



## **Effectiveness of Law in the Policy of Restricting the Operation of Goods Vehicles**

**Annie Myranika, Dian Yulviani, Siti Humulhaer, Dwi Nur Afrianto**

Faculty of Law, Syekh-Yusuf Islamic University, Tangerang, Indonesia

E-mail: [2102010037@students.unis.ac.id](mailto:2102010037@students.unis.ac.id)

### ***Abstract***

Indonesia, as a country governed by the rule of law, places law as the primary instrument for ensuring certainty, justice, and benefit. In this context, Tangerang Regent Regulation No. 12 of 2022 was enacted as a strategic policy to reduce the rate of traffic accidents involving goods vehicles, especially dump trucks and heavy vehicles. However, its implementation faces various challenges. Therefore, this study aims to analyze the effectiveness of this regulation from both normative and empirical perspectives. This study uses an empirical legal method with a descriptive analytical approach. The research data were obtained through observation and interviews with the Transportation Agency officials and the Tigaraksa community. The results show that although the substance of the regulation is appropriate, its effectiveness is still hampered by limited personnel, monitoring facilities, and low legal awareness among truck drivers. However, there are supporting factors in the form of inter-agency coordination, community participation, and a decrease in violations at several vulnerable points. Overall, this study shows that the regulations have provided a relevant regulatory framework to reduce public transportation accidents, but their practical impact is still hampered by limitations in enforcement and infrastructure, thus requiring the strengthening of monitoring mechanisms and increasing drivers' legal awareness.

**Keywords:** *Regent Regulation, Law Enforcement, Legal Effectiveness, Policy Implementation, Road Safety.*

### ***Abstrak***

Indonesia sebagai negara hukum menempatkan hukum sebagai instrumen utama dalam menjamin kepastian, keadilan, dan kemanfaatan. Dalam konteks tersebut, Peraturan Bupati Tangerang Nomor 12 Tahun 2022 ditetapkan sebagai kebijakan strategis untuk menekan tingkat kecelakaan lalu lintas yang melibatkan mobil barang, terutama truk tanah dan kendaraan berat lainnya. Meskipun demikian, implementasinya masih menghadapi berbagai permasalahan. Oleh karena itu, penelitian ini bertujuan untuk menganalisis efektivitas regulasi tersebut dari aspek normatif maupun empiris. Penelitian ini menggunakan metode hukum empiris dengan pendekatan deskriptif-analitis. Data penelitian diperoleh melalui observasi dan wawancara dengan aparatur Dinas Perhubungan serta masyarakat Tigaraksa. Hasil penelitian menunjukkan bahwa meskipun substansi peraturan telah sesuai kebutuhan, efektivitas penerapan masih terkendala oleh keterbatasan personel, sarana

pengawasan, serta rendahnya kesadaran hukum pengemudi. Namun demikian, terdapat faktor pendukung berupa koordinasi antarinstansi, partisipasi masyarakat, serta adanya penurunan pelanggaran di sejumlah titik rawan. Secara keseluruhan, penelitian ini menunjukkan bahwa regulasi telah menyediakan kerangka regulasi yang relevan untuk menurunkan kecelakaan kendaraan angkutan, namun dampak praktisnya masih terhambat oleh keterbatasan penegakan dan infrastruktur, sehingga diperlukan penguatan mekanisme pengawasan serta peningkatan kesadaran hukum para pengemudi.

**Kata kunci:** *Peraturan Bupati, Penegakan Hukum, Efektivitas Hukum, Implementasi Kebijakan, Keselamatan Jalan Raya*

Istinbath: Jurnal Hukum

Website : <http://e-journal.metrouniv.ac.id/index.php/istinbath/index>

Received : 2025-09-04 | Published : 2025-12-20.



This is an open access article distributed under the terms of the Creative Commons Attribution-ShareAlike 4.0 International License.

## Introduction

As a country governed by the rule of law, Indonesia has stipulated that all actions taken by state officials, civil servants, and citizens must be based on the law and must not conflict with applicable legal norms.<sup>1</sup> Attamimi explains that a country based on the rule of law (*rechtsstaat*) is defined as a country that places the law as the basis of power, so that all practices of exercising power are carried out under the control of the law, not power alone, as follows:<sup>2</sup> This concept emphasizes that in a state governed by the rule of law, the law holds supreme authority and serves as a tool to ensure justice, certainty, and benefits for all citizens.<sup>3</sup>

In this framework, public policy is an important tool for law enforcement to realize public interest. Thomas R. Dye defines public policy as everything that the government chooses to do or not do.<sup>4</sup> Public policy in the context of a state regulated by

<sup>1</sup> R.P. Dempsey, J.R. Brunet, and V. Dubljević, "Exploring and Understanding Law Enforcement's Relationship with Technology: A Qualitative Interview Study of Police Officers in North Carolina," *Applied Sciences (Switzerland)* 13, no. 6 (2023), Scopus, <https://doi.org/10.3390/app13063887>.

<sup>2</sup> Abdul Aziz Hakim, *Negara Hukum Dan Demokrasi Di Indonesia* (Yogyakarta: Pustaka Pelajar, 2011).

<sup>3</sup> R.M. Thompson, "Police Use of Force: Rules, Remedies and Reforms," in *Police Use of Force and Federal Tactical Teams: Background and Considerations* (2016), 1–38, Scopus, <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85019947171&partnerID=40&md5=de966ff231d8c3b667369afe66d8c985>.

<sup>4</sup> A Hamid S Attamimi, *Teori Perundang-Undangan Indonesia*, 2021.

the principle of law enforcement is not only a political tool but must also reflect compliance with the principle of legality.<sup>5</sup> In other words, public policy must provide benefits to society at large while remaining based on the applicable laws and regulations. However, the reality is that the implementation of public policy is not always effective due to the existence of discretion in its implementation.<sup>6</sup>

One regional public policy that has attracted attention is Tangerang Regent Regulation (*Perbup*) Number 12 of 2022 concerning the Second Amendment to Tangerang Regent Regulation Number 46 of 2018 concerning Restrictions on Operating Hours for Goods Vehicles on Highways in Tangerang Regency. This policy was issued by the Tangerang Regency Government on April 25, 2022, to maintain traffic order, ensure safety, and provide comfort to the community during the working hours.<sup>7</sup> Through this regulation, the local government restricts the operating hours of freight vehicles, particularly dump trucks and class III, IV, and V mining vehicles. Article 3, paragraph (1) of Regent Regulation No. 12 of 2022 explicitly regulates vehicles with certain operating hours. However, its implementation has not been successful. For example, according to online media reports, a traffic accident involving a dump truck and a motorcycle occurred on Jalan Raya Pemda Tigaraksa, Tigaraksa District, at approximately 6:30 p.m., resulting in casualties.<sup>8</sup> Despite regulations stating that trucks may only begin operations at 10:00 PM, this incident highlights the weakness of oversight and law enforcement.

