

Overdimension and Overloading Traffic of Cargo Transport Vehicles through a Motorized Vehicle Weighing Test in Maccopa of Maros Regency

Hasbudi Samad¹, M. Yamin Jinca², Jamaluddin Rahim³

¹Master Degree of Transportation Planning, Hasanuddin University

²Professor for Transportation Planning, Urban and Regional Planning, Hasanuddin University,

³Lecturer, Transportation Engineering, Hasanuddin University

Makassar 90245, Indoensia

Corresponding Author: Hasbudi Samad

ABSTRACT: UPPKB Maccopa, Maros Regency, South Sulawesi Province is the implementing unit for weighing motorized vehicles as a monitoring tool for violations of dimensions and weight of permitted vehicles. It aims to safety and security of road construction loads. This study analyzes the role and operational functions of UPPKB on the characteristics of the movement of cargo transport traffic detected through the UPPKB Maccopa and analyze violations of over dimension and overloading and its handling efforts. The research method used is descriptive qualitative comparative and qualitative descriptive. The results of the study showed that the roles and functions of the UPPKB Maccopa were not optimal in carrying out supervision, recording and prosecuting violations of cargo transportation. Operational facilities are still far away and operational standards such as the lack of parking spaces, there are still law enforcement and circulation roads, lack of capacity and competence of Human Resources, especially CSI, Examiners and mastery of information technology, operations management has not been well organized. Over dimension violations amounted to 56.7%, and overloading was 64.63%, the majority of which were carried out in class IV vehicles.

KEYWORDS: Conscious rules, violations, over dimension, overloading

Date of Submission: 04-04-2019

Date of acceptance: 23-04-2019

I. INTRODUCTION

Traffic is the activity of passing vehicles, people or animals on the road. The case that needs to be considered in traffic engineering is the balance between the capacity of the road network and the number of vehicles and people using the road (Warpani, 2002). As an impact of the economic growth of a region which is supported by infrastructure and means of transportation. To create an efficient and reliable transportation system, control and supervision are needed (Atiya et.al, 2014). Overloading the cargo transportation is a complication of various kinds of problems, including the network across cargo transportation is not optimal. The location of the Motor Vehicle Weighing Unit (UPPKB) is not strategic, the UPPKB human resources (HR) and other qualifications. Any one party even by the Government cannot resolve the problem in question, even though the Government has a key role in solving the problem of logistic transportation.

The progress of industrial technology that produces cargo transport products is demand that is transported by large truck vehicles beyond the carrying capacity of the road so as to accelerate road damage. Consideration of increasing operational cost efficiency and tight business competition spurred logistic transport entrepreneurs to overloading logistic transport strategies despite violating regulations. For owners, this is done to reduce distribution costs, so the price of goods remains competitive. According to Lookman (2018: 2), the paradigm of the excess dimensions of vehicles that result in overloading of cargo carrying capacity began to become a habit during the economic crisis after the 1998 reforms, causing resistance when the Government imposed regulations dealing with violations of over dimension and overloading (ODOL). Entrepreneurial resistance is a challenge from the issue of rising cargo prices, inflation, social and environmental impacts such as traffic congestion, travel time, logistic distribution costs and their impact on road damage so that the cost of road repairs is increasing (Uly, 2018).

Drivers and/or public cargo transport companies should comply with provisions regarding loading procedures, transport capacity, vehicle dimensions, and road class. Compliance with the above provisions uses a fixed weighing device at the UPPKB for all cargo transport vehicles. If there is a violation of over dimension and/or overloading, prosecution is carried out by means of a ticket, confiscating proofs passing the test and prohibiting/delaying the operation of cargo transportation until adjustments to the dimensions of cargo transportation and transfer/reduction of overload to other transports based on the results of re-weighing are declared not violating. The operational implementation of the UPPKB Maccopa has not been functioning optimally according to its function and role, so this study is considered important to know how the UPPKB role and operational functions affect cargo transportation traffic movements, characteristics of cargo movement traffic, and find clarity about ODOL violations and handling efforts.

II. LOCATION AND METHOD

This research was carried out at the UPPKB Maccopa, which was one of the UPPKBs from 15 UPPKBs in the XIX Regional Land Transportation Management Agency for South Sulawesi and West Sulawesi. The time of the study took place in January-February 2019. Research was classified as qualitative and comparative descriptive research. Primary data used was obtained from direct observation and interviews with sources, namely drivers of transport/logistic owners and UPPKB officers. Secondary data are sourced from Norms, Standards, Guidelines and Criteria (NSGaC), UPPKB related journals, Data are analyzed qualitatively and quantitatively using Minimum Service Standards (MSS), sorting data on commodity types, analysis of origin and destination of logistic distribution and cargo transport class, formulation of the number of ODOL violations that occur based on the vehicle class to explain the handling efforts according to the level of violations that occurred.

