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ELIMINATING GOVERNMENT VEHICLE ASSETS IN SUPPORT OF THE GREEN ECONOMY: A STUDY OF INTERNATIONAL POLICY AND PRACTICE

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Abstract

The disposal of government official vehicles in Indonesia is generally carried out through public auctions aimed at optimizing Non-Tax State Revenue (PNBP), ensuring transparency, and improving the efficiency of state asset management. However, from the perspectives of the green economy and public asset management, this mechanism may prolong the operational life of aging vehicles with high carbon emissions, thereby increasing negative environmental impacts and hindering the achievement of sustainable development goals. This study aims to analyze the implications of auction-based vehicle disposal policies on green economy principles, evaluate strategic decision-making considerations in public asset management, compare vehicle disposal practices in Indonesia with those implemented in developed countries, and formulate policy reform recommendations that support sustainable governance. The research employs a qualitative descriptive approach through a literature review, policy analysis, and a comparative study of government vehicle disposal practices in the United States, Germany, and Japan. The findings indicate that Indonesia's vehicle disposal policy remains primarily focused on fiscal and administrative objectives, whereas developed countries have integrated circular economy principles through vehicle recycling, emissions management, environmental impact reporting, and the assessment of economic and environmental benefits within asset disposal processes. The transition toward a more sustainable disposal system requires careful consideration of risk management and cost efficiency to maintain accountability in public asset management. This study recommends the adoption of a hybrid model combining public auctions and vehicle recycling, the integration of environmental criteria into asset disposal regulations, and the allocation of a portion of auction proceeds to support clean energy transition programs and low-emission vehicles, thereby promoting sustainable state asset management.

Keywords: *public auction, public asset management, green economy, circular economy, sustainable governance*

INTRODUCTION

Sustainable development has become a central agenda for many countries in response to increasing environmental pressures resulting from economic activities and industrialization. Over the past few decades, the concept of the *green economy* has emerged as a development approach that seeks to balance economic growth, social welfare, and environmental sustainability through more efficient and low-carbon resource utilization (Mealy & Teytelboym, 2022). This approach encourages governments not only to pursue short-term economic growth but also to consider the environmental consequences of public policies. In this context, the public sector plays a crucial role as a regulator, consumer, and asset manager capable of influencing the successful implementation of a green economy. Therefore, integrating sustainability principles into public asset management has become a strategic instrument for achieving sustainable development goals and economic decarbonization (Stojkoski et al., 2023).

Indonesia has demonstrated a strong commitment to low-carbon development through its target of achieving Net Zero Emissions (NZE) by 2060 or sooner. One of the sectors receiving significant attention in this effort is the transportation sector, which is a major contributor to

greenhouse gas emissions. Various studies indicate that transportation accounts for approximately one-quarter of global energy-related emissions and remains one of the primary sources of air pollution in urban areas (IEA, 2023). The continuous growth in the number of motor vehicles has led to increased fossil fuel consumption, carbon emissions, and air pollution, all of which adversely affect public health. Moreover, aging vehicles generally exhibit lower energy efficiency and produce significantly higher emissions than newer vehicles that comply with modern emission standards (Sen et al., 2023). Within the framework of State Property (BMN) management, government vehicles constitute strategic assets that support governmental operations and public service delivery. Over time, these vehicles experience depreciation, increasing maintenance costs, and declining operational performance, necessitating their disposal. Under Indonesia's state asset management regulations, government vehicles are typically disposed of through public auctions aimed at maximizing asset value while generating Non-Tax State Revenue (PNBP). From an asset governance perspective, this mechanism has proven effective in ensuring transparency, accountability, and efficiency in the disposal process. Nevertheless, auctioned vehicles generally continue to be operated by their new owners, thereby extending the service life of vehicles characterized by relatively high emission levels and low energy efficiency (Nugroho et al., 2024).

This phenomenon creates a policy dilemma between fiscal objectives and environmental goals. From a fiscal standpoint, auctioning government vehicles generates economic benefits through increased state revenue and reduced storage and maintenance costs. However, from an environmental perspective, older vehicles that remain in operation after disposal are likely to emit substantially higher levels of pollutants than newer vehicles. Numerous studies have identified aging vehicle fleets as major contributors to carbon monoxide (CO), hydrocarbons (HC), nitrogen oxides (NOx), and particulate matter emissions, all of which directly affect air quality and public health (Burchart-Korol et al., 2018). These circumstances suggest that government vehicle disposal policies are not merely administrative and fiscal matters but also have important implications for achieving national environmental targets. From a green economy perspective, public asset management should not be limited to maximizing the economic value of assets but should also consider the entire asset life cycle. This approach aligns with the concept of the *circular economy*, which emphasizes efficient resource utilization through strategies such as reuse, remanufacturing, recovery, and recycling. The circular economy seeks to minimize waste generation while maintaining the value of materials within the economic system for as long as possible, thereby reducing dependence on virgin resources (Saidani et al., 2019). In the automotive sector, this concept is implemented through the management of *End-of-Life Vehicles* (ELVs), enabling vehicles that have reached the end of their useful life to undergo material recovery and recycling processes. Consequently, vehicles that are no longer suitable for operation can continue to generate economic value while simultaneously reducing environmental impacts (Karagoz et al., 2020).