From a legal perspective, the obligation to monitor and enforce these regulations must be carried out jointly (by the Indonesian National Armed Forces, the Indonesian National Police, Transportation Agency, Civil Service Police Unit (Satpol PP), and regional officials). However, the weak coordination among law enforcement agencies has rendered this policy ineffective. From a constitutional law perspective, local government authority in matters of traffic and transportation is part of the implementation of

---

<sup>5</sup> Å. Frändberg, “Legality and Legal Subordination,” in *Law and Philosophy Library* (2014), 109:59–96, Scopus, [https://doi.org/10.1007/978-3-319-06784-1\\_4](https://doi.org/10.1007/978-3-319-06784-1_4).

<sup>6</sup> A.T. Wijayanti et al., “Bridging Technology and Justice: The Role of AI in Law Enforcement through Pancasila’s Ideals,” 622 (2025), Scopus, <https://doi.org/10.1051/e3sconf/202562204003>.

<sup>7</sup> Attamimi, *Teori Perundang-Undangan Indonesia*.

<sup>8</sup> “Peraturan Bupati (Perbup) Kabupaten Tangerang Nomor 12 Tahun 2022 Tentang Perubahan Kedua Atas Peraturan Bupati Nomor 46 Tahun 2018 Tentang Pembatasan Waktu Operasional Mobil Barang Pada Ruas Jalan Di Wilayah Kabupaten Tangerang,” preprint, Indonesia, 2022.

decentralization oriented towards order, security, and the public interest.<sup>9</sup> Therefore, regulations restricting the operation of freight vehicles through Regent Regulations have a valid legal basis. Thus, their effectiveness depends on the consistency of implementation. Without good coordination, the granted legal authority will only become a written norm without clear implementation.<sup>10</sup>

According to Soekanto, the effectiveness of a law can be understood as the extent to which it can achieve its stated objectives.<sup>11</sup> A law is considered effective if it can change people's behavior to conform to prevailing norms. In addition, five main factors influence the effectiveness of law: (a) the substance of law; (b) law enforcement agencies; (c) facilities and infrastructure; (d) public awareness of law; and (e) legal culture. Asshiddiqie emphasizes that law enforcement is a process that ensures that legal norms are effectively applied in society and the state.<sup>12</sup> Without consistent and effective enforcement, well-formulated regulations will not achieve their goals. Rahardjo reinforced this view by emphasizing the balance between legal certainty and a sense of justice. Law should not be viewed merely as a set of rigid rules but rather as a means to achieve substantive justice for society.<sup>13</sup>

Empirical evidence in Tangerang Regency shows a significant gap between the legal certainty in Regent Regulation No. 12 of 2022 and the justice felt by the community at large. The regulation was made with the aim of reducing traffic accidents. However, its implementation remains weak and continues to cause accidents due to violations of vehicle operating hours. Data from the Indonesian National Police Traffic The Indonesian The National Police Corps (*Korlantas Polri*) in 2023 showed that heavy vehicles, including mining trucks, caused over 20% of traffic accidents in Indonesia.<sup>14</sup> These figures reinforce the urgency of evaluating the effectiveness of regional policies.

---

<sup>9</sup> Sacharissa Kaulika and Ninuk Wijiningsih, "Peran Pemerintah Daerah Kota Bogor Dalam Pelaksanaan Urusan Pemerintah Di Bidang Lalu Lintas Dan Transportasi," *Jurnal Reformasi Hukum Trisakti* 6, no. November (2024): 1418–31.

<sup>10</sup> Oktavianus Alexander and Reni Dwi Purnomowati, *Retribusi Izin Trayek Di Kabupaten Bogor 2022 Berdasarkan Perda No. 13 Tahun 2011*, 7, no. 13 (2025): 582–93.

<sup>11</sup> Reza, "Pengendara Tewas Terlindas Truk Langgar Jam Operasional, Kadishub: Tidak Bisa Kita Tilang," 2024, <https://tangerangonline.id/2024/10/14/pengendara-tewas-terlindas-truk-langgar-jam-operasional-kadishub-tidak-bisa-kita-tilang/>.

<sup>12</sup> Soerjono Soekanto, *Faktor-Faktor Yang Mempengaruhi Penegakan Hukum*, Raja Grafindo Persada, 2011.

<sup>13</sup> Jimly Asshiddiqie, *Penegakan Hukum*, 2007, 1–6.

<sup>14</sup> Satjipto Rahardjo, *Ilmu Hukum* (Bandung: PT Citra Aditya Bakti, 2021).

Several previous studies on the effectiveness of operational regulations for freight vehicles have been conducted, such as in Subang,<sup>15</sup> Tangerang,<sup>16</sup> and Banjarmasin,<sup>17</sup> which primarily focus on quantitative aspects such as accident reduction, driver compliance, or the conformity of permits with constitutional legal principles, but pay less attention to the comprehensive interaction between legal substance, law enforcement capacity, supporting infrastructure, public participation, and local legal culture. Unlike these studies, this research examines the effectiveness of Regent Regulation No. 12 of 2022 in Tangerang Regency, emphasizing the structural and cultural factors that influence the practical implementation of the law. Thus, this study contributes to the development of legal effectiveness theory by showing that the success of a regulation cannot be evaluated solely based on its normative provisions but must be analyzed through institutional coordination, law enforcement capacity, public legal awareness, and internalization of legal culture, thereby providing a more holistic understanding of legal effectiveness at the regional level.

## Method

This study uses an empirical legal research method with a descriptive-analytical approach to evaluate the effectiveness of the Regulation No. 12 of 2022 in reducing truck traffic accidents in Tigaraksa Subdistrict, Tangerang Regency. The empirical method was chosen because the analysis of legal effectiveness requires a direct examination of policy implementation, law enforcement practices, and community responses in a real environment. Primary data were obtained through field observations and semi-structured interviews conducted at two main research locations: the Tangerang Regent's Office and the Tangerang Regency Transportation Agency (*Dishub*).<sup>18</sup> Five informants were selected through purposive sampling based on their involvement and relevance in the regulation's implementation. The informants consisted of: (1) the Head of the Legal Division of the Regional Secretariat, representing the policy-making institution; (2) an officer from the

<sup>15</sup> Nurhafizh Muhammad Rizqi, Mega Suryandari, and Selenia Ediyani Palupiningtyas, *Optimalisasi Kebijakan Operasional Angkutan Barang Untuk Kelancaran Lalu Lintas Di Kabupaten Subang*, xx, no. x (2022): 1–10, <https://doi.org/10.55511/jpsttd.vxxix.xx>.

