Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

"DUMPING DILEMMA": RETHINKING MALAYSIA'S WASTE MANAGEMENT CRISIS WITH SUSTAINABLE FINANCE SOLUTIONS - A CONCEPTUAL PAPER

Azzah Amran[1]
Zulkifli Mohamed[2]
Azmahani Yaacob @ Othman [3]

[1]Faculty of Business and Management, Universiti Teknologi MARA Cawangan Kelantan, (UiTM), Malaysia, (Email: azzahamran@uitm.edu.my)
[2] Faculty of Business and Management, Universiti Teknologi MARA Cawangan Kelantan, (UiTM), Malaysia, (Email: zulkifli030@uitm.edu.my)
[3] Faculty of Business and Management, Universiti Teknologi MARA Cawangan Kelantan, (UiTM), Malaysia, (Email: azma928@uitm.edu.my)

Article history
Received date : 11-7-2025
Revised date : 12-7-2025
Accepted date : 7-9-2025
Published date : 25-9-2025

To cite this document:
Amran, A., Mohamed, Z., & Yaacob @ Othman, A. (2025). "Dumping dilemma": Rethinking Malaysia's waste management crisis with sustainable finance solutions - A conceptual paper. *International Journal of Accounting, Finance and Business (IJAFB),* 10 (62), 93 - 105.

Abstract: *The rising importance of Environmental, Social, and Governance (ESG) principles has led to a greater focus on sustainable waste management practices across nations. This conceptual paper explores the alignment of waste management in Malaysia with sustainable finance, emphasizing the role of financial-based solutions to tackle mounting waste issues. Drawing on the Waste Hierarchy Model, the Theory of Waste Management, and the Theory of Planned Behavior (TPB), the paper outlines the core issues—such as landfill dependency and low recycling rates—and analyzes how financial incentives implemented in other countries could serve as effective policy interventions in Malaysia. This paper serves as a foundation for future empirical investigations into behavioral and policy mechanisms driving sustainable waste practices.*

Keywords: *Sustainable Finance, Waste Management, ESG, Financial Incentives, Theory of Planned Behaviors*

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

Introduction

Waste management has emerged as one of the most pressing global sustainability challenges. According to the World Bank, global municipal solid waste (MSW) is projected to increase from 2.24 billion tonnes in 2020 to 3.88 billion tonnes by 2050, driven by population growth, urbanisation, and rising consumption patterns (Kaza et al., 2018). This rapid escalation places immense pressure on governments, particularly in developing countries, to implement efficient and sustainable waste management systems. Beyond environmental degradation, ineffective waste practices generate substantial economic costs through landfill management, loss of recyclable resources, and long-term liabilities associated with pollution and public health risks (Ferronato & Torretta, 2019).

Malaysia reflects this global dilemma in its own waste management trajectory. Despite having a comprehensive Solid Waste Management Act (2007) and related national policies, the country remains heavily dependent on landfills, many of which are unsanitary and hazardous (Jereme et al., 2015). As of 2022, Malaysia's recycling rate stood at 33.17% below the national target of 40% by 2025 indicating a significant gap between policy aspiration and practice (Zainal, 2023). The economic costs of landfill dependency are mounting, with limited land availability, high operational expenses, and the opportunity cost of unrecovered recyclable resources (Sarpong & Alarussi, 2022). Socially, improper waste disposal exacerbates public health burdens, including the spread of vector-borne diseases, water contamination, and air pollution from open burning (Farrelly, Schneider, & Stupples, 2016).

Globally, many countries have increasingly leveraged financial instruments to enhance waste management outcomes. Deposit-return schemes, pay-as-you-throw (PAYT) mechanisms, tax rebates, and penalties for non-compliance have been proven to influence consumer behaviour and improve recycling performance (Yang & Thøgersen, 2022; Lee et al., 2024). However, in Malaysia, financial instruments remain underutilised within the waste policy framework, with strategies still heavily reliant on infrastructural provision and awareness campaigns. This gap presents an opportunity to rethink Malaysia's waste management crisis through the lens of sustainable finance, aligning environmental objectives with economic incentives.

Problem Statement

Malaysia continues to face a persistent waste management crisis characterised by excessive landfill dependency, low recycling rates, and environmental degradation. Although the Solid Waste Management Act (2007) provides a regulatory framework, most waste continues to be disposed of in landfills, many of which remain unsanitary and environmentally hazardous (Jereme et al., 2015). The recycling rate of 33.17% in 2022 fell short of the national target of 40% by 2025, reflecting limited behavioural change and weak policy enforcement (Zainal, 2023). This inefficiency imposes significant economic burdens, including escalating landfill management costs, limited land availability, and the opportunity cost of unrecovered recyclable resources (Sarpong & Alarussi, 2022). It also exacerbates social and health impacts, such as vector-borne diseases, groundwater contamination, and air pollution from open burning (Farrelly, Schneider, & Stupples, 2016).

