

Governance and Economic Policy for Circular Economy Transition: Insights from the European Union and Malaysia

Azlina Mohd Hussain¹, Nor Syamaliah Ngah^{2*}, Norazlin Abd Aziz³,
Nor Suraya Aini Ngah⁴

¹ Faculty of Law, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus. Malaysia

^{2,3} Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus. Malaysia

⁴ Polytechnic Sultan Haji Ahmad Shah, Kuantan, Pahang, Malaysia

Email: ¹ azlin072@uitm.edu.my, ² syamaliah@uitm.edu.my, ³ norazlin525@uitm.edu.my,

⁴ cloucdiksu@gmail.com.my

Orchid Id: ² 0000-0001-8268-4941

*Corresponding Author: Nor Syamaliah Ngah

HOW TO CITE:

Azlina Mohd Hussain, Nor Syamaliah Ngah, Norazlin Abd Aziz, Nor Suraya Aini Ngah. (2026). Governance and Economic Policy for Circular Economy Transition: Insights from the European Union and Malaysia. International Journal of Special Education, 41(8s), 1401-1409

ABSTRACT:

The transition toward a circular economy (CE) represents a critical strategy for achieving sustainable growth and resource efficiency. Economic policy instruments play a central role in enabling this transition by aligning fiscal, industrial, and innovation frameworks with sustainability objectives. While the European Union (EU) has implemented coherent and binding circular economy policies, developing nations such as Malaysia remain at an early stage of integrating economic policy and circularity principles. This paper examines the economic policy instruments influencing the transition toward a circular economy in Malaysia and compares them with the EU's established policy framework. Using a qualitative document analysis approach, the study reviews policy documents, academic literature, and official reports from 2015 to 2024. The findings indicate that Malaysia's economic policy environment for circular economy implementation remains fragmented, with limited fiscal incentives and a weak link between environmental and industrial policies. Conversely, the EU's approach demonstrates strong coherence between policy domains, effective monitoring mechanisms, and significant investment in innovation. The paper proposes a framework for enhancing Malaysia's circular economy readiness through fiscal incentives, industrial symbiosis programs, and integrated national planning. By bridging the gap between economic and environmental policy domains, Malaysia can advance its sustainable development goals and position itself as a regional leader in circular innovation.

Keywords: Circular economy, economic policy, fiscal incentives, Malaysia, European Union, resource efficiency, sustainability

COPYRIGHT STATEMENT:

Copyright: © 2026 Authors.
Open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

1. Literature Review

1.1. Circular Economy and Economic Policy

Growing concerns over climate change, resource scarcity, and environmental sustainability have increased interest in economic models that support sustainable development. Since the adoption of the Sustainable Development Goals (SDGs) in 2015, the circular economy (CE) has gained attention as an alternative to the traditional linear model of “take–make–dispose.” The CE promotes resource efficiency through strategies such as reuse, repair, remanufacturing, recycling, and resource recovery, with the aim of decoupling economic growth from resource consumption (Ellen MacArthur Foundation, 2015; Blomsma & Brennan, 2017).

The transition to a circular economy requires effective policy frameworks that encourage sustainable production and consumption. Economic policy plays a crucial role in creating market conditions that support circular practices through regulatory measures, fiscal incentives, innovation support, stakeholder collaboration, and public awareness initiatives (Domenech & Bahn-Walkowiak, 2019; de Melo et al., 2022). These policy instruments are commonly grouped into legal, economic, network, and communicative categories, each contributing to circular economy implementation in different ways.

Research suggests that CE implementation is most effective when multiple policy instruments are integrated into a coherent policy mix. However, the accumulation of sustainability-related policies may also lead to fragmentation and reduced effectiveness when coordination is weak (Zhu et al., 2020). The European Union (EU) is widely recognised as a leading example of CE policy implementation, combining regulatory frameworks, fiscal incentives, innovation funding, and stakeholder engagement within a coordinated strategy. In contrast, Malaysia’s CE-related initiatives remain dispersed across different policy domains, with limited policy integration and institutional coordination (Lim et al., 2023).