<sup>16</sup> Meiliya Pratiwi, Leo Agustino, and Ima Maisaroh, “Efektivitas Peraturan Bupati Tentang Pembatasan Waktu Operasional Mobil Barang Pada Ruas Jalan Di Wilayah Kecamatan Jayanti Kabupaten Tangerang,” *Journal of Geopolitics and Public Policy* 3, no. 1 (2025): 11–24.

<sup>17</sup> Maulida Salsabilla et al., “Tinjauan Hukum Tata Negara Terhadap Izin Operasional Transportasi Truk Di Kota Banjarmasin,” *Integrative Perspectives of Social and Science Journal* 2, no. 3 (2025): 3759.

<sup>18</sup> Peter Mahmud Marzuki, “Penelitian Hukum, Edisi Revisi, Cetakan Ke-12,” *Jakarta: Kencana*, 2016, 133–36.

Transportation Agency's Traffic Control Unit as a policy implementer; (3) two community members living along the affected traffic corridor; and (4) a truck driver operating in the Tigaraksa area. This composition allowed the researchers to capture a comprehensive range of perspectives from policymakers, implementers, beneficiaries, and the community members.

Observations were also conducted at several strategic points in Tigaraksa and the surrounding area, focusing on traffic flow patterns, apparent compliance with regulations, frequency of violations, and the presence and performance of monitoring personnel during the operating hours. To ensure data validity, this study applied source and technique triangulation by comparing the data obtained from interviews, observations, and documentary materials. The interview findings were matched with secondary data, including traffic accident records, the text of Regent Regulation No. 12/2022, and institutional reports from the Transportation Agency. In addition, verification with key informants was conducted to verify the accuracy of the facts and strengthen the reliability of the interpretation. The secondary data consisted of statutory regulations, such as the Fourth Amendment of the 1945 Constitution, Law No. 22/2009 on Road Traffic and Transportation, and Regent Regulation No. 12/2022, along with relevant academic literature and prior studies on the effectiveness of traffic regulations. Tertiary data from encyclopedias and authoritative online sources were used to complement the theoretical and analytical foundations of this study.<sup>19</sup>

The collected data were then analyzed descriptively and analytically by integrating empirical findings and normative frameworks through Soerjono Soekanto's theory of legal effectiveness. Data analysis was conducted by classifying and interpreting the results of interviews, observations, and legal documents to assess the level of applicability of Regent Regulation No. 12 of 2022 based on five factors of legal effectiveness: the legal factor itself (substance of the regulation), the law enforcement factor, the supporting facilities or infrastructure factor, the community factor, and the legal culture factor. Through this approach, the study assessed the extent to which the regulation was not only formally applicable but also actually implemented and accepted by the community, thereby providing a comprehensive picture of the effectiveness of

---

<sup>19</sup> Mukti Fajar ND and Yulianto Achmad, *Dualisme Penelitian Hukum Normatif & Empiris* (Yogyakarta: Pustaka Pelajar, 2017).

Regent Regulation No. 12 of 2022 in reducing traffic accidents caused by heavy vehicles in the Tigaraksa Subdistrict.

## Results and Discussion

### Effectiveness of Regent Regulations in Efforts to Reduce Traffic Accidents

The effectiveness of a law is fundamentally determined by how it operates in practice and the extent to which it fulfills the objectives set by the legislator. As explained by Atmasasmita, the assessment of whether a legal norm is successful depends on its capacity to influence, direct, and control the behavior of individuals or groups in accordance with the intentions of the lawmaker.<sup>20</sup> Thus, the success of a legal provision is reflected not merely in its normative formulation but also in its actual ability to shape societal behavior so that it conforms to the applicable legal standards.<sup>21</sup>

One common approach to encouraging compliance with the law is the imposition of sanctions, which function as instruments of social control to ensure that individuals behave according to prevailing legal norms.<sup>22</sup> Sanctions may take negative forms, such as fines or penalties intended to deter prohibited behavior, and in the empirical context of Regent Regulation No. 12 of 2022, their effectiveness depends not merely on their existence in the regulatory text but also on whether they are actually enforced. Field findings indicate that enforcement remains inconsistent; officers from the Wasdalops Unit of the Transportation Agency often issue verbal warnings rather than imposing formal penalties, while limited personnel, inadequate monitoring facilities, and the economic pressures faced by drivers reduce the likelihood of firm enforcement.<sup>23</sup>

This inconsistency diminishes the deterrent effect of sanctions and risks rendering them symbolic rather than substantive in shaping actual behavior. On the other hand, sanctions can also be positive in the form of rewards or incentives given to individuals or groups who demonstrate behavior in line with applicable legal norms. Both types of

---

<sup>20</sup> Romli Atmasasmita, *Reformasi Hukum, Hak Asasi Manusia & Penegakan Hukum* (Bandung: Mandar maju, 2001).

<sup>21</sup> D. Kaszubowski and F. Heleniak, "A Concept of Freight Traffic Flow Regulations in the City of Gdansk," 2017, 57–71, Scopus, [https://doi.org/10.1007/978-3-319-51427-7\\_5](https://doi.org/10.1007/978-3-319-51427-7_5).

<sup>22</sup> M. Nur and S.P. Hadiwardoyo, "Analysis on Logistic Company Action toward the Access Restriction Policy on Freight Vehicle," 1855 (2017), Scopus, <https://doi.org/10.1063/1.4985506>.

<sup>23</sup> E. Nagy and Z. Sandor, "Overtaking Ban for Heavy Goods Vehicle in Hungary on the National Motorway Network," *Pollack Periodica* 7, no. 1 (2012): 83–95, Scopus, <https://doi.org/10.1556/Pollack.7.2012.1.8>.

sanctions are designed to encourage people to avoid deviant behavior and instead choose behavior according to the values upheld by the legal system.<sup>24</sup>

The effectiveness of Regent Regulation No. 12 of 2022 depends not only on its substantive provisions but also on the extent to which the prescribed sanctions are enforced by the authorized institutions. Within this regulatory framework, enforcement responsibilities are divided among several bodies, including the Transportation Agency (Dinas Perhubungan), which leads operational supervision through its Wasdalops Unit; the National Police (*Satlantas Polres Tangerang*), which has the authority to take action against traffic violations; and the Public Order Agency (*Satpol PP*), which supports administrative enforcement and public order functions, with sub-district governments also mandated to assist in supervision at locations prone to violations.

The involvement of multiple agencies means that the deterrent effect of sanctions relies heavily on consistent inter-agency coordination and the willingness of each institution to impose penalties rather than restricting their actions to verbal warnings or persuasive measures alone. If these institutions do not enforce sanctions firmly, whether due to limited personnel, inadequate monitoring facilities, or the socio-economic pressures faced by lorry drivers, the sanctions risk becoming merely symbolic and losing their intended influence on behavior.<sup>25</sup> In line with Soerjono Soekanto's theoretical framework, the effectiveness of Regent Regulation No. 12 of 2022 therefore rests not only on the substance of its legal norms but also on the performance of the law enforcement actors tasked with ensuring that compliance is achieved in practice.