While international experience shows that financial instruments such as deposit-return schemes, pay-as-you-throw policies, and tax incentives can effectively increase recycling and reduce landfill dependency (Yang & Thøgersen, 2022; Lee et al., 2024), these tools remain

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

underutilised in Malaysia's waste policy framework. Instead, national strategies continue to rely heavily on infrastructure development and public awareness campaigns, which have delivered only incremental progress. This gap highlights the urgent need to integrate sustainable finance mechanisms into Malaysia's waste management policy to encourage behavioural change, reduce landfill reliance, and align with global sustainability goals.

Methodology

This paper adopts a conceptual and exploratory approach to examine sustainable finance and its role in addressing contemporary waste management challenges in Malaysia. It is grounded in established theoretical foundations, including the Waste Hierarchy Model, the Theory of Waste Management (TWM), and the Theory of Planned Behavior (TPB), which guide the interpretation of financial policy instruments and behavioral responses related to waste management. A comprehensive literature review was conducted to identify and synthesize previous studies focusing on waste management behavior, environmental finance, and policy-based interventions. Academic sources were accessed through institutional subscriptions to databases such as Scopus, ScienceDirect, SpringerLink, and Google Scholar. The literature search utilized keywords including "sustainable finance," "waste management Malaysia," "financial incentives for recycling," "TPB and environmental behavior," and "waste hierarchy policies.". In the selection of literature and synthesis approach, the literature review is built upon a comprehensive body of peer-reviewed journal articles, policy papers, and international case studies published mainly between 2010 and 2024. The synthesis followed a thematic review approach, grouped into: (i) theories and models, (ii) consumer behavior, (iii) financial instruments, and (iv) international and Malaysian practices. This thematic synthesis not only consolidates prior studies but also critically evaluates their implications for Malaysia's waste management crisis.

The selected literature primarily consists of peer-reviewed journal articles, policy papers, and international case studies from countries with progressive waste management practices. The focus was on identifying real-world applications of financial mechanisms such as deposit-return schemes, pay-as-you-throw policies, tax rebates, and penalties for non-compliance, and evaluating their relevance and transferability to the Malaysian context. This exploratory study aims to critically assess the applicability of these financial strategies within the socio-economic landscape of Malaysia, using established theories to interpret existing policy outcomes and behavioral patterns. The findings provide theoretical and practical insights for enhancing the effectiveness of waste management policies through sustainable finance measures.

Issues & Problems of Waste Management in Malaysia

Countries get wealthier economically as they get more urbanized. Consumption of goods and services rises in tandem with rising standards of living and disposable incomes, leading to a growth in waste production. (Farrelly *et al*, 2016). Effective solid waste management in Malaysia starts with having sufficient and trustworthy information about the waste stream that comes from homes, businesses, and institutional entities and ends up at dumpsites or landfills, which serve as the country's main disposal sites.

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

Overdependence on Landfills

Over 120 landfills in Malaysia remain unsanitary, emitting leachate and methane gas. Recycling facilities are limited despite the technical potential to recycle 80% of dry waste. There are currently 137 landfills in use in Malaysia, of which 174 have already been closed. Of them, 21 are sanitary landfills, where the pits are shielded from leaks. But as of right now, 126 unsanitary landfills are leaking leachate and methane gas into the soil and air without being properly treated. Even though up to 80% of the dry waste that is collected may be recycled, the majority of it is now dumped in different landfills. The nation lacks enough waste treatment facilities as well. (2015) Jereme et al. The Solid Waste Management (SWM) Act of 2007 and other measures have been established by the government to improve the waste management situation; however, more work needs to be done in order to recycle and treat a significant amount of the wastes. Waste will wind up on land someplace, either scattered or gathered in a landfill, if waste management is not practiced. MSW that is thrown is typically burned outdoors or disposed of in landfills in developing nations. (D. Carbonell et al, 2023). Due to their size, landfills can take up a lot of room. For instance, in small spaces, trash needs to be managed sustainably in order to be maximized sensibly.

