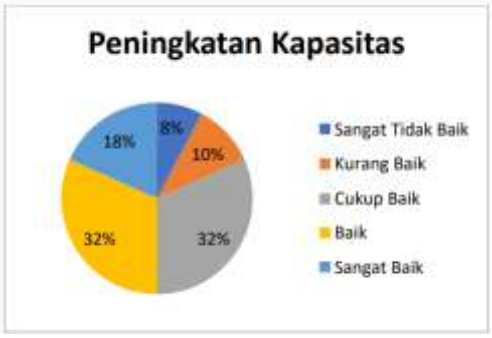

Figure 1. Impact on Capacity Building

Based on the graph above, 32% of service users say that the Capacity Building due to the impact of the construction of the Directorate General of Hubdat in NTB on road transportation is in a good category.

Figure 2. Impact on Connectivity

Based on the graph above, 41% of service users said that connectivity due to the impact of the construction of the Directorate General of Hubdat in NTB on road transportation was in a good category.

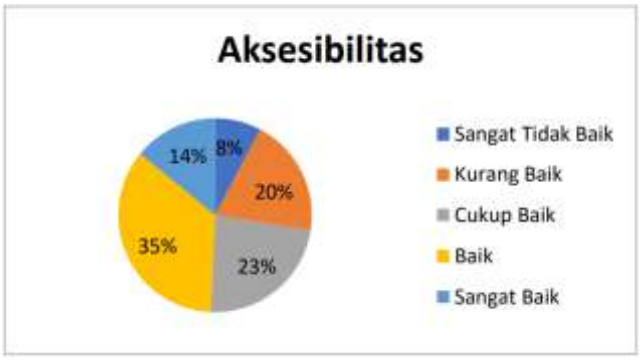

Figure 3. Impact on Accessibility

Based on the graph above, 35% of service users said that accessibility due to the impact of the construction of the Directorate General of Hubdat in NTB on road transportation is in a good category.

Figure 4. Impact on Safety

Based on the graph above, 44% of service users say that road transportation has a good category due to the impact of the construction of the Directorate General of Hubdat in NTB on road transportation.

Figure 5. Impact on Security

Based on the graph above, 37% of service users say that security due to the impact of the construction of the Directorate General of Hubdat in NTB on road transportation is in the good category

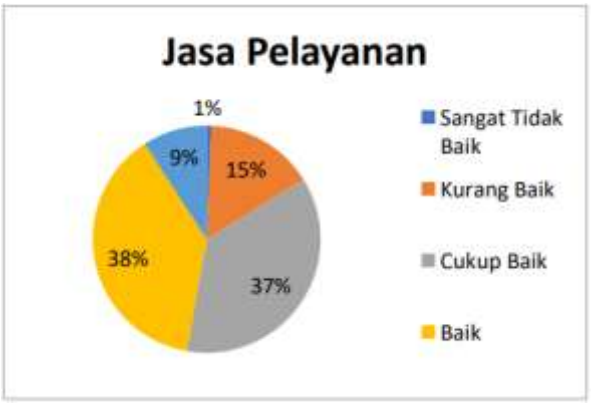

Figure 6. Impact on Services

Based on the graph above, 38% of service users say that road transportation has a good category due to the impact of the construction of the Directorate General of Hubdat in NTB on road transportation.

Table 3.
Summary of Aspects of Benefits

Indicator	Respondents Results (%)				
	very not good	Not good	Pretty good	Well	Very good
Capacity Building	8	10	32	32	18
Connectivity	3	20	21	41	15
Accessibility	8	20	23	35	14
Safety Aspect	6	13	22	44	15
Security Aspect	7	13	23	37	20
Services	1	15	37	38	9

Based on Table 3, it can be seen that infrastructure development, especially LLAJ, has a good impact, seen from the percentage for each indicator, the value is quite good to very good, having a larger percentage compared to other satisfactions. Indicators of Capacity Building 82%, Connectivity 77%, Accessibility 72%, Safety 81%, Security 80%, and Service 84%. If averaged, the usability aspect has a value of 79.33%, which means it is between 75% - 95%. So it can be concluded that the usability aspect is quite good but there needs to be an increase in the implementation of the work program.