If existing sanctions operate merely as symbolic provisions without concrete enforcement in the field, the legal norm will gradually lose its capacity to influence the behavior of lorry drivers and other affected groups in the future.<sup>26</sup> Data from the field interviews strongly demonstrate this weakness. According to Anton Prasetyo, an officer of the Wasdalops Unit of the Tangerang Regency Transportation Agency, most violations of operational hour restrictions are addressed only through verbal warnings, while the

---

<sup>24</sup> Atmasasmita, *Reformasi Hukum, Hak Asasi Manusia & Penegakan Hukum*.

<sup>25</sup> L. Dablane and A. Montenon, "Impacts of Environmental Access Restrictions on Freight Delivery Activities Example of Low Emissions Zones in Europe," *Transportation Research Record* 2478 (2015): 12–18, Scopus, <https://doi.org/10.3141/2478-02>.

<sup>26</sup> E. Guerra, A. Sandweiss, and S.D. Park, "Does Rationing Really Backfire? A Critical Review of the Literature on License-Plate-Based Driving Restrictions," *Transport Reviews* 42, no. 5 (2022): 604–25, Scopus, <https://doi.org/10.1080/01441647.2021.1998244>.

imposition of formal administrative sanctions remains rare due to limited personnel, inadequate monitoring facilities, and the economic pressures faced by drivers.<sup>27</sup> Several residents interviewed along high-risk corridors further confirmed that lorries frequently pass through restricted hours without consequence, indicating a clear gap between the written norm and its real-world application.

This situation aligns with Satjipto Rahardjo's assertion that law in action is the true measure of a legal norm, as law "does not enforce itself" but requires the active and consistent intervention of law enforcement officers to transform normative commands into actual behavior. Similarly, Jimly Asshiddiqie emphasizes that law enforcement embodies legal norms into concrete actions, meaning that legal rules achieve validity only when implemented through institutional practice and behavioral compliance. Therefore, the effectiveness of the law cannot be assessed merely by the existence of regulations and sanctions; it must also be evaluated through the extent to which these sanctions are applied consistently and the degree to which they succeed in altering public behavior in accordance with the objectives of Regent Regulation No. 12 of 2022.

Based on interviews with the Head of the Legal Division of the Tangerang Regency Secretariat, who represented the policymakers, Regent Regulation No. 12 of 2022 was formulated as a strategic response to the increasing number of traffic accidents involving cargo vehicles, particularly heavy trucks, such as soil-transporting lorries. When examined through Soerjono Soekanto's theory of legal effectiveness, which highlights the interdependence of legal substance, law enforcement, supporting facilities, community behavior, and legal culture, the findings indicate that the regulation reflects both conceptual strength and practical limitations. Substantively, the regulation establishes clear normative provisions by restricting the operational hours of heavy vehicles, demonstrating the alignment between the legal framework and the policy objective of reducing traffic accidents.

However, the interview results reveal that this normative clarity has not been fully translated into effective implementation because enforcement agencies still face significant challenges, including limited personnel, insufficient monitoring infrastructure,

---

<sup>27</sup> H. Song, K. Shin, and F.M.A. Hassouna, "Is the High-Emission Vehicle Driving Area Restriction Policy an Effective Measure for Reducing Driving Distance? A Case Study of Busan, South Korea," *Sustainability (Switzerland)* 16, no. 24 (2024), Scopus, <https://doi.org/10.3390/su162411055>.

and inconsistent sanction application.<sup>28</sup> These constraints weaken the regulatory capacity to influence the behavior of drivers and transport companies, illustrating that the regulation's strategic intent cannot guarantee compliance without consistent institutional support. Moreover, the socioeconomic pressures faced by drivers and the prioritization of profit over safety by some transport operators reflect deeper issues within the dimensions of society and legal culture, as described by Soekanto, which continue to hinder behavioral change.<sup>29</sup> Therefore, when viewed through this theoretical framework, the interview findings demonstrate that the effectiveness of the regulation is shaped not only by the quality of its legal substance but also by the extent to which enforcement mechanisms, social awareness, and cultural attitudes support its implementation.

The regulation establishes specific operational hours for heavy trucks to minimize disruptions during peak traffic periods, such as mornings and times when pupils travel home. This policy intent becomes analytically meaningful when interpreted through Soerjono Soekanto's theory of legal effectiveness. The interview with the Head of the Legal Division shows that the regulation was designed primarily as a behavioral control mechanism to prevent accidents involving heavy lorries. This aligns with Soekanto's view that legal norms are effective only insofar as they can influence and direct societal behavior. Applying Soekanto's five factors framework demonstrates a clear causal relationship between the interview findings and the theoretical dimensions.

The policymakers' emphasis on restricting truck movements reflects the strength of the legal substance; however, the same interview also revealed gaps in the consistency of enforcement, which directly corresponds to the law enforcement factor and explains why some drivers continue to violate the rules. The absence of adequate parking spaces and limited monitoring facilities further illustrate weaknesses in the means or facilities dimension, undermining the regulation's capacity to shape driver behavior. The interviews also highlighted varying levels of public compliance, indicating that community attitudes and economic pressures remain significant obstacles, which aligns with Soekanto's factors of society and legal culture. Therefore, the interview findings do

---

<sup>28</sup> M.F.H. Bhuiyan, A. Awasthi, and C. Wang, "Investigating the Impact of Access-Timing-Sizing Regulations on Urban Logistics," *International Journal of Logistics Systems and Management* 20, no. 2 (2015): 216–38, Scopus, <https://doi.org/10.1504/IJLSM.2015.067257>.

<sup>29</sup> L. Zhang, R. Long, and H. Chen, "Do Car Restriction Policies Effectively Promote the Development of Public Transport?," *World Development* 119 (2019): 100–110, Scopus, <https://doi.org/10.1016/j.worlddev.2019.03.007>.

not merely describe the regulation's implementation but demonstrate that the policy's mixed outcomes arise from uneven performance across the five factors, confirming Soekanto's argument that a law can only be effective when all supporting dimensions operate in alignment.

Field interviews indicated that Regent Regulation No. 12 of 2022 produced mixed outcomes in practice. According to the Head of the Legal Division, the regulation was formulated as a strategic response to increasing traffic accidents involving heavy trucks, with the primary objective of controlling vehicle movement during peak hours, particularly around school zones and densely populated areas of the city. The interview further revealed that although the restriction of operational hours reduced traffic disturbances at certain locations, implementation remained inconsistent because of limited personnel, the absence of designated parking areas, and uneven monitoring across high-risk corridors.