Although the circular economy has been widely studied, existing research has largely focused on conceptual developments, technological innovations, and individual policy initiatives. Limited attention has been given to how economic policy instruments collectively support CE transition in developing economies, particularly Malaysia. Furthermore, few studies have compared Malaysia’s policy environment with established international models such as the EU to identify policy gaps and improvement opportunities.

To address this gap, this study examines the role of economic policy instruments in supporting circular economy transition in Malaysia through a comparative analysis with the European Union. The study evaluates the strengths, weaknesses, and policy coherence of CE-related economic instruments in both contexts and identifies lessons that can strengthen Malaysia’s readiness for circular economy transition. Accordingly, the study seeks to answer two key questions: (1) What economic policy instruments currently support circular economy implementation in Malaysia? and (2) How do the EU’s economic policy instruments facilitate circular economy transition, and what lessons can be applied to Malaysia?

1.2. The European Union as a Benchmark

The European Union (EU) provides one of the most comprehensive models for circular economy implementation. The EU Circular Economy Action Plan (2015, updated 2020) integrates fiscal, industrial, and environmental measures under a unified strategy. This plan aims to “close the loop” of product lifecycles through greater recycling and reuse while delivering economic growth and job creation (European Commission, 2020). It also supports CE objectives through the European Green Deal (2019), which mobilizes funding for sustainable innovation, eco-design, and carbon neutrality.

Domenech and Bahn-Walkowiak (2019) emphasize that the EU’s success lies in its policy coherence, measurable targets, and strong monitoring mechanisms. The EU employs a combination of fiscal instruments such as eco-taxes and green subsidies alongside industrial

policy initiatives that incentivize circular design, green manufacturing, and extended producer responsibility schemes. Additionally, communication-oriented initiatives such as awareness campaigns and sustainable public procurement further support CE integration across sectors.

Zeng et al. (2022) note that the EU's integrated approach offers valuable lessons for developing economies seeking to build institutional capacity for circular transitions. Its policy model demonstrates how fiscal, legal, and network instruments can collectively drive innovation, competitiveness, and sustainability.

1.3. The Malaysian Context

In Malaysia, sustainability efforts are anchored within the Twelfth Malaysia Plan (2021–2025), which emphasizes green growth and environmental resilience. However, the explicit integration of circular economy principles remains limited. The Green Technology Master Plan (2017–2030), Industry 4WRD Policy (2018), and National Policy on the Environment (2002) each address aspects of sustainability and resource efficiency but do not collectively establish a dedicated CE framework (Lim et al., 2023). Empirical studies reveal that while Malaysian industries increasingly recognize the potential of CE, the enabling policy environment is still fragmented (Lim et al., 2023). Key challenges include limited fiscal incentives, a lack of coordinated industrial strategies, and weak inter-ministerial collaboration. Moreover, communication and network instruments—such as awareness programs and partnerships among academia, industry, and government—are underutilized (Muriithi & Ngare, 2023). The absence of a cohesive policy mix constrains Malaysia's progress toward a resource-efficient economy. Aligning economic policies with CE principles through tax incentives, innovation grants, and collaborative platforms could create stronger momentum toward circularity. Lessons drawn from the EU model suggest that integrating multiple policy instruments supported by clear metrics and institutional coordination

can significantly enhance the effectiveness of Malaysia's transition to a circular economy.

1.4. Theoretical Framework: Policy Accumulation and Circular Economy Transition

This study is grounded in policy accumulation theory and circular economy transition theory. Policy accumulation refers to the expansion of policy goals, instruments, and institutional arrangements over time (Zhu et al., 2020). In the context of circular economy (CE) development, governments often introduce multiple sustainability-related policies addressing waste management, green technology, industrial innovation, and environmental protection. While such policy expansion reflects increasing commitment to sustainability, weak coordination among policies may result in fragmentation and reduced effectiveness. This perspective is particularly relevant to Malaysia, where CE-related initiatives are distributed across various policy domains, including the Green Technology Master Plan, Industry4WRD Policy, and national development plans. Although these policies promote sustainability and resource efficiency, they do not yet constitute a coherent circular economy framework. Consequently, policy accumulation theory helps explain why the existence of numerous sustainability policies does not necessarily translate into effective CE implementation. Circular economy transition theory complements this perspective by explaining the shift from a linear economic model towards a regenerative system based on reducing, reusing, repairing, remanufacturing, recycling, and recovering resources. Such a transition requires not only technological innovation but also supportive policy instruments, market incentives, institutional coordination, and stakeholder engagement. Economic instruments such as taxes, subsidies, innovation funds, green procurement, and extended producer responsibility schemes are therefore essential in facilitating circular practices.