ELV management has become an integral component of environmental policy in many developed countries. The European Union, through Directive 2000/53/EC on End-of-Life Vehicles, requires member states to establish structured vehicle recovery systems to reduce automotive waste and increase recycling rates. In the United States, the General Services Administration (GSA) has developed government vehicle disposal mechanisms that take energy efficiency, emission levels, and asset reuse opportunities into account. Similarly, Japan applies a Life Cycle Assessment (LCA) approach in government vehicle disposal decisions to ensure that environmental benefits are maximized throughout the vehicle life cycle (Forti et al., 2023). These practices demonstrate

that public asset disposal can serve as an effective environmental policy instrument when designed according to sustainability principles.

Beyond policy design and environmental considerations, the implementation of reform in government vehicle disposal also generates important institutional consequences that must be addressed. A transition from a purely auction-based mechanism toward a hybrid model incorporating recycling and environmental criteria requires significant organizational adaptation within public sector institutions. This includes changes in decision-making processes, inter-agency coordination, resource allocation, and performance evaluation systems. From a public management perspective, the success of such policy reform is highly dependent on the readiness and capacity of government organizations to undertake institutional transformation. Therefore, assessing institutional capacity becomes a critical dimension in evaluating the feasibility of policy change. In this regard, theories of organizational governance and change management provide a useful analytical lens to understand how bureaucratic structures respond to new sustainability-oriented mandates. Key aspects such as leadership commitment, bureaucratic inertia, human resource competencies, and administrative flexibility play a decisive role in determining whether policy innovation can be effectively implemented. Integrating these perspectives into the analysis strengthens the management dimension of this study by highlighting that sustainable public asset management is not only a technical or regulatory issue, but also an organizational transformation process that requires adaptive governance and institutional readiness.

Although numerous studies have examined the relationship between the green economy, circular economy, and the transportation sector, research specifically addressing the relationship between government vehicle auction mechanisms and the achievement of green economy objectives remains limited. Most previous studies have focused on vehicle waste management, electric vehicle development, or the implementation of circular economy principles in the manufacturing sector. Research concerning state asset management generally emphasizes administrative efficiency, accountability, and revenue optimization. Consequently, a significant research gap remains regarding how government vehicle disposal policies can be designed to simultaneously integrate fiscal and environmental objectives (D'Amato & Korhonen, 2021). Limited number of studies have compared Indonesia's government vehicle disposal mechanisms with best practices implemented in developed countries within the framework of the green economy and circular economy. Such international comparisons are important for identifying policy improvement opportunities that may be adapted to the Indonesian context. Comparative analysis also enables the identification of policy instruments capable of reducing carbon emissions without eliminating the economic benefits generated through public asset disposal. Therefore, there is a need for research that evaluates government vehicle auction mechanisms not only from a fiscal perspective but also in terms of their environmental impacts and contributions to sustainable national development (Sitinjak et al., 2025).

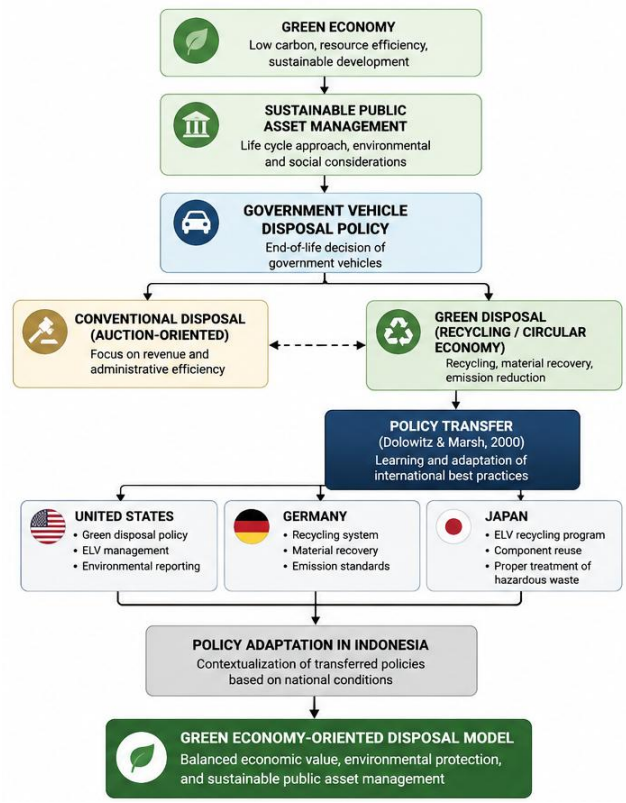
Based on these considerations, this study offers a novel perspective by developing an analytical framework that integrates State-Owned Asset management, government vehicle disposal mechanisms, green economy principles, and circular economy concepts into a comprehensive analytical model. Unlike previous studies that primarily focus on ELV management from industrial and environmental perspectives, this research places government vehicle auctions at the center of analysis to assess the extent to which public asset disposal policies support sustainable development objectives. The novelty of this study lies in its effort to simultaneously connect fiscal, environmental, and public asset governance dimensions through an examination of the impacts of government vehicle auctions on state revenue and the potential increase in carbon emissions

resulting from prolonged vehicle operation. Furthermore, this study compares Indonesia's practices with those of developed countries to formulate alternative policy recommendations in the form of a hybrid auction-and-recycling model. Such a model is expected to balance revenue optimization, carbon emission reduction, circular economy development, and the achievement of sustainable development goals. The findings are expected to contribute theoretically to the emerging literature on sustainable public asset management while providing practical recommendations for designing state asset disposal policies that are more adaptive to the transition toward a green economy (Mealy & Teytelboym, 2022).