These constraints are confirmed by the testimony of Prasetyo of the Wasdalops Unit (Supervision, Control, and Operations), who observes that many violations are addressed only through verbal warnings, while formal administrative sanctions are seldom applied to them. Public participation also plays a role: residents frequently submit reports via the official Instagram account of the Transportation Agency, and these reports are followed up with field inspections.<sup>30</sup> However, both interviewees noted that economic pressure on drivers and profit-driven motives among haulage companies continue to generate non-compliance, with many drivers deliberately operating outside designated hours to meet delivery targets.

These empirical findings align with Soekanto's five-factor theory of legal effectiveness, which states that the success of a legal norm depends on the interplay between legal substance, law enforcement, supporting facilities, community participation, and legal culture. With respect to legal substance, the regulation provides norms that are substantively relevant and responsive to the traffic conditions of Tangerang Regency, indicating that the regulatory framework itself is not the main obstacle to effective implementation. The second determinant, law enforcement, reflects the most significant weakness observed in the interviews: the limited number of personnel, the predominance

---

<sup>30</sup> J. Xu et al., "The Synergy Impact of Private Vehicle Restrictions and Public Transportation Improvements on Commuters: A Case Study of Chengdu, China," *Transportation Research Part A: Policy and Practice* 200 (2025), Scopus, <https://doi.org/10.1016/j.tra.2025.104627>.

of verbal warnings, and inconsistent inter-agency coordination demonstrate that enforcement has not been carried out with sufficient regularity to generate deterrence. The third factor, supporting facilities, is also evidently lacking, as shown by the absence of parking areas for trucks awaiting operational hours and the limited availability of surveillance equipment at the terminal.

Community participation, the fourth factor, showed partial strength because residents actively reported violations, although compliance among drivers remained low due to economic constraints. Finally, the dimension of legal culture explains the persistence of non-compliance; many drivers continue to prioritize economic gain over legal adherence, and some transport companies tolerate breaches for operational convenience. Taken together, the interviews show that although the regulation is substantively sound, its effectiveness is undermined by weaknesses in enforcement, facilities, and legal culture, confirming Soekanto's argument that a law can only achieve its intended behavioral impact when all five supporting factors operate coherently.

Meanwhile, based on an interview with Anton Prasetyo, the Operational Supervision and Control Staff of the Tangerang Regency Transportation Agency, he explained that Regent Regulation No. 12 of 2022 has, in his view, contributed to a reduction in traffic violations and accidents involving goods transport vehicles, particularly heavy trucks. However, this assessment represents the subjective perception of the implementing officer because no quantitative data, such as the percentage decline in accidents or a comparison of pre- and post-regulation incident rates, were provided to substantiate this claim.

From the perspective of legal effectiveness, as conceptualized within general effectiveness theory and further elaborated by Soerjono Soekanto, such an evaluative statement should ideally be supported by clear indicators, including measurable behavioral change among drivers, consistent enforcement outcomes, and demonstrable improvements in road safety conditions. In the absence of empirical measurements, the informants' statements can be interpreted as an indication of perceived improvement at the operational level rather than a verified measure of regulatory success.

Based on interviews and field observations, the effectiveness of Regent Regulation No. 12 of 2022 can be examined through Soerjono Soekanto's theory of legal effectiveness, which identifies five interrelated factors that determine whether a legal

norm can influence and control behavior in accordance with the lawmaker's objectives. One indication of regulatory performance is the perceived decrease in the intensity of traffic violations and accidents at several high-risk points since the introduction of operating hour restrictions for freight vehicles. However, such indications must be assessed systematically by examining the extent to which each of the five factors supports or hinders implementation. The following table summarizes the findings according to these indicators:

Table 1. Summary of Legal Effectiveness and Regulatory Implementation Indicators

<b>Factor</b>	<b>Findings on Implementation of Regent Regulation No. 12 of 2022</b>
<b>Legal Substance</b>	The substance of the Regulation aligns with the needs of traffic management by limiting the operating hours of goods vehicles during peak congestion periods. The normative content is considered appropriate for reducing accident risks and minimising disruption caused by heavy trucks.
<b>Law</b>	Implementation is supported by collaboration between the Transportation Agency, Traffic Police, the Public Order Agency, and sub-district authorities through outreach activities, placement of warning signs, joint patrols, and enforcement actions. Constraints include limited personnel, inconsistent supervision, and insufficient on-site control.
<b>Enforcement</b>	
<b>Facilities and Infrastructure</b>	Monitoring resources remain insufficient. The absence of designated truck parking areas results in lorries stopping along the roadside, contributing to congestion and reducing the effectiveness of traffic management. The lack of integrated technological monitoring systems also restricts enforcement capacity.
<b>Society</b>	Information from informants shows that community participation plays an important role. Residents frequently report violations through the official Instagram account of the Transportation Agency, and such reports are followed up by the Wasdalops (Supervision, Control, and Operations) team through field

---

	inspections. This reflects an increasing level of public legal awareness.
<b>Legal Culture</b>	Despite improvements, legal culture among drivers remains weak. Many drivers continue to violate operating hour restrictions due to economic pressures and delivery targets. Some transport operators also prioritize profit over compliance and safety, indicating that behavioral change remains a challenge.

---

Source: compiled by the author

Collectively, these five factors show that although Regent Regulation No. 12 of 2022 demonstrates certain positive indications, particularly in terms of legal substance, inter-agency collaboration, and community participation, its overall effectiveness is still hindered by limited monitoring facilities, inconsistent enforcement, and a legal culture among drivers and businesses that has not yet fully aligned with the objectives of the Regulation. Accordingly, the implementation of this policy requires further strengthening to ensure that behavioral change, as the core measure of legal effectiveness, is achieved sustainably.

However, the persistence of drivers who continue to violate the operating-hour restrictions, largely due to economic pressures and delivery targets, illustrates a gap between the normative objectives of the regulation and actual behavioral change. From the perspective of Satjipto Rahardjo's conception of law as a tool of social engineering, such non-compliance indicates that the regulation has not yet fully succeeded in reshaping the social behavior of drivers and transport operators. Their profit-oriented practices demonstrate that legal norms have not effectively influenced the underlying motivations and socioeconomic realities that drive noncompliant conduct, thereby showing that the transformative function of the law remains only partially achieved.

### **Factors Hindering and Supporting the Effectiveness of Truck Operating Hours Regulations**

Assessing the effectiveness of Regent Regulation No. 12 of 2022 in reducing traffic accidents involving goods vehicles requires an integrated understanding of both the normative provisions of the regulation and the empirical circumstances observed in the field. Guided by Soerjono Soekanto's five-factor framework of legal effectiveness,

this analysis considers the interrelationship between legal substance, legal structure, facilities and infrastructure, society, and legal culture.<sup>31</sup> The findings are based on interviews with representatives from the Regent's Office, Legal Division, Transportation Agency, and local communities.