The European Union provides a useful benchmark for examining how policy accumulation can be managed through policy

coherence. By integrating regulatory measures, fiscal incentives, innovation support, and monitoring mechanisms within a unified framework, the EU demonstrates how coordinated policy instruments can accelerate circular economy transition. Drawing on these theoretical perspectives, this study evaluates economic policy instruments through three key dimensions: fiscal incentives, industrial and innovation support, and governance coordination.

2. Methodology

This study adopted a qualitative document analysis approach to examine how economic policy instruments support circular economy (CE) transition in Malaysia compared with the European Union (EU). Document analysis was used to systematically review policy documents, reports, and academic literature to identify key policy instruments, priorities, and institutional arrangements related to CE implementation (Bowen, 2009). Data were collected from three main sources: government policy documents, international policy reports, and peer-reviewed academic publications. Key Malaysian documents included the Green Technology Master Plan, Twelfth Malaysia Plan, Industry4WRD Policy, and National Policy on Climate Change. EU documents included the Circular Economy Action Plans (2015 and 2020) and related European Commission reports. Academic literature was obtained from databases such as ScienceDirect, SpringerLink, Scopus, and Web of Science. To ensure quality and relevance, inclusion and exclusion criteria were applied. Included documents were published between 2015 and 2024 and focused on circular economy, sustainability policy, resource efficiency, green growth, environmental governance, or economic policy instruments. Only official policy documents and peer-reviewed studies providing empirical, conceptual, or policy-related insights were selected. Documents published before 2015, non-peer-reviewed sources, opinion pieces, conference abstracts, and studies focused solely on technical or engineering aspects without policy relevance were excluded.

The document selection process involved four stages: identifying documents through keyword searches, screening titles and abstracts, reviewing full texts, and coding selected documents. Keywords included “circular economy,” “economic policy instruments,” “resource efficiency,” “green growth,” and “sustainability policy.” Approximately 40–50 policy documents, reports, and academic publications were retained for analysis.

The selected documents were analysed using qualitative coding. Policy measures were categorised into six types of instruments: fiscal, regulatory, industrial, innovation-based, network, and communicative instruments. The analysis was guided by the 9R Framework (Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, and Recover) to assess whether policies supported higher-value circular strategies or focused mainly on recycling and recovery. Finally, a comparative analysis was conducted to evaluate policy coherence, governance coordination, implementation mechanisms, monitoring systems, and economic support measures in Malaysia and the EU. The findings were synthesised into key themes, including institutional fragmentation, limited fiscal incentives, low innovation investment, the absence of circular economy indicators, and weak stakeholder engagement, which informed the study’s discussion and policy recommendations.

3. Findings and Discussion

3.1. Malaysia’s Economic Policy Instruments for Circular Economy

Malaysia’s approach to circular economy (CE) transition remains largely policy-driven but fragmented. Existing CE-related initiatives are embedded within broader environmental, industrial, and trade policies rather than being guided by a dedicated national circular economy strategy. Table 1 summarizes the principal policy instruments currently supporting CE-related objectives in Malaysia.

Table 1. Malaysia's Economic Policy Instruments Related to the Circular Economy

Policy Domain	Policy / Instrument	Key Features	CE Relevance
Fiscal	Green Investment Tax Allowance (GITA)	Tax incentives for green technologies and energy efficiency	Supports resource efficiency but limited to certain sectors
Industrial	Industry4WRD Policy (2018)	Promotes digitalization and automation in manufacturing	Potential for CE through smart production
Environmental	Green Technology Master Plan (2017–2030)	Framework for green innovation and renewable energy	Encourages sustainable production but not circularity-specific
Trade	National Industrial Master Plan 2030	Focuses on competitiveness and innovation	Lacks explicit CE focus
Waste Management	Solid Waste and Public Cleansing Act (2007)	Regulates waste disposal and recycling	Limited integration with economic incentives