LITERATURE REVIEW

From a public administration perspective, the development of environmentally oriented public asset management policies can be understood through the lens of Policy Transfer Theory. Dolowitz and Marsh (2000) define policy transfer as a process through which knowledge about policies, administrative arrangements, institutions, and ideas in one political system is used in the development of policies in another system. In an increasingly interconnected world, governments frequently learn from international experiences and adopt policy innovations that have proven effective elsewhere. Policy transfer may occur voluntarily through lesson-drawing and policy learning, or it may be influenced by international organizations, global norms, and transnational policy networks.

Figure 1. Conceptual Framework



Source: Adapted from Dolowitz and Marsh (2000) and research findings.

According to that theory, policy transfer involves several key questions: why actors engage in policy transfer, who participates in the transfer process, what elements are transferred, from where lessons are drawn, and what factors facilitate or constrain the transfer process. Policy actors may include governments, bureaucratic agencies, international organizations, policy experts, and non-governmental organizations. The transferred elements can range from policy goals and instruments to administrative procedures and institutional arrangements. Successful policy transfer requires not only the adaptation of foreign practices to local contexts but also sufficient institutional capacity and political support to implement transferred ideas effectively.

In the context of government vehicle disposal, Policy Transfer Theory provides a useful analytical framework for examining how Indonesia can learn from international experiences in integrating green economy and circular economy principles into public asset management. Several developed countries, including the United States, Germany, and Japan, have adopted environmentally oriented vehicle disposal systems that combine fiscal objectives with sustainability goals through mechanisms such as vehicle recycling, environmental reporting, life-cycle assessment, and end-of-life vehicle (ELV) management. These experiences offer valuable lessons for countries seeking to reform conventional disposal practices that primarily emphasize revenue generation through auctions.

Policy transfer is particularly relevant in the field of environmental governance because many sustainability challenges transcend national boundaries and require the diffusion of policy innovations across countries. Benson and Jordan (2011) argue that policy learning and policy transfer have become increasingly important mechanisms through which governments respond to complex environmental and climate-related challenges. Similarly, Stone (2004) emphasizes that international policy networks and global governance institutions facilitate the exchange of policy knowledge and best practices among countries. Consequently, the adoption of green disposal practices can be viewed as part of a broader process of international policy learning aimed at achieving sustainable development objectives.

The disposal of government vehicles represents a critical stage in the public asset management cycle and carries both economic and environmental implications. Traditionally, government vehicles are disposed of through sales or auction mechanisms aimed at maximizing state revenue and reducing maintenance costs associated with aging assets. However, from an environmental perspective, selling old vehicles may extend the operational life of high-emission vehicles, thereby contributing to increased air pollution and greenhouse gas emissions. According to the International Energy Agency (2024), the transportation sector remains one of the largest contributors to global carbon emissions. Studies by Hao et al. (2021), Wang et al. (2022), Creutzig et al. (2015), and Santos et al. (2021) demonstrate that older vehicles generally exhibit lower energy efficiency and produce significantly higher emissions than newer vehicles equipped with advanced emission-control technologies. Therefore, government vehicle disposal policies should consider the environmental consequences that may arise after such vehicles are transferred to private ownership.

In this context, the concept of the circular economy offers a relevant framework for government vehicle disposal policies. The circular economy seeks to preserve the value of materials and resources for as long as possible through practices such as reuse, repair, remanufacturing, and recycling. Kirchherr et al. (2017) describe the circular economy as an alternative to the traditional linear economic model, which follows a “take-make-dispose” pattern and generates substantial waste. Within the automotive sector, circular economy principles are implemented through the

management of end-of-life vehicles (ELVs), enabling the recovery and reuse of valuable components while ensuring the safe treatment of hazardous waste. Research conducted by Bressanelli et al. (2020), Saidani et al. (2019), Reuter et al. (2019), and Sakai et al. (2014) indicates that circular economy practices in vehicle disposal can significantly reduce waste generation, improve material efficiency, and mitigate environmental impacts. Consequently, integrating recycling mechanisms into government vehicle disposal processes can generate economic value while simultaneously supporting sustainability objectives.

Several developed countries have adopted government vehicle disposal policies that integrate green economy and circular economy principles through the implementation of green public procurement and green disposal policies. These approaches consider not only the economic value of disposed assets but also factors such as carbon emissions, recycling potential, and long-term environmental impacts. Rainville (2021) and Testa et al. (2016) argue that environmentally oriented procurement and disposal policies can stimulate market transformation toward greener technologies and products. Furthermore, Cheng et al. (2018), Grandia and Voncken (2019), and Alhola et al. (2019) emphasize the important role of governments in creating demand for environmentally sustainable products through public procurement and asset management policies. Viewed through the perspective of Policy Transfer Theory, these international practices provide valuable policy lessons that can inform the redesign of government vehicle disposal systems in developing countries. By adapting successful elements from international experiences, governments can transform vehicle disposal from a purely administrative and fiscal function into a strategic policy instrument that supports low-carbon development, circular economy initiatives, and broader green economy objectives.