III. THE RESULTS

Operational Conditions

The UPPKB Maccopa starts operating again in August 2018 according to Director General of Land Transportation Decree Number 6775/AJ.005/DRDJ/2017 on December 29, 2017 concerning the Establishment of All UPPKB Operations throughout Indonesia, having two flatform units with capacities of 60 and 80 tons, incorrectly one that has not met the standards, information systems and databases are not yet reliable, standard operating procedures (SOP) for overdimeing and overloading violations are available, the main facilities are in accordance with standards except parking spaces still need to add eight parking spaces. Supporting facilities such as green open spaces, places of worship, public toilets, attendants and driver's rest areas are still less than required, canteens and circulation roads need to be provided to ensure safety, security and convenience of services.

Provisions for the time of weighing service for one minute have been reached, but the time for prosecuting violations with a maximum standard of 10 minutes has not been reached. The process of data collection and recording of cargo transportation into the database system still takes place in the range of 15-25 minutes. Information on service fees and fines is not yet available on the information board as a form of transparency and accountability of services. The quality of human resources is sufficient, but the quality qualifications of CSI, examiners and mastery of information technology are inadequate, it is also found that regulation of teams is not optimal so that operational management is disrupted.

Cargo Transport Characteristics

Table 1 shows the volume and density of commodities/cargo monitored through the UPPKB Maccopa as many as 3,688 tons, types of general cargo commodities reached 32.56%, mine excavation materials 31.05%, and other goods 22.22%. The class of vehicles that have the largest load is class IV vehicles which are 2,072.07 tons or around 56.19% (Figure 1). The average class IV cargo transport passes class III roads in the form of collector roads. The predominant movements of cargo transportation are from Makassar City, Maros Regency, Pangkep Regency and Gowa Regency. The most prominent objective of commodity movement is to Makassar City, Maros Regency, Pangkep Regency and Pare-pare City.

Table 1. The number of cargo transportation

No.	Type of commodities	Cargo (Ton)	Percentage (%)
1	Mining Materials	1,145.035	31.05
2	Other goods	819.208	22.22
3	Rice	12.565	0.34
4	Grain of Agricultural Products	125.647	3.41

5	Other Grains	65.370	1.77
6	General Cargo	1,200.796	32.56
7	Primary Wood and Processed Products	13.620	0.37
8	Liquid Cargo and Chemicals	31.880	0.86
9	Fertilizer	195.820	5.31
10	Vegetables, Fruits and Fresh Fish	77.655	2.11
Total		3,687.596	100.00

Source: Results of the analysis, 2019

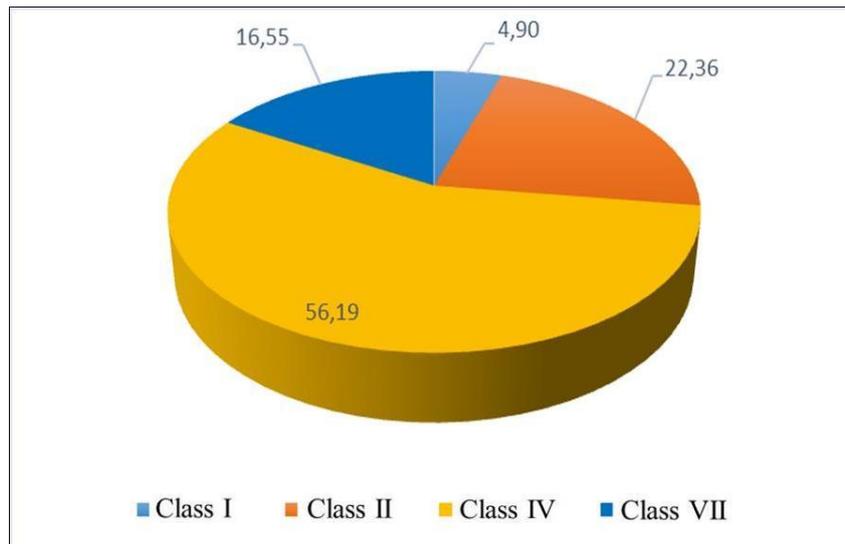


Figure 1. The number of Cargo based on Vehicle Class

The violation of overdimension and overloading (ODOL)

The violation of the overdimension of cargo transportation that passes through the UPPKB Maccopa comes mostly from class IV vehicles and vehicles with a low violation rate are class VII vehicles. Most overdimension violations exceed the high limit of cargo transport permitted as in Table 2 and Figure 2. Violations of overloading that were recorded were mostly carried out by class IV vehicles with excess cargo reaching 30-17,970 kg. The average vehicle of this class passes class III roads, which are arterial roads or collectors with the Heaviest Axle Loads (HAL) of less than eight tons. Cargo transportation that violates ODOL as many as 193 out of 492 cargo transport units that pass the UPPKB Macoppa (see in Figure 3).