Low Recycling Rate

As of 2022, the national recycling rate stood at 33.17%, below the 40% target set for 2025. Cultural norms, convenience factors, and lack of incentives contribute to public inertia. According to official data from Kementerian Kesejahteraan Bandar, Perumahan Dan Kerajaan Tempatan, and Jabatan Pengurusan Sisa Pepejal Negara, the recycling rate among Malaysians in 2010 is shown very low at the rate of 9.7%. In relation to this, the Star's news title states that although Malaysia wants to reach a 40% national recycling rate by 2025, the country's recycling rate is still low, with only 33.17% of Malaysians recycling in 2022. The public must adjust their mindset in order for the government to increase recycling rates and encourage people to recycle on a regular basis.

Environmental Degradation & Public Health

Inefficient waste handling contributes to pollution, vector-borne diseases, and habitat degradation, undermining public health and ecological resilience. The National Solid Waste Management Policy seeks to create a publically accepted, coordinated, cost-effective, and sustainable solid waste management system. (Kiruthika et al, 2012). Waste continues to endanger the public and ecological health as well as the economies of the Pacific Islands Countries and Territories (PICTs) in the other countries, despite advancements in waste management systems and financing for technical support and capacity building from a variety of sources. (Farrelly et al. ,2016). When disposed of, waste has an impact on the environment. For instance, leftover food attracts flies and rodents, while medical waste might result in water contamination. Understanding our waste and the best ways to handle it is made easier with the help of sustainable waste management. Open dumps are exceedingly unhygienic, damaging to the environment, and unhealthy for the people who live nearby. (Sarpong and Alarussi, 2022).

Theoretical Foundations and Literature Review

In the selection of literature and synthesis approach, the literature review is built upon a comprehensive body of peer-reviewed journal articles, policy papers, and international case studies published mainly between 2010 and 2024. The synthesis followed a thematic review approach, grouped into: (i) theories and models, (ii) consumer behavior, (iii) financial

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

instruments, and (iv) international and Malaysian practices. This thematic synthesis not only consolidates prior studies but also critically evaluates their implications for Malaysia's waste management crisis.

Waste Management and ESG

Waste management has become a central pillar in global sustainability discourses due to its integration with Environmental, Social, and Governance (ESG) considerations. According to Farrelly, Schneider, and Stupples (2016), ineffective solid waste practices compromise environmental quality, public health, and economic productivity. Malaysia's dependence on landfills, coupled with poor recycling performance, places ESG objectives at risk. ESG principles emphasize ecosystem preservation, resource conservation, and pollution reduction objectives directly undermined by landfill overreliance and mismanaged waste streams.

Beyond environmental issues, the economic dimensions are significant. Inefficient waste handling escalates costs related to landfill operation, lost recyclable resources, and environmental clean-up. On the social front, open dumping and unsanitary landfills contribute to public health hazards, including vector-borne diseases and contaminated water sources. Embedding ESG compliance in waste management is not only an environmental obligation but also a governance priority for attracting sustainability-conscious investors and reinforcing Malaysia's position in the global ESG agenda.

The Theory of Waste Management (TWM) proposed by Nurminen and Pongrácz (2014) further expands this framework, analyzing waste not as a mere by-product but as an integral part of socio-economic systems. TWM underscores the importance of waste avoidance and minimization, urging policymakers to view waste streams as resources within a closed-loop economy. Malaysia's current limitations—insufficient treatment facilities, over 120 unsanitary landfills, and weak recycling infrastructure (Jereme et al., 2015)—reflect a gap between theoretical ideals and practical execution.

Waste Hierarchy Model and Theory of Waste Management (TWM)

Waste management has gained strategic prominence in the global environmental agenda due to its close alignment with ESG (Environmental, Social, and Governance) considerations. Sustainable development requires effective waste management, which includes a number of critical activities like prevention, minimization, reuse, recycling, energy recovery, and disposal According to Farrelly et al. (2016), solid waste mismanagement can adversely impact environmental quality, public health, and economic productivity. In ESG, environmental protection is one of the main justifications. Ecosystems, natural resource conservation, and pollution reduction are all aided by effective waste management. Waste that is not properly disposed of can pollute the air, water, and soil, endangering plant and animal life. Additionally, the county may experience economic gains from trash management. Effective trash management, for instance, can boost the economy by generating jobs in the recycling and waste management industries. It can help lower the price of pollution-related healthcare and environmental cleaning. ESG-compliant waste systems promote corporate responsibility and attract sustainability-conscious investors.