RESEARCH METHODS

This study employs a qualitative descriptive approach using policy analysis and comparative study methods to examine how government vehicle disposal policies can support the principles of the green economy. A qualitative approach is considered appropriate because the research seeks to explore and interpret policy frameworks, institutional practices, and sustainability considerations related to government asset management (Howlett & Mukherjee, 2018). The study focuses on analyzing Indonesia's current vehicle disposal mechanisms and comparing them with international best practices implemented in the United States, Germany, and Japan. These countries were selected not merely because they represent developed economies, but because they have demonstrated relatively advanced practices in public asset management, government fleet management, vehicle recycling systems, and the integration of circular economy principles into public policies. The United States has established structured government vehicle disposal and fleet replacement programs emphasizing lifecycle cost management and environmental compliance. Germany is recognized for its comprehensive vehicle recycling regulations and leadership in implementing circular economy policies within the European Union. Meanwhile, Japan has developed an effective end-of-life vehicle (ELV) recycling system supported by extended producer responsibility and resource recovery mechanisms. Comparative policy analysis enables the identification of similarities, differences, policy gaps, and transferable lessons that can strengthen Indonesia's asset disposal framework while supporting environmental sustainability objectives (Creswell & Poth, 2018). The study is grounded in concepts of green economy, circular economy, and sustainable public asset management, which emphasize resource efficiency, waste

reduction, and the integration of environmental considerations into public sector decision-making (Geissdoerfer et al., 2017).

The research relies primarily on secondary data collected through documentary analysis, including national regulations, government reports, international policy documents, and peer-reviewed scientific journal articles published within the last ten years. Key sources include Indonesian regulations governing state asset management and disposal, reports and academic literature on green public procurement, circular economy, vehicle scrappage policies, and sustainable transportation. Data are collected through systematic document review and analyzed using thematic analysis, which involves data reduction, categorization of key themes, comparative evaluation, and interpretation of findings (Purnomo et al., 2021). The main analytical themes include asset disposal policies, environmental integration, recycling mechanisms, circular economy practices, lifecycle asset management, and the economic and environmental impacts of government vehicle disposal. To ensure the credibility and reliability of the findings, the study applies source triangulation by cross-checking information from legal documents, institutional reports, and scholarly publications. This approach allows the research to generate evidence-based policy recommendations for developing a more environmentally sustainable government vehicle disposal system that supports Indonesia's transition toward a green economy (Korhonen et al., 2018).

RESULT & DISCUSSION

The policy transfer theory developed by Dolowitz and Marsh explains how knowledge about policies, institutions, and programs in one country is used in policy development in another country (Dolowitz & Marsh, 2000). In the context of this research, the green economy-based government vehicle elimination policy in Indonesia is analyzed through six main questions: why transfer, who transfers, what is transferred, from where, what are the constraints, and what is the degree of transfer. This framework is used to understand how the practice of eliminating government vehicles in the United States, Germany, and Japan can be a source of learning for Indonesia in formulating a more sustainable policy for eliminating State Property (BMN).

Why Transfer? - Why Does Indonesia Need to Learn from the United States, Germany, and Japan?

Research shows that Indonesia's government vehicle scrappage policy is still dominated by administrative and fiscal considerations. Vehicle scrappage is largely carried out through an auction mechanism aimed at optimizing Non-Tax State Revenue (PNBP). Although this mechanism has a high sales success rate of around 98 percent, the policy has not explicitly considered the environmental impacts of extending the service life of older, high-emission vehicles. This finding indicates a gap between state-owned asset management policies and the low-carbon development agenda, which has become a national priority. From a policy transfer perspective, the need to learn from other countries arises when there is a policy failure or the inability of existing policies to address new challenges (Dolowitz & Marsh, 2012). In Indonesia's case, this challenge is the need to integrate green economy principles into the state asset management cycle. The Indonesian government has committed to achieving a Net Zero Emission target by 2060 and implementing a low-carbon development agenda through Low Carbon Development Indonesi. However, he government vehicle scrappage instrument has not been linked to emission reduction targets or circular economy principles.

The United States, Germany, and Japan serve as important references because they have successfully integrated environmental aspects into government asset disposal policies. In the United States, federal vehicle disposal is based not only on age and maintenance costs, but also on fuel efficiency and emission standards (U.S. General Services Administration, 2024). In Germany, the End-of-Life Vehicle (ELV) policy is an integral part of implementing a circular economy, ensuring that unusable vehicles are processed through certified recycling facilities (European Commission, 2023). Meanwhile, Japan integrates its vehicle disposal policy with the Automobile Recycling Law and Life Cycle Assessment (LCA) to reduce environmental impacts throughout the vehicle's life cycle (MOEJ, 2023). Lessons learned from these three countries are important because they demonstrate that government vehicle disposal is no longer viewed solely as an administrative process but as an environmental policy instrument. Therefore, policy transfer is needed to strengthen the contribution of state-owned vehicle management to achieving sustainable development goals and a green economy.