Table 2. Overdimension Violations (OD)

Vehicle Class	Status of OD Violations		Total
	Violating	Not violate	
Class I	66	46	112
Class II	97	77	60
Class IV	103	80	216
Class VII	13	10	23
Total	279	213	492

Source: The results of the analysis, 2019

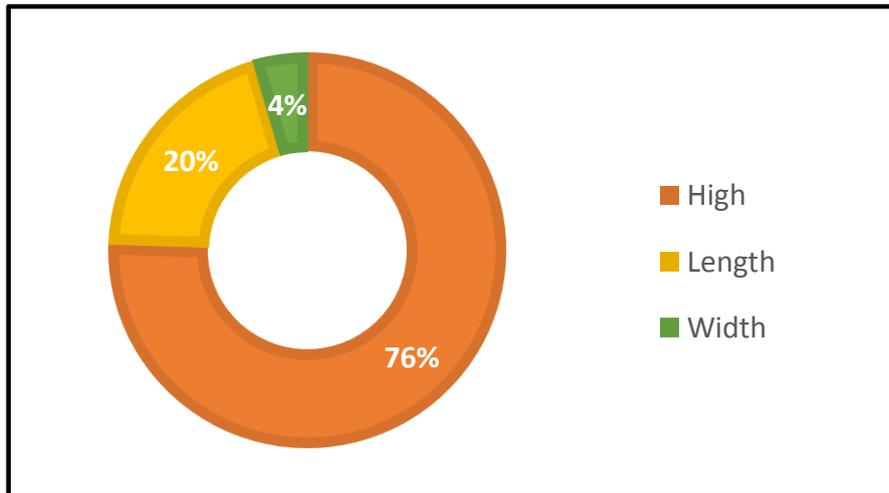


Figure 2. Types of Overdimension Violations (OD)

Table 3. Overloading Violations (OL)

Vehicle Class	OL Violation		Total
	Violating	Not Violate	
Class I	70	42	112
Class II	90	84	174
Class IV	136	47	183
Class VII	22	1	23
Total	318	174	492

Source: The results of the analysis, 2019

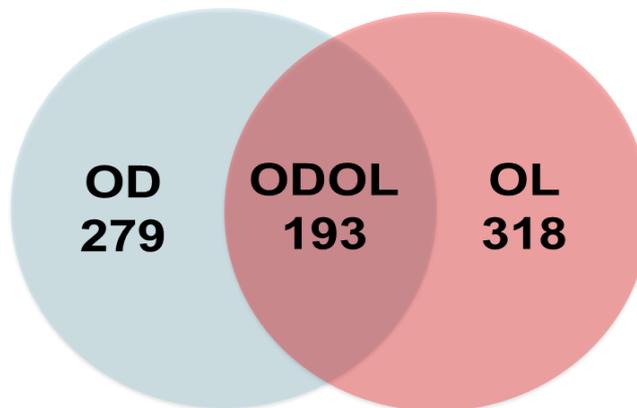


Figure 3. ODOL Violation Diagram

IV. DISCUSSION

The operational conditions at the UPPKB Maccopa still have some disadvantages, such as the recording system is still done manually so the vehicle has a delay in service time and disrupts the convenience of service. Recording with this manual system is prone to loss, damage and complication as well as adding data input officers. The information board for the ticket fee has not been found, the delivery of the ticket fee information is only done orally by the CSI. Supposedly, all service costs as the person in charge need to make information on costs including the legal basis for withdrawing these fees, as a form of transparency and accountability of services. Increasing the capacity of weighing officers needs to be done to increase the knowledge competency of recording/computer database applications, as well as for HR in Information technology that are expected to carry out maintenance and periodic maintenance of hardware, software and information technology networks.

The majority of commodities transported by vehicles are cargo classified as general cargo including metal, furniture, tobacco/cigarettes, cooking oil, yarn and textiles, animal feed, food/beverages, electronics,

automotive. This is in line with the consumption patterns of urban-rural communities that are influenced by the growth in the number of population that is estimated to be an increase in the number of cargo. As such, the UPPKB Maccopa needs to increase supervision on the types of general cargo transportation but also must be vigilant in looking at the development of the quantity of other commodities in the future. Considering the number of cargo classified in other cargo is the third largest, it is necessary to develop a more detailed commodity classification policy by taking into account the Standard Classification of Indonesian Business Field (SCoIBF) issued by the Indonesian Statistics Agency.