The analysis indicates that Malaysia has introduced several policy instruments that indirectly support circular economy practices, particularly through green technology incentives, industrial modernization initiatives, and waste management regulations. However, these instruments operate across multiple policy domains with limited coordination, reducing opportunities for synergy between fiscal incentives, innovation support, and regulatory mechanisms. While initiatives such as the Green Investment Tax Allowance (GITA) and Industry4WRD promote resource efficiency and technological advancement, they are not specifically designed to support higher-order circular strategies such as reuse, repair, remanufacturing, and industrial symbiosis.

These findings are consistent with previous studies that identify fragmented governance as a key challenge for CE implementation in developing economies (Lim et al., 2023; Muriithi & Ngare, 2023). Although Malaysia has accumulated numerous sustainability-related policies, the absence of an integrated CE framework limits policy coherence and reduces the effectiveness of implementation efforts. In contrast, the European Union demonstrates how

coordinated fiscal, regulatory, and innovation instruments can strengthen circular economy outcomes through a unified policy framework (Domenech & Bahn-Walkowiak, 2019).

From a theoretical perspective, the findings support policy accumulation theory, which suggests that the effectiveness of policy expansion depends on the degree of integration among policy instruments (Zhu et al., 2020). The results also reinforce circular economy transition theory by highlighting the importance of combining economic incentives, institutional coordination, and innovation support to facilitate systemic transformation. Overall, the findings suggest that Malaysia's primary challenge is not the absence of sustainability policies but the lack of integration among existing policy instruments.

3.2. Benchmark Comparison: Malaysia and the European Union

To further assess Malaysia's circular economy readiness, a benchmarking analysis was conducted against the European Union across six dimensions: policy integration, fiscal instruments, innovation support, governance structure, monitoring and evaluation, and stakeholder engagement.

Table 2. Benchmark Comparison between Malaysia and European Union

Dimension	Malaysia	European Union	Key Implications
Policy Integration	CE-related initiatives dispersed across multiple policies and ministries	Comprehensive Circular Economy Action Plan integrating economic, industrial, and environmental objectives	Malaysia faces coordination challenges and policy fragmentation
Fiscal Instruments	Limited tax incentives mainly focused on green technology and renewable energy	Extensive use of eco-taxes, resource taxes, EPR schemes, and green procurement	EU creates stronger market incentives for circular practices
Innovation Support	Limited dedicated funding for CE innovation and pilot projects	Horizon Europe and other large-scale innovation funding programmes	EU accelerates technological and business model innovation
Governance Structure	Multiple ministries with overlapping responsibilities	Multi-level governance involving EU institutions, member states, and local authorities	EU demonstrates stronger policy coherence and accountability
Monitoring and Evaluation	Absence of standardized CE indicators and performance metrics	Comprehensive monitoring framework with measurable targets and progress indicators	Malaysia lacks evidence-based evaluation mechanisms
Stakeholder Engagement	Limited collaboration among government, industry, academia, and civil society	Strong public-private partnerships and stakeholder participation	EU benefits from broader ownership of CE initiatives

The comparison reveals significant differences in policy maturity and implementation approaches. While Malaysia's CE-related initiatives remain dispersed across multiple policies and ministries, the EU has institutionalized circular economy principles through a comprehensive Circular Economy Action Plan that integrates environmental, industrial, and economic objectives. The EU further supports CE transition through a combination of eco-taxes, extended producer responsibility (EPR) schemes, circular procurement policies, and innovation funding programmes such as Horizon Europe.

In addition, the EU employs a multi-level governance structure supported by measurable indicators and monitoring mechanisms, enabling

continuous evaluation of policy effectiveness. Malaysia currently lacks a comparable framework for assessing circular economy performance, which limits evidence-based policymaking and benchmarking against international standards. Stakeholder engagement also differs considerably, with the EU demonstrating stronger collaboration among government, industry, academia, and civil society.

Overall, the benchmarking analysis suggests that successful circular economy transition requires more than isolated sustainability initiatives. The EU experience demonstrates the importance of aligning fiscal incentives, innovation support, governance mechanisms, and monitoring systems within a coherent policy framework.