Who Transfers? - The Actors Involved in Policy Transfer.

Dolowitz and Marsh (2000) argue that policy transfer is rarely conducted by a single institution. Instead, it involves multiple actors operating at domestic, international, governmental, and non-governmental levels. The findings of this study reveal that the transfer of green vehicle disposal policies into Indonesia would require collaboration among several key stakeholders. Each institution possesses distinct responsibilities and capacities that are necessary for the successful adaptation and implementation of transferred policies. Consequently, understanding the roles of these actors is essential for assessing the feasibility of policy transfer.

The Directorate General of State Assets Management (DJKN) represents the most important domestic actor in the transfer process. As the institution responsible for managing States Property (BMN), DJKN possesses the authority to formulate technical regulations concerning vehicle disposal and auction mechanisms. Any transition from a conventional auction-based system toward a hybrid auction-recycling model would require substantial involvement from DJKN. Furthermore, DJKN would play a central role in integrating environmental criteria into existing asset management procedures. Therefore, the agency serves as the primary policy entrepreneur within the proposed reform process.

The Ministry of Finance also plays a critical role because government vehicle disposal directly affects state revenues and fiscal management. Traditionally, disposal policies have been evaluated based on their contribution to PNBP and administrative efficiency. However, the Ministry of Finance increasingly recognizes the importance of incorporating environmental considerations into fiscal policy through initiatives such as green budgeting and climate finance. The ministry therefore possesses the institutional capacity to develop financial incentives supporting recycling programs and low-emission vehicle transitions. Through fiscal instruments, the Ministry of Finance can facilitate the adoption of environmentally sustainable disposal practices while maintaining budgetary accountability.

Another important actor is the Ministry of Environment and Forestry (KLHK), which is responsible for environmental protection and emissions reduction policies. The ministry's involvement is necessary because vehicle disposal generates environmental consequences related to waste management, hazardous materials, and greenhouse gas emissions. KLHK can contribute technical expertise regarding environmental standards, recycling regulations, and carbon accounting methodologies. Furthermore, the ministry can ensure that disposal policies are aligned

with Indonesia's broader climate commitments and environmental regulations. Its participation therefore strengthens the environmental legitimacy of the policy transfer process.

The Ministry of National Development Planning (Bappenas) also occupies a strategic position because it coordinates Indonesia's long-term development agenda. Bappenas has been a key promoter of low-carbon development and green economic transformation through the LCDI framework. Integrating vehicle disposal reform into national development planning would require Bappenas to facilitate policy coordination across ministries and agencies. In addition, the agency can help ensure that disposal reforms contribute to broader national objectives related to climate resilience and sustainable economic growth. Consequently, Bappenas functions as an important coordinating institution within the transfer network.

At the international level, organizations such as the OECD and UNEP serve as influential policy transfer agents. These organizations disseminate best practices, provide technical guidance, and promote international norms related to green governance and circular economy development. Through policy reports, benchmarking exercises, and technical assistance programs, they facilitate the diffusion of innovative policy approaches across countries. Their involvement can provide Indonesia with access to international expertise and comparative policy experiences. Thus, the transfer process involves not only domestic institutions but also transnational networks that support policy learning and adaptation.

From Where? - Sources of Policy Transfer

Within the policy transfer framework proposed by Dolowitz and Marsh (2000), identifying the origin of transferred policies is essential because different countries offer distinct institutional experiences, governance traditions, and policy innovations. The findings of this study indicate that the most relevant sources of policy transfer for Indonesia are the United States, Germany, and Japan. These countries have developed advanced approaches to managing government-owned vehicles and end-of-life assets while simultaneously incorporating environmental sustainability considerations. Although each country applies different mechanisms, they share a common objective of reducing environmental impacts while maintaining administrative efficiency and accountability. Consequently, their experiences provide valuable lessons for Indonesia's efforts to reform its vehicle disposal system.

Table 1. Comparisons of Government Vehicle Disposal Practices

Aspect	Indonesia	United States (GSA)	Germany (BImA)	Japan (NPMA/MOEJ)
Primary Objective	Revenue generation	Asset optimization and sustainability	Circular economy and resource recovery	Environmental sustainability and recycling
Disposal Method	Public auction	Reuse, auction, recycling	ELV recycling system	Automobile recycling system

Environmental Criteria	Limited	Fuel efficiency and emission standards	ELV Directive compliance	Life-cycle assessment
Carbon Reporting	Not available	Partial implementation	Integrated environmental reporting	Advanced environmental reporting
Recycling Requirement	Limited	Conditional	Mandatory for ELVs	Mandatory under Recycling Law
Circular Economy Integration	Low	Moderate	High	High

Sources: GSA (2024), European Commission (2023), MOEJ (2023).