The majority of the origin of commodity travel comes from 30 (thirty) districts/cities. However, it stood out in four regencies/cities, namely Makassar City (2,128.90 tons), Maros (647.51 tons), Pangkep (435.07 tons) and Gowa (158.15 tons). Whereas the most prominent destination for commodity movements are also occurs in the four districts/cities, namely Makassar (1,126.37 tons), Maros (476.56 tons), Pangkep (231.74 tons) and Pare-pare (220.25 tons). Anticipating the economic growth of South Sulawesi Province, road network connectivity is needed which functions specifically as a cross-freight network with special quality pavement to facilitate the movement of transportation and distribution of logistic.

Cargo transportation that violates overdimension is greater than that which does not violate, it is necessary to thoroughly evaluate and supervise the issuance of KIR Books carried out by testing motorized vehicles that are under the authority of Regency/City Government based on Law Number 23 of year 2014 concerning Regional Government through a strict accreditation system. It is very necessary to increase sanctions on cargo transportation that violates overdimension, because it is related to traffic safety, either through the imposition of maximum penalties according to regulations or increased sanctions in the form of cutting down dimensions of excess logistic transportation.

The implementation of the overloading violation was only at the stage of awarding the ticket fine, the prohibition of continuing the journey could not be carried out due to inadequate infrastructure, the policy socialization was not optimal so that it faced resistance from the transportation owners and other related business actors. Overloading measures need to be equipped with an e-ticketing system or ticketing system in place, by presenting relevant stakeholders at the UPPKB location. Violations of overloading of logistic transportation that is not in accordance with the Heaviest Axle Loads (HAL) result in damage to roads, damage to vehicles, safety and smooth traffic and air and sound pollution. Road damage occurs as a result of overloading of 50-60% of road strength, which increases transportation costs and affects the cost of road maintenance up to 2.5 times the annual planned maintenance costs in the service period. Thus, overloading of 50% results in high economic costs (Saleh et al, 2009; Bahri, 2011; Ruktiningsih et al, 2017).

The problem of violating the overloading of cargo transportation is high and the system of enforcement and sanctions that are still weak (Mitasari, 2015) also occurs in the UPPKB Maccopa, violations of cargo transportation are more than those who do not violate. The number of cargo transportation that violates overdimension and overloading is 193 units and the majority is carried out on class IV vehicles. Some of the factors causing this violation were the driver adding to the cargo without the knowledge of the owner of the cargo transportation for additional income besides salary, there were still interventions by individual law enforcement officials who asked the UPPKB operational officers not to prosecute violations related to Collusion and Nepotism. To anticipate adding to the load, the original document of destination needs to be made and tightened by the owner of the cargo transportation. Intervention of institutions from outside the UPPKB needs socialization, communication and coordination as well as enforcement of rules to all stakeholders so that the zero overloading program can be achieved.

The function of the UPPKB to carry out road supervision through monitoring of cargo transportation on the road can be used in transportation planning, but implementation in the field received less attention from the UPPKB officers (Simatupang et. Al, 2008). Managing and supervising the traffic of cargo transportation vehicles can reduce the impact of damage due to overloading by reducing the excess cargo of cargo transportation or imposing sanctions by returning to the origin of the trip, or by prohibiting the continuation of the trip before the decrease in overload. Violation sanctions in the form of fines given certainly cannot cover the cost of repairing roads damaged by overloading. The handling of ODOL violations requires several aspects of improving the capacity of human resources (HR), infrastructure and facilities and management of operations as follows:

- a. The enhancement of the regulatory aspects in the form of determining the lower limit and upper limit of heavy cargo/unit transportation, improving the contract/manifest cargo process, setting the driver's working hours, providing driver rest areas, setting dimensional tolerance limits for certain commodities, and synergizing type test, periodic testing and supervisory regulations at the UPPKB.
- b. The enhancement aspects of human resources can be in the form of using e-log book, certification of cargo transportation drivers, increasing pride in being a driver, increasing the qualifications and remuneration of the UPPKB officers on a regular basis.

- c. The enhancement aspects of facilities and infrastructure by expanding parking and providing a wider field of action, developing the UPPKB Standar Service Manual (SSM), providing circulation roads within the UPPKB to facilitate re-weighing before being declared able to continue to travel destinations, repairing and upgrading roads with the Heaviest Axle Loads (HAL), providing equipment weight in motion (WIM) before the fixed weighing device, so that the service process to reduce the load is carried out faster and requires the provision of forklift facilities and the recruitment of loading and unloading workers.
- d. The enhancement of the operational management aspects by regulating the team and the shift system in accordance with the provisions, increasing accountability and transparency of services, modernizing and automating services, fulfilling competent human resources, and enforcing with e-ticketing systems.