### ***Factors Supporting the Effectiveness of Truck Operating Hours Regulations***

#### **1. Legal Structure: Coordination Among Institutions**

Interviews indicated that coordination among implementing institutions functions as an important supporting factor. A representative from the Regent's Legal Division explained that regular coordination involving the Transportation Agency, Satpol PP, and the Police contributes to strengthened supervision at locations where non-compliance frequently occurs. Officers from the Transportation Agency similarly described collaborative monitoring with the sub-district and village administrations.<sup>32</sup> These practices illustrate Soekanto's assertion that institutional synergy plays a central role in shaping effective legal implementation.

#### **2. Society: Community Support and Participation**

Community involvement also supports the implementation of regulations. Residents expressed concerns about road safety, especially for schoolchildren, and reported that community members often monitored vehicle activities and conveyed information regarding suspected breaches of operating hours. This aligns with Nonet and Selznick's conception of responsive law, in which public participation supplements formal enforcement and reinforces social expectations of compliance.<sup>33</sup>

#### **3. Legal Culture: Early Signs of Willingness to Comply**

Interviews with transport operators indicated the emergence of behavioral adjustments in response to the regulation. Some companies have altered their operational schedules following feedback from residents and increased awareness of safety

---

<sup>31</sup> H. Min and E. Melachrinoudis, "A Model-Based Decision Support System for Solving Vehicle Routing and Driver Scheduling Problems under Hours of Service Regulations," *International Journal of Logistics Research and Applications* 19, no. 4 (2016): 256–77, Scopus, <https://doi.org/10.1080/13675567.2015.1075475>.

<sup>32</sup> E. Melachrinoudis, H. Min, and V. Shah, "Combined Truck Routing and Driver Scheduling Problems under Hours of Service Regulations," *International Journal of Operations and Quantitative Management* 17, no. 1 (2011): 29–47, Scopus.

<sup>33</sup> G.J. Casey, T. Miles-Johnson, and G.J. Stevens, "Lack of Consistency in Truck Driver Fatigue Management: Australian Law Enforcement Officer's and Transport Regulation Agent's Perceptions of Enforcement," *Transportation Research Part F: Traffic Psychology and Behaviour* 112 (2025): 322–41, Scopus, <https://doi.org/10.1016/j.trf.2025.04.007>.

obligations.<sup>34</sup> These early forms of voluntary compliance reflect the beginnings of legal internalization, consistent with Soekanto's view that the law becomes effective when regulated actors begin to align their behavior with established norms.

### ***Factors Hindering the Implementation of Truck Operating Hours***

#### **1. Legal Structure: Limited Personnel and Weak Monitoring Capacity**

Interviews with officials from the Regent's Office and the Transportation Agency highlighted concerns regarding limited personnel. Officers noted that the current staffing levels do not allow for the continuous monitoring of high-risk routes, making violations difficult to supervise effectively.<sup>35</sup> This mirrors Soekanto's argument that the adequacy and integrity of enforcement personnel are essential determinants of legal effectiveness in Indonesia. When monitoring capacity is limited, enforcement becomes inconsistent, and opportunities for noncompliance increase.

#### **2. Facilities and Infrastructure: Restrictions on Monitoring and Parking Provision**

Several interviewees highlighted the constraints related to monitoring facilities and supporting infrastructure. Officers described the lack of sufficient monitoring tools and the absence of designated parking areas for trucks awaiting loading or unloading as major problems. In practice, drivers often request leniency due to the unavailability of authorized waiting areas, which leads them to park along main roads despite existing prohibitions.<sup>36</sup> These infrastructural limitations reduce the feasibility of sustained enforcement and indicate a gap between regulatory requirements and implementation capacity.

#### **3. Society and Legal Culture: Low Awareness and Economic Priorities**

Both drivers and enforcement officers indicated that economic pressures continue to influence non-compliance with operational time limits. Some drivers prioritize delivery targets or business-related incentives over adherence to safety regulations.<sup>37</sup> According to officials from the Legal Division, this reflects low levels of legal awareness and a weak

---

<sup>34</sup> F. Vital and P. Ioannou, "Long-Haul Truck Scheduling with Driving Hours and Parking Availability Constraints," 2019-June (2019): 620–25, Scopus, <https://doi.org/10.1109/IVS.2019.8814011>.

<sup>35</sup> A. Jensen and S. Dahlb, "Truck Drivers Hours-of-Service Regulations and Occupational Health," *Work* 33, no. 3 (2009): 363–68, Scopus, <https://doi.org/10.3233/WOR-2009-0884>.

<sup>36</sup> D. Mansfield and M. Kryger, "Regulating Danger on the Highways: Hours of Service Regulations," *Sleep Health* 1, no. 4 (2015): 311–13, Scopus, <https://doi.org/10.1016/j.sleh.2015.09.008>.

<sup>37</sup> C. Chen and Y. Xie, "The Impacts of Multiple Rest-Break Periods on Commercial Truck Driver's Crash Risk," *Journal of Safety Research* 48 (2014): 87–93, Scopus, <https://doi.org/10.1016/j.jsr.2013.12.003>.

culture of voluntary compliance in the country. This condition corresponds with Friedman's emphasis on the importance of the alignment between legal structure and legal culture in ensuring that legal norms function effectively within society.

#### 4. Substantive Constraints: Clarity Without Predictable Application

Although the Regulation provides clear rules regarding operational hours, interview data suggest that uneven enforcement creates uncertainty for the regulated actors. Some drivers described supervision as inconsistent, which affected their perception of the reliability of sanctions.<sup>38</sup> This illustrates Radbruch's principle that legal certainty requires not only clarity in substantive provisions but also predictability and stability in their applications. When the enforcement pattern appears irregular, the normative force of the regulation becomes less influential.

#### **Certainty and Effectiveness of Law in the Implementation of Regulations Restricting the Operation of Goods Vehicles**

The observed balance between supporting and inhibiting elements also illustrates the systemic nature of legal effectiveness, whereby deficiencies in one component affect the implementation of the regulatory framework.

Tabel 2. Comparative Table of Supporting and Inhibiting Factors

Factor	Field Findings	Impact on Effectiveness
Legal Substance	Clear rules on operational hours	Supports clarity, but effectiveness depends on the consistency of enforcement
Legal Structure	Coordination among institutions but limited personnel	Enhances supervision, yet constrained staff capacity weakens enforcement
Facilities and Infrastructure	Insufficient monitoring tools and lack of designated parking areas	Restricts the feasibility of sustained and orderly implementation
Society	Community support and active reporting	Strengthens oversight, though cannot fully compensate for low awareness among drivers
Legal Culture	Some voluntary compliance emerging, yet many actors prioritise economic gain	Limited internalisation of norms reduces the stability of compliance

Source: compiled by the author

<sup>38</sup> A. Goel and T. Vidal, "Hours of Service Regulations in Road Freight Transport: An Optimization-Based International Assessment," *Transportation Science* 48, no. 3 (2014): 391–412, Scopus, <https://doi.org/10.1287/trsc.2013.0477>.