Traffic Performance

In terms of traffic performance, it will include several parameters using the Visum application in the form of volume (pcu/hour), trip length (pcu.km), network speed (km/hour) and travel time (pcu-hour) which are divided in each construction period from 2016 to 2020 in the Province of NTB. In this aspect, network performance will be compared without the DG Hubdat development program (do-nothing) with the DG Hubdat development program (do-something).

Table 4.
Road Network Performance in 2016

No	Parameter	Do-Nothing	Do-Something
1	Total Volume (pcu/hour)	259330.2	254330.2
2	Total Trip Length (smp.km)	2113235	2070970
3	Network Speed (km/h)	40.64	40.68
4	Total Travel Time (pcu-hours)	40185.8	37279.7

Based on the table above, information can be obtained that for Traffic Performance with the 2016 Directorate General Hubdat (Do-Something) Development Program, being able to have a positive impact can be seen in the network speed which has increased from 40.64 km/hour to 40.68 km/hour.

Table 5.
Road Network Performance in 2017

No	Parameter	Do-Nothing	Do-Something
1	Total Volume (pcu/hour)	266644.3	261311.4
2	Total Trip Length (smp.km)	2171241	2127816
3	Network Speed (km/h)	40.62	40.88
4	Total Travel Time (pcu-hours)	40713.2	37477.6

Based on the table above, information can be obtained that for Traffic Performance With the 2017 Directorate General Hubdat (Do-Something) Development Program, being able to have a positive impact can be seen in the network speed which has increased from 53.3 km/hour to 56.8 km /O'clock.

Table 6.
Road Network Performance in 2018

No	Parameter	Do-Nothing	Do-Something
1	Total Volume (pcu/hour)	273963.4	268484.2
2	Total Trip Length (smp.km)	2230840	2186223
3	Network Speed (km/h)	40.58	40.75
4	Total Travel Time (pcu-hours)	41360.2	37977.6

Based on the table above, information can be obtained that for Traffic Performance with the Directorate General of Hubdat (Do-Something) Development Program in 2018, being able to have a positive impact can be seen in the network speed which has increased from 40.58 km/hour to 40.75 km/hour.

Table 7.
Road Network Performance in 2019

No	Parameter	Do-Nothing	Do-Something
1	Total Volume (pcu/hour)	281483.5	275853.8
2	Total Trip Length (smp.km)	2292075	2246233
3	Network Speed (km/h)	40.29	40.53
4	Total Travel Time (pcu-hours)	41912	38588.2

Based on the table above, information can be obtained that for Traffic Performance with the Directorate General of Hubdat (Do-Something) Development Program in 2019, being able to have a positive impact can be seen in the network speed which has increased from 40.29 km/hour to 40.53 km/hour.

Table 8.
Road Network Performance in 2020

No	Parameter	Do-Nothing	Do-Something
1	Total Volume (pcu/hour)	289210	274749.5
2	Total Trip Length (smp.km)	2354990	2057148
3	Network Speed (km/h)	42.87	43.47
4	Total Travel Time (pcu-hours)	42585.8	34405

Based on the table above, information can be obtained that for Traffic Performance with the Directorate General of Hubdat (Do-Something) Development Program in 2020, being able to have a positive impact can be seen in the network speed which has increased from 42.87 km/hour to 43.47 km/hour.

Furthermore, to find out whether the changes from this development are significant or not, an independent sample t test will be carried out using the SPSS 25 application for each parameter. With the condition of making a decision if the value of Sig. (Significance) has a value less than 0.05 (<0.05) so it can be said that there has been a significant change from the development of transportation infrastructure in the Province of NTB.

Table 9.
Analysis of independent sample t tests for 2016 - 2020

Parameter	Nilai Sig.	Batas Nilai Sig.
Total Volume (pcu/hour)	0.0627	0.05
Total Trip Length (smp.km)	0.0728	0.05
Network Speed (km/h)	0.0468	0.05
Total Travel Time (pcu-hours)	0.0492	0.05

Table 9, it is known that there are 2 (two) parameters that have significant changes, namely network speed and total travel time, while the total volume and total travel length do not have significant changes as seen from the Sig value. which is greater than 0.05 or (> 0.05) while for network speed and total travel time it has a value of Sig. < 0.05 so that it can be said that in the aspect of traffic performance there is a significant change in network speed and total travel time while for the total volume and length of trips there is an increase but not significant.