The Waste Hierarchy Model, derived from the European Union's Waste Framework Directive, prioritizes prevention, reuse, recycling, energy recovery, and final disposal in that order

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

(Martinho & Pires, 2019). By applying this model, nations can systematically reduce environmental burdens and resource consumption, guiding the transition toward a circular economy. Nurminen and Pongrácz (2014) propose the Theory of Waste Management as a structured framework for analyzing how societies generate, treat, and reduce waste. It distinguishes between waste avoidance, minimization, and treatment, encouraging governments to view waste streams as integral parts of economic and ecological systems.

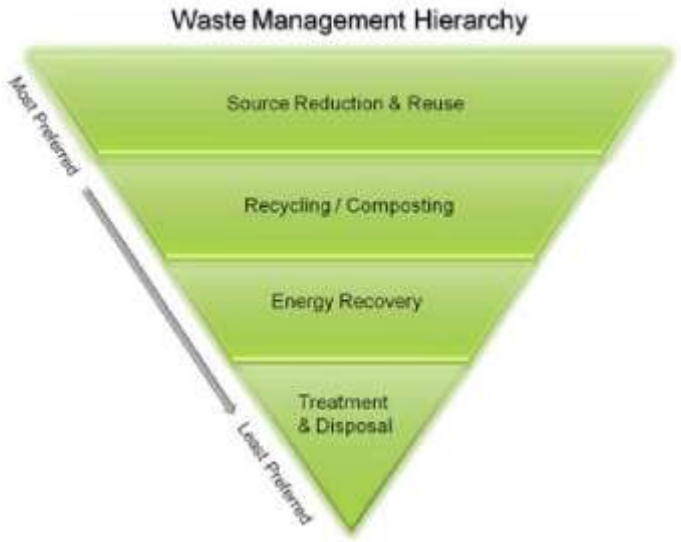

Figure 1: Waste Management Hierarchy
Source: (EPA United States Environmental Protection Agency)

Understanding the waste management hierarchy is necessary in order to integrate the ESG element into waste management. This hierarchy highlights the need for waste management strategies to put prevention first, then minimize, reuse, recycle, recover energy, then dispose of garbage. Waste management systems seek to improve sustainability and lessen their negative effects on the environment by adhering to this hierarchy. The waste hierarchy, as defined by the European Waste Framework Directive, is the sequence in which waste management activities should be prioritized: prevention, reuse preparation, recycling, other recovery (including energy recovery), and disposal. (Martinho & Pires, 2019).

The Waste Hierarchy Model, institutionalized through the European Union's Waste Framework Directive, structures waste management activities in descending order of preference: prevention, reuse, recycling, energy recovery, and final disposal (Martinho & Pires, 2019). This model illustrates a systematic approach to minimizing ecological impacts and guiding societies toward circular economy principles. Malaysia's policies, while acknowledging the waste hierarchy, have yet to operationalize it fully. Landfill reliance demonstrates a reversal of the hierarchy, with disposal prioritized above prevention or recycling.

Theory of Planned Behavior (TPB) and Waste Management

The Theory of Planned Behavior (Ajzen, 1991) provides an explanatory lens for individual recycling behavior. TPB posits that intention is shaped by attitudes, subjective norms, and perceived behavioral control. The framework is widely used to understand why individuals may

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

express pro-environmental attitudes yet fail to consistently act, known as the "intention–behavior gap."

In order to connect these theories, we must determine who will carry out the task and what motivates the user to do so. Consequently, there will be the theory of planned behavior. What motivates people to commit to waste management in their daily lives will be explained by the later theory. Ajzen's (1991) TPB is widely employed in sustainability research to explain behavioral intention toward recycling and waste reduction. Attitudes, subjective norms, and perceived behavioral control significantly affect individuals' commitment to eco-friendly practices (Farida et al., 2024). The theory enables policymakers to design behaviorally informed interventions by addressing these psychological determinants.

We must acknowledge that the public is required to take all of these acts in order to explain the existing state of affairs and offer solutions to the challenges and concerns. TPB has been instrumental in explaining the intention-behavior gap, where individuals express willingness to engage in sustainable practices but fail to follow through in practice. Many recent studies, including those from Zhang et al. (2019), Razali et al. (2020), and Wang (2021), have applied TPB either directly or as part of an extended framework. Consequently, in order to address the problems with waste management, we need to comprehend people's perspectives and motivations. With behavioral elements (attitudes, subjective norms, and perceived behavioral control) acting as mediators and financial incentives acting as a moderating variable, this study investigates the impact of circular economy concepts on waste management practices. A theoretical foundation for comprehending waste separation behaviors is offered by the Theory of Planned Behavior (TPB). TPB holds that a person's intention, which is impacted by their attitudes, subjective norms, and perceived behavioral control, determines their conduct (Ajzen, 1991).