These findings provide valuable lessons for strengthening Malaysia's transition toward a more resource-efficient and circular economy.

3.3. Challenges and Policy Gaps

The analysis identified several key challenges affecting Malaysia's circular economy (CE) transition.

Institutional Fragmentation. CE-related responsibilities are spread across multiple ministries and agencies, leading to overlapping roles, weak coordination, and inconsistent implementation. Strengthening coordination between government agencies and across different levels of governance is essential to improve policy coherence and effectiveness.

Limited Fiscal Incentives. Existing incentives such as the Green Investment Tax Allowance (GITA), Green Income Tax Exemption (GITE), and Green Technology Financing Scheme (GTFS) mainly support renewable energy and green technology projects rather than circular activities such as reuse, repair, refurbishment, remanufacturing, and industrial symbiosis. Compared to the EU's broader use of green taxes and extended producer responsibility (EPR) schemes, Malaysia's fiscal support for circular practices remains limited.

Low Innovation Investment. Malaysia provides some support for industrial modernization and technology development, but investment in circular innovation remains relatively low. Greater public and private investment is needed

to encourage circular business models, industrial symbiosis, and sustainable production practices.

Lack of Circular Economy Indicators. The absence of standardized CE indicators makes it difficult to measure progress, assess policy effectiveness, and benchmark performance against international standards. Developing national CE indicators would improve monitoring, transparency, and evidence-based policymaking.

Limited Public Awareness and Industry Engagement. Industry participation and public adoption of circular practices remain constrained by limited incentives, regulatory uncertainty, and low awareness. Stronger stakeholder engagement, awareness programmes, and public-private partnerships could help promote wider CE adoption.

Overall, Malaysia's CE transition is constrained not by a lack of sustainability initiatives, but by weaknesses in governance coordination, fiscal support, innovation investment, performance measurement, and stakeholder engagement. Addressing these gaps will be crucial for accelerating the transition towards a more resource-efficient and circular economy.

4. Policy Implications

The policy recommendations proposed in this study are derived directly from the key policy gaps identified in the findings and comparative assessment. Table 3 summarizes the relationship between the identified challenges and the corresponding policy recommendations.

Table 3. Summary of Findings and Recommendation

Identified Policy Gap	Evidence from Findings	Policy Recommendation
Institutional Fragmentation	CE-related policies are dispersed across multiple ministries and agencies with limited coordination	Establish a National Circular Economy Council and develop a National Circular Economy Strategy
Limited Fiscal Incentives	Existing incentives primarily support renewable energy rather than material circularity	Introduce eco-taxes, resource taxes, EPR schemes, circular investment grants, and green procurement policies

Identified Policy Gap	Evidence from Findings	Policy Recommendation
Low Innovation Investment	Limited funding for CE research, pilot projects, and circular business models compared to the EU	Create a Circular Innovation Fund to support SMEs, research institutions, and industrial symbiosis projects
Absence of CE Indicators	No standardized framework to measure circularity performance and resource productivity	Develop national CE indicators aligned with SDGs and international benchmarking frameworks
Weak Stakeholder Engagement	Limited collaboration among government, industry, academia, and civil society	Strengthen public-private partnerships and establish multi-stakeholder CE platforms

The findings suggest that Malaysia's circular economy transition requires a more integrated and coordinated policy approach. First, institutional fragmentation should be addressed through the development of a National Circular Economy Strategy supported by a dedicated coordinating body or Circular Economy Council. Such a mechanism would strengthen policy coherence, improve inter-ministerial coordination, and align economic, industrial, environmental, and innovation policies under a common strategic framework.

Second, fiscal instruments should be expanded beyond renewable energy and green technology to support circular economy activities such as reuse, repair, remanufacturing, industrial symbiosis, and resource recovery. The introduction of eco-taxes, extended producer responsibility (EPR) schemes, circular investment grants, and green public procurement programmes would create stronger market incentives for circular practices.

Third, greater investment in circular innovation is required to accelerate the development of circular technologies, business models, and industrial collaboration. Establishing a dedicated Circular Innovation Fund could support research institutions, small and medium-sized enterprises (SMEs), and pilot projects focused on circular solutions and resource efficiency.