DISCUSSION

Based on the results of the evaluation analysis, it shows that the documentation aspect has had a good impact, as can be seen from the financial realization which reached 99.77 and the physical realization reached 100, which means that the administrative aspect of the Dirjet Hubdat Program has reached the target or is on the track.

In the aspect of the benefits of infrastructure development, especially LLAJ, it has a good impact, seen from the total percentage for each indicator, the score is quite good to very good, which has a larger percentage compared to other satisfactions. Indicators of Capacity Building 82%, Connectivity 77%, Accessibility 72%, Safety 81%, Security 80%, and Service 84%. If averaged, the usability aspect has a value of 79.33%, which means it is between 75% - 95%. So it can be concluded that the usability aspect is quite good but there needs to be an increase in the implementation of the work program. The construction of the Directorate General of Hubdat from 2015 – 2020 with reference to the speed indicator (RPJMN) of 45.45 km/hour is still below the overall target, but on several national road sections, the target road speed has been met. Aspects of traffic performance there is a significant change in network speed and total travel time while for the total volume and length of trips there is an increase but not significant.

CONCLUSION

After analyzing the evaluation of the construction of Facilities and Infrastructure for the Directorate General of Hubdat in West Nusa Tenggara for the 2016 – 2020 fiscal year, it can be concluded as follows: From the administrative aspect, it shows that the documentation aspect has had a good impact, as can be seen from the financial realization which reached 99.77 and the physical realization reached 100, which means that in the administrative aspect the Dirjet Hubdat Program has reached the target or is on the track. From the aspect of benefits, in the field of road transportation and ferry transportation, increased capacity, connectivity,

safety, security and services due to the construction of Facilities and Infrastructure of the Directorate General of Hubdat from 2016 - 2020 received good marks in the Province of NTB; From the aspect of traffic performance, with the construction of infrastructure facilities for the Directorate General of Hubdat, the speed of the road network on national roads has increased every year after construction in the Province of NTB.

REFERENCES

Dirjen Hubdat. 2021. *Studi Evaluasi Pembangunan Ditjen Perhubungan Darat Di Pulau Bali Dan Nusa Tenggara Barat*. Jakarta.

Kadarisman, Muh, Aang Gunawan, and Ismiyati Ismiyati. 2017. "Kebijakan Manajemen Transportasi Darat Dan Dampaknya Terhadap Perekonomian Masyarakat Di Kota Depok." *Jurnal Manajemen Transportasi Dan Logistik* 3(1):41. doi: 10.25292/j.mtl.v3i1.140.

Nugroho, Danar Adi, and Siti Malkhamah. 2018. "MANAJEMEN SISTEM TRANSPORTASI PERKOTAAN YOGYAKARTA." *Jurnal Penelitian Transportasi Darat*. doi: 10.25104/jptd.v20i1.640.

Palilu, Aram. 2019. "Analisis Pengaruh Pembangunan Infrastruktur Transportasi Terhadap Produk Domestik Regional Bruto Kota Ambon." *Buletin Studi Ekonomi* 23(2):227. doi: 10.24843/bse.2018.v23.i02.p06.

Perhubungan, Menteri. 2019. "Keputusan Menteri Perhubungan Nomor KP 873 Tahun 2017 Tentang Reviu Rencana Strategis Kementerian Perhubungan Tahun 2015 - 2019." *Peraturan Menteri Perhubungan Republik Indonesia Nomor Pm 115 Tahun 2018* 1–39.

Syahrum, and Salim. 2017. "Metodologi Penelitian Kuantitatif." *Metodologi Penelitian Kuantitatif* hal 115-116.

Zellatifanny, Cut Medika, and Bambang Mudjiyanto. 2018. "Tipe Penelitian Deskripsi Dalam Ilmu Komunikasi." 1(2):83–90.