A psychological theory called the Theory of Planned Behavior (TPB) uses intention, attitude, subjective norms, and perceived behavioral control to explain behavior in people. In earlier research, the TPB was used to predict people's intentions and behavior with relation to recycling rubbish. It is predicated on attitudes, arbitrary norms, and perceived behavioral control and is frequently employed to explain a variety of intents and actions. (Farida et al., 2024). Thus, the explanation that explains people's well-intentioned behavior the best is this one. The Theory of Planned Behavior (TPB) was employed to ascertain the driving forces behind customers' intentions to recycle. (Farida and et al, 2024). In addition to this, the Theory of Reasoned Action (TRA) is expanded upon by Icek Ajzen's 1985 development of TPB, which incorporates perceived behavioral control as a new element.

Malaysian studies affirm TPB's relevance. Razali et al. (2020) highlighted that moral norms enhance household waste separation, while Zhang et al. (2019) and Wang (2021) demonstrated that perceived behavioral control and government stimuli strongly influence participation in waste sorting. Farida et al. (2024) added that reverse logistics, coupled with financial motivation, plays a decisive role in consumer willingness to recycle PET plastics in Indonesia, with implications transferable to Malaysia. Thus, TPB provides a foundation for designing policies that tackle psychological barriers while embedding incentives to bridge intention and behavior. Policymakers must consider that beyond awareness campaigns, behavioral change requires altering convenience factors, cultural norms, and financial motivations.

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

Financial Incentives and Waste Management

Globally, financial instruments have proven to be powerful tools in reshaping consumer behavior. Deposit-return schemes (DRS), pay-as-you-throw (PAYT) systems, tax incentives, and recycling rewards have raised recycling rates and minimized landfill dependency (Yang & Thøgersen, 2022; Lee et al., 2024). Germany's DRS achieved nearly 90% recovery of beverage containers, while South Korea's PAYT system reduced household waste generation through strict enforcement.

However, financial incentives must be carefully designed. Fiorillo and Aprile (2019) noted that extrinsic incentives, if perceived as controlling, may undermine intrinsic motivation—a phenomenon known as the "crowding-out effect." Conversely, when incentives highlight competence (e.g., recycling knowledge), they reinforce intrinsic motivation. Malaysia, despite recognizing the potential of financial levers, continues to rely on infrastructure and educational campaigns. Studies such as Sarpong and Alarussi (2022) argue that sustainable finance must be embedded in waste management to promote circular economy transitions.

Recent Malaysian studies provide further evidence. Ahmad, Shaharudin, and Kassim (2021) found that monetary incentives significantly increased recycling participation among urban households in Selangor. Othman and Yusof (2023) reported that rebate schemes tied to waste separation improved compliance rates in pilot municipalities. These findings underscore the feasibility of integrating financial tools into Malaysia's waste policy framework, complementing behavioral theories like TPB.

Countries like Germany and South Korea demonstrate that deposit-return schemes and pay-as-you-throw policies can drive up recycling rates (Thøgersen & Yang, 2022; Lee et al., 2024). These systems effectively combine economic incentives with clear behavioral targets, offering transferable insights for Malaysian contexts. Fiorillo & Aprile (2019) found that intrinsic motivations significantly affect Italian households' recycling behavior. Meanwhile, Thøgersen & Yang (2022) stress that rewards must be well-calibrated to avoid the crowding-out effect where extrinsic incentives reduce intrinsic motivation. These insights are vital for Malaysian policymakers to consider culturally appropriate, context-specific interventions. Sundqvist and Miliute (2024) observed that Sweden's success in recycling stems from widespread curbside collection and user-friendly facilities. Accessibility reduces psychological and logistical barriers, thus increasing participation even in the absence of direct monetary rewards.

Farida et al. (2024) also highlight reverse logistics as a crucial component in circular economy frameworks. Consumer behavior toward recycling polyethylene terephthalate (PET), for instance, depends not only on awareness and infrastructure but also on economic motivation and policy alignment. These findings emphasize the role of integrated behavioral and logistical strategies.

The significance of using financial incentives to encourage recycling behaviors is supported by more recent research. (Thogersen & Yang, 2022). Additionally, some study suggests that when incentives are viewed as informative and showcase the recipient's abilities, like recycling knowledge, they might boost intrinsic drive. This implies even more that incentives have the power to modify both ingrained and newly acquired behaviors.