These findings reflect Soerjono Soekanto's core analytical proposition regarding the reciprocal dependence between legal substance, legal structure, facilities and infrastructure, society, and culture.<sup>39</sup> The interaction between these factors determines the extent to which regulations can be effectively implemented. The interview results are also consistent with Lawrence M Friedman's concept of the legal system as an interaction between substance, structure, and culture.<sup>40</sup> The presence of institutional coordination and community participation demonstrates the functioning of structural and social dimensions, while persistent noncompliance indicates that cultural elements are not yet fully aligned with formal legal expectations.<sup>41</sup> From a legal certainty perspective, these findings are consistent with Gustav Radbruch's argument that clarity must be accompanied by stability and certainty in law enforcement. The regulations provide clear normative provisions, but variations in monitoring practices and sanctions affect the extent to which the regulated parties perceive legal certainty.

## Conclusion

This study shows that the effectiveness of the policy regulating the operational hours of freight vehicles is shaped by the consistency of law enforcement, quality of inter-agency coordination, and level of public legal awareness. Juridically, the Regent Regulation has a clear normative foundation aligned with regional governance needs; however, its empirical application demonstrates only partial effectiveness. Improvements in compliance among some drivers coexist with persistent violations arising from weak enforcement, limited personnel, and inadequate supporting facilities, which collectively diminish both the regulation's practical authority and its social effectiveness by reducing the credibility and normative pressure required to encourage voluntary adherence.

Drawing on Soerjono Soekanto's theory of legal effectiveness and Radbruch's notion of legal certainty, this study demonstrates that the Regulation's effectiveness is determined not only by the clarity of its substantive provisions but also by the interaction

---

<sup>39</sup> Soerjono Soekanto, *Faktor-Faktor Yang Mempengaruhi Penegakan Hukum* (Jakarta: PT RajaGrafindo Persada, 2007).

<sup>40</sup> Lawrence M. Friedman and terj. M. Khozim, *Sistem Hukum: Perspektif Ilmu Sosial* (Bandung: Penerbit Nusa Media, 2009).

<sup>41</sup> K. Heaton, "Truck Driver Hours of Service Regulations: The Collision of Policy and Public Health," *Policy, Politics, & Nursing Practice* 6, no. 4 (2005): 277–84, Scopus, <https://doi.org/10.1177/1527154405282841>.

among institutional coordination, available facilities, community participation, and local legal culture. The findings provide a specific contribution to understanding how regional regulations operate within a decentralized legal system, showing that legal certainty depends on the consistent application of norms by multiple agencies and the responsiveness of the regulated community to these norms. This alignment between normative design and empirical implementation reflects the law's character as a living instrument whose real-world effectiveness is shaped by structural, sociocultural, and behavioral factors.

Future research should address the study's methodological and empirical limitations by adopting broader and more systematic approaches to evaluate variations in enforcement, institutional coordination, and community responses across different districts implementing similar restrictions. Comparative analyses, spatial mapping of accident and violation patterns, and targeted surveys involving drivers, enforcement officers, and residents may provide deeper insights into infrastructural constraints, legal awareness, and perceptions of enforcement consistency. Such approaches would strengthen the empirical understanding of the Regulation's implementation and support the development of more contextually grounded policy improvements.

## Bibliography

Alexander, Oktavianus, and Reni Dwi Purnomowati. *Retribusi Izin Trayek Di Kabupaten Bogor 2022 Berdasarkan Perda No. 13 Tahun 2011*. 7, no. 13 (2025): 582–93.

Asshiddiqie, Jimly. *Penegakan Hukum*. 2007, 1–6.

Atmasasmita, Romli. *Reformasi Hukum, Hak Asasi Manusia & Penegakan Hukum*. Bandung: Mandar maju, 2001.

Attamimi, A Hamid S. *Teori Perundang-Undangan Indonesia*. 2021.

Bhuiyan, M.F.H., A. Awasthi, and C. Wang. “Investigating the Impact of Access-Timing-Sizing Regulations on Urban Logistics.” *International Journal of Logistics Systems and Management* 20, no. 2 (2015): 216–38. Scopus. <https://doi.org/10.1504/IJLSM.2015.067257>.

Casey, G.J., T. Miles-Johnson, and G.J. Stevens. “Lack of Consistency in Truck Driver Fatigue Management: Australian Law Enforcement Officer's and Transport Regulation Agent's Perceptions of Enforcement.” *Transportation Research Part*

*F: Traffic Psychology and Behaviour* 112 (2025): 322–41. Scopus. <https://doi.org/10.1016/j.trf.2025.04.007>.

Chen, C., and Y. Xie. “The Impacts of Multiple Rest-Break Periods on Commercial Truck Driver’s Crash Risk.” *Journal of Safety Research* 48 (2014): 87–93. Scopus. <https://doi.org/10.1016/j.jsr.2013.12.003>.

Dablanc, L., and A. Montenon. “Impacts of Environmental Access Restrictions on Freight Delivery Activities Example of Low Emissions Zones in Europe.” *Transportation Research Record* 2478 (2015): 12–18. Scopus. <https://doi.org/10.3141/2478-02>.

Dempsey, R.P., J.R. Brunet, and V. Dubljević. “Exploring and Understanding Law Enforcement’s Relationship with Technology: A Qualitative Interview Study of Police Officers in North Carolina.” *Applied Sciences (Switzerland)* 13, no. 6 (2023). Scopus. <https://doi.org/10.3390/app13063887>.

Frändberg, Å. “Legality and Legal Subordination.” In *Law and Philosophy Library*, 109:59–96. 2014. Scopus. [https://doi.org/10.1007/978-3-319-06784-1\\_4](https://doi.org/10.1007/978-3-319-06784-1_4).

Friedman, Lawrence M., and terj. M. Khozim. *Sistem Hukum: Perspektif Ilmu Sosial*. Bandung: Penerbit Nusa Media, 2009.

Goel, A., and T. Vidal. “Hours of Service Regulations in Road Freight Transport: An Optimization-Based International Assessment.” *Transportation Science* 48, no. 3 (2014): 391–412. Scopus. <https://doi.org/10.1287/trsc.2013.0477>.

Guerra, E., A. Sandweiss, and S.D. Park. “Does Rationing Really Backfire? A Critical Review of the Literature on License-Plate-Based Driving Restrictions.” *Transport Reviews* 42, no. 5 (2022): 604–25. Scopus. <https://doi.org/10.1080/01441647.2021.1998244>.

Hakim, Abdul Aziz. *Negara Hukum Dan Demokrasi Di Indonesia*. Yogyakarta: Pustaka Pelajar, 2011.