Fourth, the development of national circular economy indicators is necessary to improve monitoring and evaluation. Standardized

performance measures aligned with the Sustainable Development Goals (SDGs) and international benchmarking frameworks would enhance transparency, accountability, and evidence-based policymaking.

Finally, stakeholder participation should be strengthened through greater collaboration among government agencies, industry, academia, and civil society. Multi-stakeholder platforms, public-private partnerships, and awareness programmes can facilitate knowledge sharing, encourage innovation, and support broader adoption of circular economy practices.

Overall, these recommendations are grounded in the empirical findings of the study and informed by lessons from the European Union. Addressing the identified policy gaps would strengthen Malaysia's institutional readiness, improve policy coherence, and accelerate its transition toward a more resource-efficient and circular economy.

5. Conclusion

This study compares the economic policy instruments supporting circular economy (CE) transition in Malaysia and the European Union (EU). The findings show that Malaysia's progress is limited by fragmented governance, weak fiscal incentives, insufficient innovation support, and a lack of clear monitoring mechanisms, while the EU demonstrates how a coordinated and integrated policy framework can successfully drive CE implementation. Using policy accumulation and circular economy transition theories, the study highlights that policy

effectiveness depends not only on the number of policies introduced but also on how well they are coordinated and aligned. The findings suggest that Malaysia can strengthen its CE transition by improving governance coordination, expanding fiscal incentives, supporting innovation, developing CE indicators, and enhancing

stakeholder collaboration. Overall, the study emphasizes the importance of integrated policy approaches in achieving circular economy and sustainable development goals, while providing useful insights for policymakers and researchers in Malaysia and other developing economies.

References

- Cui, X., Wang, Y., & Chen, F. (2021). Impact of heavy vehicles on freeway traffic flow characteristics under congested conditions. *Sustainability*, 13(4), 2156. Sustainability Journal
- Fellendorf, M., & Vortisch, P. (2010). Microscopic traffic flow simulator VISSIM. In *Fundamentals of Traffic Simulation* (pp. 63–93). Springer. Springer Link - VISSIM Chapter
- Jacob, B., & Feypell, B. (2010). Improving truck safety: Potential of weigh-in-motion technology. *IATSS Research*, 34(1), 9–15. IATSS Research Article
- Li, Z., & Wang, P. (2020). Analysis of moving bottlenecks caused by heavy trucks on urban expressways. *Transportation Research Procedia*, 48, 1203–1215. Transportation Research Procedia
- Litman, T. (2023). *Transportation Cost and Benefit Analysis*. Victoria Transport Policy Institute. VTPI Transportation Cost Analysis
- Nariendra, P. W., & Juanita, J. (2023). Implementasi Kebijakan Operasional Truk Overloading Di Provinsi Jambi. *Techno (Jurnal Fakultas Teknik, Universitas Muhammadiyah Purwokerto)*, 24(1), 59-64. <https://doi.org/10.30595/techno.v24i1.17213>
- Rahman, M., Nakamura, F., & Wang, R. (2021). Evaluating heavy vehicle impacts on multilane freeway performance using microscopic simulation. *Journal of Advanced Transportation*, 2021, 1–14. Journal of Advanced Transportation
- Santos, G., Behrendt, H., & Maconi, L. (2021). Particulate matter and traffic congestion externalities caused by freight transportation. *Transportation Research Part D*, 98, 102950. Transportation Research Part D
- Wang, H., Zhang, Y., & Liu, X. (2021). Relationship between truck loading condition and operating speed using weigh-in-motion data. *Sensors*, 21(14), 4756. Sensors Journal Article
- Zhang, Y., Li, X., & Chen, J. (2022). Operational impacts of overloaded trucks on freeway traffic flow. *Sustainability*, 14(9), 5123. Sustainability Journal Article
- Kementerian Perhubungan Republik Indonesia. (2023). *JUTPI 3: Pedoman Nilai Waktu Perjalanan Perkotaan Indonesia*. Jakarta: Kementerian Perhubungan Republik Indonesia. Kementerian Perhubungan RI