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

This section will examine possible financial ways to address the problems or circumstances related to waste management. Here, we'll look at some possible financial incentives that could be used to address Malaysia's waste management problems. Recycling may become more enticing if there are financial incentives in the form of prizes for participating in recycling. There may also be interactions wherein inherent, personal motives are influenced by extrinsic factors like rewards. (Maynard & Shaw, 2008). While open dumps are still frequently found in less developed nations. (Struk, 2017). In Malaysia, recycling rates need to be raised in order to decrease the amount of waste dumped in landfills.

International and Malaysian Practices

International experiences showcase diverse applications of financial instruments. Germany's DRS, South Korea's PAYT, Italy's tax rebates for composting, Sweden's accessible recycling centers, and Singapore's fines for improper disposal all reflect the spectrum of financial and regulatory interventions. These practices confirm that aligning economic incentives with clear behavioral targets can yield transformative results (Wu & Guo, 2017; Sundqvist & Miliute, 2024).

In Malaysia, by contrast, recycling rates remain at 33.17% (Zainal, 2023), below the 2025 target of 40%. Cultural inertia, insufficient incentives, and landfill overreliance continue to undermine progress. Jereme et al. (2015) emphasized that over 126 unsanitary landfills leak untreated leachate into ecosystems, while Sarpong and Alarussi (2022) noted that this dependency erodes circular economy potential. Despite the Solid Waste Management Act (2007), reliance on infrastructure-driven strategies has delivered incremental rather than transformative progress. Integrating financial levers into Malaysia's waste strategy therefore remains both a challenge and an opportunity.

Potential Finance Solution

The significance of using financial incentives to encourage recycling behaviors is supported by more recent research. (Thogersen & Yang, 2022). Additionally, some study suggests that when incentives are viewed as informative and showcase the recipient's abilities, like recycling knowledge, they might boost intrinsic drive. This implies even more that incentives have the power to modify both ingrained and newly acquired behaviors.

In general, the developed countries generate much higher quantities of waste per capita compared to the developing countries of the region. How do Malaysia as developing country, promote recycling in the country? How to ensure that Malaysian can contribute more to the preferred method in hadling waste management such as Recycling so that it will eventually reduce the disposal of waste and reduction in the landfills. In this section, the study reviews the finance related solution that has been adopted in other countries besides Malaysia. Below are some of the financial incentives that are currently adopted by other developed countries in the world.

Potential Solution 1: Deposit Return Schemes

Green appeals seems to be the most effective tactic in Germany. (Thogersen & Yang, 2022). Under deposit return programs, beverage containers are subject to a modest deposit that is refunded upon return of the container for recycling. In Germany, almost 90% of bottled drinks are recycled since a €0.25 deposit is placed to the price and refunded upon return.

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

Potential Solution 2: Pay-As-You-Throw

A scheme called Pay-As-You-Throw levies fees on homes according to the quantity of non-recyclable rubbish they generate. This incentivizes individuals to recycle more in order to lower their waste disposal expenses. Recycling rates have increased dramatically in South Korea because people pay for waste disposal based on the volume of waste generated. The district, city, or county picked up and disposed of any trash that was too big for an individual and left the owners of land or buildings inside the cleaning zone responsible for cleaning up the trash on their own. Furthermore, regulations were developed to forbid the unlawful dumping of waste, carry out thorough cleaning procedures, and apply fines. The disposal of waste in public areas, including parks, rivers, port areas, sewers, and the like, is now punishable by up to 0.3 million won in fines or up to six months in jail. (Lee *et al*, 2024)

Potential Solution 3: Tax Incentives & Rebates

The Italian government rewards companies and individuals who participate in recycling with tax incentives or refunds. This could include property tax or income tax deductions for reaching certain recycling targets. Italy encourages recycling and lessens the quantity of waste dumped in landfills by offering tax incentives to homeowners that compost organic waste. It wasn't until 1998 that policymakers in Italy began to emphasize the value of recycling, disposal, and waste prevention. At the period, people's personal lifestyles had a major impact on how sensitive and aware they were of waste issues. (Fiorillo & Aprile, 2019)

Potential Solution 4: Recycling Reward Program

Rewards had a greater impact on recycling intentions in the USA, indicating that a sizable portion of the population has not yet internalized the reason to recycle. Furthermore, it seems that limiting the incentive to eco-friendly products causes a domino effect in the United States, maybe because of psychological reactions against the limitation of personal autonomy. (Thøgersen & Yang, 2022). Retailers and local governments can set up incentive schemes where people recycle and receive points or vouchers that can be exchanged for products or services. a US-based initiative that gives customers points for recycling that can be used for savings at affiliated retailers.