V. CONCLUSION AND RECOMMENDATION

The role and function of the UPPKB Maccopa is not optimal due to lack of parking space, there is no circulation path, human resource (HR) capacity and competence, motor vehicle testers, CSI and Information Technology Officers have not been fulfilled, the reliability of information systems has not been guaranteed and operations management has not been well organized. The characteristics of the traffic of cargo movement mostly transport general cargo commodities, mining excavation materials, and other cargo originating and aiming at Makassar, Maros, and Pangkep with the majority are transported by class IV vehicles. Transport of cargo that violate overdimensions causes violations of overloading. The majority of cargo transport commodities and most violating ODOL are Class IV vehicles in the form of truck three Axles. The handling of ODOL violations is carried out by increasing the compliance of rules and aspects of HR qualifications, improving infrastructure and facilities as well as improving aspects of operations management.

REFERENCES

- [1]. Atiya, A. F., Sari, O. D., Purwanto, D., & Setiadji, B. H. 2014. Analysis of the Effect of Weigh Bridge Performance on Pavement Performance and Age of Road Plans. *Journal of Civil Engineering (Online)* Vol.3 No. 3, 662-673, (Last accessed on December 5, 2018).
- [2]. Bahri, S. 2011, Identification of Types and Weights of Vehicles Through Weigh Bridges, Bengkulu. *Journal of Inertia (Online)* Vol 2 No. April 2 (<http://repository.unib.ac.id>), (Last accessed on December 5, 2018).
- [3]. Lookman, K, 2018. Overdimension and Overloading, Suplay chain Indonesia, (online), (<http://SupplyChainIndonesia.com>), (Last accessed on October 15, 2018).
- [4]. Mitasari, 2015. Evaluation of the Implementation of Policy for Supervision and Control of Excess Goods Freight Control at Pontianak City Limestone Bridge. *Publika, S-1 journal of State Administration (Online)*, Vol. 4 No. 3 (<http://jurmafis.untan.ac.id>), (Last accessed September 12, 2018).
- [5]. Director General of Land Transportation Regulation No: SK.736/AJ.108/DRJD/2017 concerning Technical Guidelines for Implementing Motor Vehicle Weighing on Roads.
- [6]. Ruktiningsih, R, and Hananto Prakoso, 2017. Sustainability Evaluation of the Weigh Bridge in West Java, *Widyakala Volume 4* No. 1 March (online), <http://repository.unika.ac.id/14582/1/artikel%20bu%20rudatin.pdf>, (Last accessed on August 27, 2018).
- [7]. Saleh, M. Sofyan, Ofyar Z. T., Ade S., Russ B. F. 2009. Effect of Excess Truckloads on Road Maintenance Costs, *Transportation Journal* Vol. 9 No. 1 2009: 79-89 (online), <http://journal.unpar.ac.id/index.php/journaltransportasi/article>, (Last accessed on November 21, 2018)
- [8]. Simatupang, R. H., Sartono, W., & Christady, H. 2008. Information System for Surveillance of Goods Transport Vehicles in Weigh Bridges to Determine Violations of More Content and Damage Factor (Case Study of Yogyakarta Special Region). *No. Civil Engineering Forum XVIII/2*, 822-831 (Last accessed on December 5, 2018).
- [9]. Law Number 23 of 2014 concerning Regional Government
- [10]. Law of the Republic of Indonesia No. 22 of 2009 concerning Road Traffic and Transportation, 2009, Ministry of Transportation, Jakarta
- [11]. Uly, Y. A. 2018. Overcome State Losses of Rp. 43 Trillion, Trucks Overloaded Will Be Ordered (online), (<https://economy.okezone.com/read/2018/07/17/320/1923440/atasi-kerugian-negara-rp43-trillion-truk-kelebih-load-akan-ditertibkan>), (Last accessed on November 6, 2018).
- [12]. Warpani, S. 1990. *Planning Transportation Systems*, ITB Publishers, Bandung.
- [13]. Warpani, S. 2002. *Management of Road Traffic and Transportation*, ITB Publisher, Bandung.

Hasbudi Samad" Overdimension and Overloading Traffic of Cargo Transport Vehicles through a Motorized Vehicle Weighing Test in Maccopa of Maros Regency" *American Journal of Engineering Research (AJER)*, vol.8, no.04, 2019, pp.338-343