Heaton, K. “Truck Driver Hours of Service Regulations: The Collision of Policy and Public Health.” *Policy, Politics, & Nursing Practice* 6, no. 4 (2005): 277–84. Scopus. <https://doi.org/10.1177/1527154405282841>.

Jensen, A., and S. Dahlb. “Truck Drivers Hours-of-Service Regulations and Occupational Health.” *Work* 33, no. 3 (2009): 363–68. Scopus. <https://doi.org/10.3233/WOR-2009-0884>.

Kaszubowski, D., and F. Heleniak. "A Concept of Freight Traffic Flow Regulations in the City of Gdansk." 2017, 57–71. Scopus. [https://doi.org/10.1007/978-3-319-51427-7\\_5](https://doi.org/10.1007/978-3-319-51427-7_5).

Kaulika, Sacharissa, and Ninuk Wijiningsih. "Peran Pemerintah Daerah Kota Bogor Dalam Pelaksanaan Urusan Pemerintah Di Bidang Lalu Lintas Dan Transportasi." *Jurnal Reformasi Hukum Trisakti* 6, no. November (2024): 1418–31.

Mansfield, D., and M. Kryger. "Regulating Danger on the Highways: Hours of Service Regulations." *Sleep Health* 1, no. 4 (2015): 311–13. Scopus. <https://doi.org/10.1016/j.sleh.2015.09.008>.

Marzuki, Peter Mahmud. "Penelitian Hukum, Edisi Revisi, Cetakan Ke-12." *Jakarta: Kencana*, 2016, 133–36.

Melachrinoudis, E., H. Min, and V. Shah. "Combined Truck Routing and Driver Scheduling Problems under Hours of Service Regulations." *International Journal of Operations and Quantitative Management* 17, no. 1 (2011): 29–47. Scopus.

Min, H., and E. Melachrinoudis. "A Model-Based Decision Support System for Solving Vehicle Routing and Driver Scheduling Problems under Hours of Service Regulations." *International Journal of Logistics Research and Applications* 19, no. 4 (2016): 256–77. Scopus. <https://doi.org/10.1080/13675567.2015.1075475>.

Nagy, E., and Z. Sandor. "Overtaking Ban for Heavy Goods Vehicle in Hungary on the National Motorway Network." *Pollack Periodica* 7, no. 1 (2012): 83–95. Scopus. <https://doi.org/10.1556/Pollack.7.2012.1.8>.

ND, Mukti Fajar, and Yulianto Achmad. *Dualisme Penelitian Hukum Normatif & Empiris*. Yogyakarta: Pustaka Pelajar, 2017.

Nur, M., and S.P. Hadiwardoyo. "Analysis on Logistic Company Action toward the Access Restriction Policy on Freight Vehicle." 1855 (2017). Scopus. <https://doi.org/10.1063/1.4985506>.

"Peraturan Bupati (Perbup) Kabupaten Tangerang Nomor 12 Tahun 2022 Tentang Perubahan Kedua Atas Peraturan Bupati Nomor 46 Tahun 2018 Tentang Pembatasan Waktu Operasional Mobil Barang Pada Ruas Jalan Di Wilayah Kabupaten Tangerang." Preprint, Indonesia, 2022.

Pratiwi, Meiliya, Leo Agustino, and Ima Maisaroh. "Efektivitas Peraturan Bupati Tentang Pembatasan Waktu Operasional Mobil Barang Pada Ruas Jalan Di Wilayah

Kecamatan Jayanti Kabupaten Tangerang.” *Journal of Geopolitics and Public Policy* 3, no. 1 (2025): 11–24.

Rahardjo, Satjipto. *Ilmu Hukum*. Bandung: PT Citra Aditya Bakti, 2021.

Reza. “Pengendara Tewas Terlindas Truk Langgar Jam Operasional, Kadishub: Tidak Bisa Kita Tilang.” 2024. <https://tangerangonline.id/2024/10/14/pengendara-tewas-terlindas-truk-langgar-jam-operasional-kadishub-tidak-bisa-kita-tilang/>.

Rizqi, Nurhafizh Muhammad, Mega Suryandari, and Selenia Ediyani Palupiningtyas. *Optimalisasi Kebijakan Operasional Angkutan Barang Untuk Kelancaran Lalu Lintas Di Kabupaten Subang*. xx, no. x (2022): 1–10. <https://doi.org/10.55511/jpsttd.vxxix.xx>.

Salsabilla, Maulida, Meisya Yasmine Anwar, Alya Salwa Ramadhina Lesmana Putri, Trista Erwanda Warastika, and Ahmad Syaguni Majdi. “Tinjauan Hukum Tata Negara Terhadap Izin Operasional Transportasi Truk Di Kota Banjarmasin.” *Integrative Perspectives of Social and Science Journal* 2, no. 3 (2025): 3759.

Soekanto, Soerjono. *Faktor-Faktor Yang Mempengaruhi Penegakan Hukum*. Raja Grafindo Persada, 2011.

———. *Faktor-Faktor Yang Mempengaruhi Penegakan Hukum*. Jakarta: PT RajaGrafindo Persada, 2007.

Song, H., K. Shin, and F.M.A. Hassouna. “Is the High-Emission Vehicle Driving Area Restriction Policy an Effective Measure for Reducing Driving Distance? A Case Study of Busan, South Korea.” *Sustainability (Switzerland)* 16, no. 24 (2024). Scopus. <https://doi.org/10.3390/su162411055>.

Thompson, R.M. “Police Use of Force: Rules, Remedies and Reforms.” In *Police Use of Force and Federal Tactical Teams: Background and Considerations*, 1–38. 2016. Scopus. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85019947171&partnerID=40&md5=de966ff231d8c3b667369afe66d8c985>.

Vital, F., and P. Ioannou. “Long-Haul Truck Scheduling with Driving Hours and Parking Availability Constraints.” 2019-June (2019): 620–25. Scopus. <https://doi.org/10.1109/IVS.2019.8814011>.

Wijayanti, A.T., D.S. Anggraeni, D.A.S. Dewi, H.A. Hakim, Y. Kurniaty, and D. Setiawati. “Bridging Technology and Justice: The Role of AI in Law Enforcement

through Pancasila's Ideals." 622 (2025). Scopus. <https://doi.org/10.1051/e3sconf/202562204003>.

Xu, J., H. Zhang, Y. Liao, and J. Fang. "The Synergy Impact of Private Vehicle Restrictions and Public Transportation Improvements on Commuters: A Case Study of Chengdu, China." *Transportation Research Part A: Policy and Practice* 200 (2025). Scopus. <https://doi.org/10.1016/j.tra.2025.104627>.

Zhang, L., R. Long, and H. Chen. "Do Car Restriction Policies Effectively Promote the Development of Public Transport?" *World Development* 119 (2019): 100–110. Scopus. <https://doi.org/10.1016/j.worlddev.2019.03.007>.