Potential Solution 5: Financial Penalties for Non-Compliance

The world's fast-growing solid waste creation has been a major cause for concern lately, especially in land-scarce nations like Singapore that have small landfill capacities. One widely used solution for managing municipal solid waste is incineration, which has the potential to reduce waste volume by 90%. (Wu and Guo, 2017). Singapore has high recycling rates because it has severe fines for both improper recycling disposal and littering. Compliance can also be influenced by recyclables' refusal to take part in recycling programs or their incorrect disposal of recyclable items.

Potential Solution 6: Providing Convenient Recycling Options

Sweden has excellent recycling rates because it provides widespread curbside collection services and easily accessible recycling centers within residential areas. Sweden is regarded as one of the top nations in the world at keeping residential waste out of landfills. Just 0.8% of household waste was being dumped in landfills as of 2019; the other half was being burned with energy recovery and the other half was being recovered as materials. (Sundqvist and Miliute, P., 2024). Even though it's not a direct financial reward, making recycling simple and

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

convenient encourages participation. This offers full trash management services, conveniently located recycling containers, and curbside pickup.

In summary, financial solutions provide a crucial yet underutilized pathway for strengthening Malaysia's waste management system. International evidence demonstrates that deposit-return schemes, pay-as-you-throw policies, tax incentives, reward programs, and financial penalties can transform recycling behavior and reduce landfill dependency when properly adapted to local contexts (Yang & Thøgersen, 2022; Lee et al., 2024; Sundqvist & Miliute, 2024). For Malaysia, embedding these instruments requires not only regulatory support but also consideration of socio-cultural norms, infrastructure readiness, and behavioral drivers (Razali et al., 2020; Ahmad et al., 2021; Othman & Yusof, 2023). By combining financial incentives with public education, accessible facilities, and strong enforcement, Malaysia can move beyond incremental improvements toward systemic transformation. Such an integrated approach would align waste management practices with sustainable finance principles, advance ESG commitments, and ultimately reposition waste as a managed resource rather than an escalating crisis (Sarpong & Alarussi, 2022; Farida et al., 2024).

Conclusion

Malaysia's ongoing waste management crisis marked by excessive landfill dependency, low recycling rates, and environmental degradation demands urgent and innovative solutions. This paper has explored how sustainable finance mechanisms, informed by theoretical frameworks such as the Waste Hierarchy Model, the Theory of Waste Management (TWM), and the Theory of Planned Behavior (TPB), can enhance waste management practices. By reviewing global best practices, it is evident that financial incentives such as deposit-return schemes, pay-as-you-throw policies, tax benefits, and penalties have been effective in shifting public behavior and improving waste recovery outcomes. Adopting these strategies within the Malaysian context requires careful customization to align with local socio-economic conditions, behavioral norms, and infrastructural capacities. The integration of financial incentives into national waste policy has the potential to encourage environmentally responsible behavior, support ESG objectives, and reduce reliance on landfills. As Malaysia moves toward a more sustainable future, bridging policy frameworks with behavioral and financial levers will be key to transforming waste from a growing threat into a managed and valuable resource**.**

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

References

Ahmad, N., Shaharudin, M. R., & Kassim, S. (2021). The role of financial incentives in enhancing household recycling behavior in urban Malaysia. *Journal of Environmental Management, 293, 112783*. https://doi.org/10.1016/j.jenvman.2021.112783

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Aprile, M. C., & Fiorillo, D. (2019). Intrinsic incentives in household waste recycling: The case of Italy in the year 1998. *Journal of Cleaner Production*, *227*, 98–110. https://doi.org/10.1016/j.jclepro.2019.04.184

EPA, Environmental Protection Agency, www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy. Accessed 1 July 2024.

Eight, C. (n.d.). *1 . 1 Types of Wastes*. 1–71.

Farida, Y., Siswanto, N., & Vanany, I. (2024). Reverse logistics toward a circular economy: Consumer behavioral intention toward polyethylene terephthalate (PET) recycling in Indonesia. *Case Studies in Chemical and Environmental Engineering*, *10*(April). https://doi.org/10.1016/j.cscee.2024.100807

Farrelly, T., Schneider, P., & Stupples, P. (2016). Trading in waste: Integrating sustainable development goals and environmental policies in trade negotiations toward enhanced solid waste management in Pacific Islands countries and territories. *Asia Pacific Viewpoint*, *57*(1), 27–43. https://doi.org/10.1111/apv.12110

Ferronato, N., & Torretta, V. (2019). Waste mismanagement in developing countries: A review of global issues. International Journal of Environmental Research and Public Health, 16(6), 1060. https://doi.org/10.3390/ijerph16061060

Guo, L., & Wu, D. Q. (2017). Study of recycling Singapore solid waste as land reclamation filling material. *Sustainable Environment Research*, *27*(1), 1–6. https://doi.org/10.1016/j.serj.2016.10.003

Jereme, I. A., Ara Begum, R., Abdul Talib, B., Siwar Emeritus Professor, C., & MahmudulAlam, M. (2015). Assessing Problems and Prospects of Solid Waste Management. *Citation Reference*, *10*(2), 1–17.