The United States serves as an important source of policy transfer through the practices implemented by the General Services Administration (GSA). The GSA is responsible for managing federal government vehicle fleets and overseeing asset disposal processes across federal agencies. Unlike Indonesia's current approach, where vehicle disposal is primarily evaluated from a fiscal perspective, the GSA incorporates life-cycle management principles into decision-making. Vehicles are assessed not only based on their market value but also on maintenance costs, fuel efficiency, operational performance, and environmental impacts. This comprehensive evaluation framework ensures that vehicle disposal decisions contribute to both economic efficiency and environmental sustainability. For Indonesia, the U.S. model demonstrates how government asset management can move beyond simple revenue generation toward a more strategic and sustainability-oriented approach.

Another important lesson from the United States concerns the prioritization of asset reuse before disposal. Government vehicles that are no longer required by one agency may first be reassigned to other agencies before being sold or dismantled. This practice extends the productive use of assets while minimizing unnecessary procurement expenditures. Furthermore, the GSA has increasingly emphasized the transition toward low-emission and electric vehicle fleets as part of broader federal sustainability initiatives. Such policies illustrate how vehicle disposal can be integrated into larger environmental and energy transition strategies. Therefore, the American experience offers practical insights into creating a more efficient and environmentally responsible public asset management system.

Germany represents a second major source of policy transfer due to its strong commitment to circular economy principles and sustainable resource management. The German approach is largely shaped by European Union regulations concerning End-of-Life Vehicles (ELVs), which establish clear requirements for vehicle dismantling, recycling, and waste treatment. Under this framework, vehicles that reach the end of their useful lives are processed through certified recycling facilities rather than simply being resold to the public. This system ensures that valuable materials are recovered while hazardous substances are safely managed. As a result, Germany has

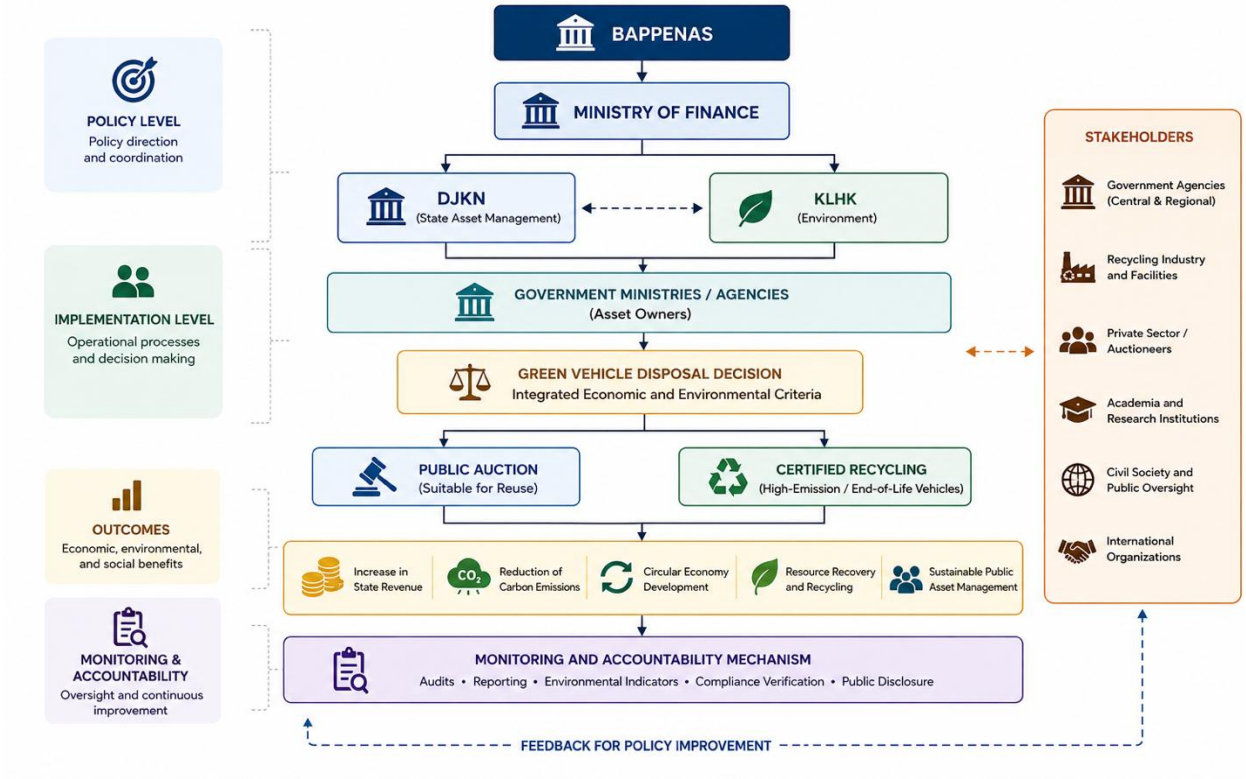
achieved high vehicle recycling rates and significantly reduced the environmental impacts associated with automotive waste.

The German model is particularly relevant for Indonesia because it demonstrates how environmental objectives can be integrated into public asset management without sacrificing economic value. Rather than viewing end-of-life vehicles as liabilities, Germany treats them as valuable sources of secondary raw materials. Recovered metals, plastics, and electronic components contribute to industrial production and reduce dependence on virgin resources. This approach aligns closely with the principles of a circular economy, which seeks to maximize resource efficiency and minimize waste generation. For Indonesia, adopting elements of the German ELV framework could help transform vehicle disposal from a purely administrative process into an important component of sustainable resource management.