Kaza, S., Yao, L., Bhada-Tata, P., & Van Woerden, F. (2018). What a waste 2.0: A global snapshot of solid waste management to 2050. World Bank. https://doi.org/10.1596/978-1-4648-1329-0

Lee, J., Kim, H., & Park, S. (2024). Policy enforcement and behavioral change: Evidence from South Korea's pay-as-you-throw system. Waste Management, 168, 34–44. https://doi.org/10.1016/j.wasman.2024.05.010

Kiruthika, A., Chandramohan, S., Punniyamoorthy, M., & Latha, S. (2012). Evaluation of service quality of banks-A fuzzy approach. *International Journal of Enterprise Network Management*, *5*(4), 333–354. https://doi.org/10.1504/IJENM.2012.052258

Nurminen, J., & Pongrácz, E. (2014). *Conceptual model of environmental management system (EMS) of reversed information streams*. *June 2004*.

Othman, F., & Yusof, R. (2023). Financial rebates and compliance in municipal waste separation: Evidence from Malaysian pilot projects. *Waste Management & Research*, 41(7), 987–996. https://doi.org/10.1177/0734242X231045678

Pires, A., & Martinho, G. (2019). Waste hierarchy index for circular economy in waste management. *Waste Management*, *95*, 298–305. https://doi.org/10.1016/j.wasman.2019.06.014

Volume: 10 Issues: 62 [September, 2025] pp. 93 - 105
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.academicinspired.com/ijafb
DOI: 10.55573/IJAFB.106208

Razali, F., Daud, D., Weng-Wai, C., & Jiram, W. R. A. (2020). Waste separation at source behaviour among Malaysian households: The Theory of Planned Behaviour with moral norm. *Journal of Cleaner Production, 271*, 122025. https://doi.org/10.1016/j.jclepro.2020.122025

Sarpong, S., & Alarussi, A. S. (2022). Waste to wealth: enhancing circularities in the Malaysian economy. *Technological Sustainability*, *1*(2), 145–159. https://doi.org/10.1108/TECHS-01-2022-0001

Shaw, P. J., & Maynard, S. J. (2008). The potential of financial incentives to enhance householders' kerbside recycling behaviour. *Waste Management*, *28*(10), 1732–1741. https://doi.org/10.1016/j.wasman.2007.08.008

Struk, M. (2017). Distance and incentives matter: The separation of recyclable municipal waste. *Resources, Conservation and Recycling*, *122*, 155–162. https://doi.org/10.1016/j.resconrec.2017.01.023

Vathani, T. A., & Logeshwari, J. (2025). Life Cycle Assessment of Perishable Wastes from Koyambedu Market. *Journal of Advanced Research in Applied Sciences and Engineering Technology*, *43*(2), 258–270. https://doi.org/10.37934/araset.43.2.258270

Yang, X., & Thøgersen, J. (2022). When people are green and greedy: A new perspective of recycling rewards and crowding-out in Germany, the USA and China. *Journal of Business Research*, *144*(January), 217–235. https://doi.org/10.1016/j.jbusres.2022.01.086

Wang, X. (2021). Analysis of influencing mechanism on waste separation behavior in Shanghai. Sustainable Energy Technologies and Assessments, 47, 101479. https://doi.org/10.1016/j.seta.2021.101479

Zhang, B., Lai, K.-H., Wang, B., & Wang, Z. (2019). From intention to action: How do personal attitudes, facilities accessibility, and government stimulus matter for household waste sorting? Journal of Environmental Management, 233, 447–458. https://doi.org/10.1016/j.jenvman.2018.12.059

Zainal, Fatimah. "Recycling Habit Needs a Boost." The Star, 4 Aug. 2023, www.thestar.com.my/news/nation/2023/08/05/recycling-habit-needs-a-boost#:~:text=More%20to%20do%3A%20Malaysia%20currently,40%25%20target%20set%20for%202025.