Japan constitutes the third source of policy transfer examined in this study. The Japanese government has developed a sophisticated vehicle recycling system under the Automobile Recycling Law, which emphasizes environmental responsibility throughout the entire life cycle of vehicles. This legislation establishes clear obligations for vehicle owners, manufacturers, recyclers, and government agencies. As a result, Japan has achieved one of the most advanced automotive recycling systems in the world. The policy framework ensures that vehicles are properly dismantled and that valuable materials are recovered and reintroduced into economic production processes.

An especially important lesson from Japan is its emphasis on life-cycle assessment (LCA) and environmental performance measurement. Government agencies evaluate vehicles based not only on acquisition and operational costs but also on their environmental impacts over time. This comprehensive perspective enables policymakers to make informed decisions regarding vehicle replacement and disposal. Furthermore, Japan has developed sophisticated carbon accounting and environmental reporting systems that facilitate monitoring and evaluation. These practices are particularly relevant for Indonesia, which seeks to strengthen environmental governance and improve the integration of sustainability considerations into public administration. The United States, Germany, and Japan provide complementary lessons rather than mutually exclusive models. The United States contributes expertise in fleet management and lifecycle-based asset governance. Germany offers a strong example of circular economy implementation and end-of-life vehicle management. Japan provides valuable insights into environmental accountability, life-cycle assessment, and recycling governance. Together, these countries represent a rich source of policy knowledge that can inform Indonesia's efforts to modernize its BMN disposal framework. Therefore, policy transfer should be understood as a process of learning from multiple international experiences rather than simply replicating a single foreign model.

Figure 2. Governance Framework for Green Vehicle policy in Indonesia



Source: Organized by authors, 2026

The successful implementation of a green government vehicle disposal policy depends not only on regulatory reform but also on the organizational capacity of public institutions responsible for asset management. From a public management perspective, policy implementation requires effective coordination mechanisms, adequate bureaucratic capacity, and robust oversight systems to ensure that environmental objectives are integrated into existing asset disposal practices. Studies on sustainable public procurement and public asset governance indicate that organizational readiness is a critical determinant of the successful adoption of sustainability-oriented policies in the public sector (Behravesh et al., 2022).

Interagency coordination represents a critical prerequisite for implementing a hybrid auction-and-recycling model. Government vehicle disposal currently involves multiple institutions, including the Directorate General of State Assets Management (DJKN), the Ministry of Finance, the Ministry of Environment and Forestry (KLHK), Bappenas, and sectoral ministries that own vehicle assets. Under the existing system, coordination is largely focused on administrative compliance and revenue generation. The incorporation of environmental criteria would require a more integrated governance framework that aligns fiscal objectives with sustainability targets. Research on environmental governance demonstrates that fragmented institutional arrangements often create coordination gaps that hinder policy effectiveness, while strong collaborative governance mechanisms improve policy implementation and sustainability outcomes (Bodin et al.,

2021). Lessons from Germany and Japan further indicate that successful implementation of environmentally oriented disposal systems relies on clear institutional responsibilities, formal coordination mechanisms, and shared performance indicators across government agencies (El-Akruti & Dwight, 2019).

Bureaucratic capacity is an important determinant of policy effectiveness. Implementing green disposal policies would require public officials to develop new competencies related to lifecycle asset management, environmental assessment, carbon accounting, and circular economy practices. Existing asset management procedures are primarily designed to evaluate financial and administrative considerations (Lozano et al., 2024). Capacity-building programs, technical guidelines, and specialized training would be necessary to enable civil servants to assess both economic and environmental impacts in disposal decision-making. Previous studies show that administrative capacity, organizational learning, and staff competencies significantly influence the implementation of sustainable public policies and green procurement initiatives (Plaček et al., 2021; Silva & Gomes, 2022). Without adequate organizational capacity, environmental criteria may remain symbolic rather than operational, limiting the effectiveness of policy reform.

Policy implementation requires effective monitoring and accountability mechanisms. Current oversight systems mainly focus on asset valuation, auction procedures, and compliance with state finance regulations. A green disposal framework would require additional monitoring instruments, such as environmental performance indicators, vehicle emission reporting, recycling certification, and periodic evaluation of environmental outcomes. Sustainable governance literature emphasizes that accountability and performance measurement are essential for ensuring that sustainability objectives are translated into measurable policy outcomes (Fernández-Pérez & Luque-Vílchez, 2024). Drawing from practices in the United States and Japan, digital reporting systems and lifecycle performance monitoring can improve transparency, facilitate policy evaluation, and support evidence-based decision-making. Furthermore, independent audits and public disclosure mechanisms could strengthen accountability and reduce the risk of implementation gaps.

Overall, organizational readiness is a crucial factor in determining the success of policy transfer and policy reform. The transition toward environmentally sustainable government vehicle disposal requires not only regulatory changes but also institutional coordination, administrative capacity development, and strengthened governance mechanisms. These organizational dimensions are essential for ensuring that green disposal policies contribute effectively to Indonesia's broader low-carbon development agenda and sustainable governance objectives (Rodriguez-Plesa et al., 2022).

Challenges and Limitations of Policy Transfer in Indonesia

Although international experiences provide valuable lessons, Dolowitz and Marsh (2000) argue that policy transfer is rarely a simple process because institutional, political, and socioeconomic differences often limit the direct applicability of foreign policies. The findings of this study reveal several constraints that may affect Indonesia's ability to adopt green vehicle disposal policies. These constraints highlight the importance of adapting rather than merely copying foreign policy models. Consequently, policy transfer should be viewed as a process of learning and contextualization rather than straightforward replication (Dolowitz & Marsh, 2000).

The first constraint relates to the regulatory framework governing State-Owned Assets (BMN). Existing regulations primarily emphasize fiscal accountability, administrative compliance, and revenue generation through auctions. Environmental considerations are not explicitly

incorporated into disposal criteria, creating a regulatory gap between asset management policies and sustainability objectives (Kementerian Keuangan Republik Indonesia, 2023). As a result, policymakers face legal and administrative barriers when attempting to introduce environmental standards into vehicle disposal decisions. Without substantial regulatory reform, efforts to implement green disposal mechanisms may remain limited in scope and effectiveness.

The second constraint concerns the limited capacity of Indonesia's automotive recycling industry. Compared with Germany and Japan, Indonesia still lacks comprehensive infrastructure for end-of-life vehicle processing, certified dismantling facilities, and advanced recycling technologies. This limitation reduces the feasibility of large-scale implementation of ELV management systems (Rahman et al., 2024). Furthermore, inadequate recycling capacity may increase the risk of environmentally harmful disposal practices if vehicles are dismantled through informal channels. Recycling infrastructure represents a critical prerequisite for successful policy transfer.

Third challenge is the strong fiscal orientation of current disposal practices. Vehicle auctions contribute significantly to Non-Tax State Revenue (PNBP), making them attractive from a public finance perspective. Consequently, stakeholders may perceive recycling-oriented disposal policies as reducing short-term government revenues despite their long-term environmental benefits (OECD, 2024). This tension between fiscal and environmental objectives represents a common challenge in green public sector reform. Policymakers must therefore develop mechanisms capable of balancing economic efficiency with sustainability considerations. Institutional coordination also constitutes a major constraint. Effective implementation of green disposal policies would require collaboration among DJKN, the Ministry of Finance, KLHK, Bappenas, and other relevant agencies.

Another important constraint relates to organizational culture and administrative practices. Environmental considerations have historically played a secondary role in government asset management compared with fiscal and administrative objectives. Consequently, public officials may require substantial training and capacity building before sustainability-oriented disposal approaches can be fully adopted (UNEP, 2023). Institutional transformation often requires changes in professional norms, performance indicators, and organizational values. Such changes typically occur gradually and require long-term political commitment. These constraints suggest that Indonesia cannot simply replicate the policies implemented in the United States, Germany, or Japan. Instead, policymakers must adapt foreign experiences to domestic institutional realities. This situation reflects what Dolowitz and Marsh (2000) describe as institutional incompatibility, where differences between source and recipient countries limit the feasibility of direct policy adoption. Therefore, successful policy transfer requires careful adaptation and contextualization.

CONCLUSION

This study concludes that Indonesia's current government vehicle disposal policy remains primarily focused on administrative and fiscal objectives, particularly through auction mechanisms aimed at generating Non-Tax State Revenue (PNBP), while environmental considerations remain largely absent. Using Dolowitz and Marsh's Policy Transfer Framework, the study finds that the experiences of the United States, Germany, and Japan provide valuable lessons for integrating sustainability principles into government vehicle disposal through green disposal policies, End-of-Life Vehicle (ELV) management systems, recycling mechanisms, and carbon reporting practices. The analysis further identifies DJKN, the Ministry of Finance, KLHK, Bappenas,

OECD, and UNEP as key actors in supporting policy transfer and implementation. However, the adoption of such policies faces several challenges, including regulatory constraints, limited recycling infrastructure, strong fiscal dependence on auction revenues, and institutional readiness. Therefore, rather than directly copying foreign models, the study recommends a hybrid policy transfer approach that combines Indonesia's existing auction system with environmentally sustainable recycling mechanisms, enabling the government to balance fiscal objectives with green economy and sustainable development goals while supporting the transition toward low-carbon public asset management.

To ensure effective implementation, these policy recommendations should be accompanied by a more operational governance strategy that clearly defines the roles and responsibilities of relevant institutions. DJKN should lead the reform of asset disposal regulations and integrate environmental criteria into disposal procedures, while the Ministry of Finance develops fiscal incentives and funding mechanisms to support recycling and low-emission vehicle programs. KLHK should establish environmental standards, emissions monitoring, and recycling certification systems, whereas Bappenas should coordinate policy integration within national sustainable development and low-carbon development agendas. In addition, a robust monitoring and evaluation framework is required to assess policy effectiveness through indicators such as emission reductions, recycling rates, revenue performance, lifecycle cost efficiency, and contributions to circular economy objectives. Regular inter-agency reviews and public reporting mechanisms would further enhance transparency, accountability, and continuous policy improvement, ensuring that government vehicle disposal becomes an integral component of sustainable public asset management and green governance in Indonesia.

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