

LEGAL FRAMEWORK OF PLASTIC PACKAGING AND LABELLING IN SRI LANKA: A COMPARATIVE ANALYSIS

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ABSTRACT

Plastic packaging plays a pivotal role in delivering quality products to consumers but poses significant waste management challenges once discarded. Landfilling, the primary method for solid waste disposal in Sri Lanka, exacerbates plastic pollution due to poor waste separation, leading to environmental contamination and health hazards. Mismanaged plastic packaging waste also threatens key industries like tourism, fisheries, and agriculture, endangering the country's economy and biodiversity. This research utilized secondary data to examine plastic packaging waste regulations, incorporating expert strategies such as the circular economy and extended producer responsibility. An extensive literature review, including German and EU directives, identified effective waste management practices, while primary data on food packaging was collected through observation to propose improved labelling regulations for Sri Lanka. The findings recommend mandatory labelling by manufacturers to inform consumers about the recyclability and quantity of plastic packaging, promoting awareness and sustainable consumption. Additionally, implementing eco-labelling and legislation for plastic packaging in Sri Lanka will enhance waste separation, recycling, and recovery, reducing plastic pollution and mismanaged waste.

KEYWORDS: Plastic Pollution, Plastic Packaging Labelling, Producer Responsibility

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1. INTRODUCTION

1.1 background of the study

Landfilling, the most common solid disposal option worldwide, has been practiced for more than 70 years. Sanitary landfills offer the most cost-effective solution for disposing of non-recyclable waste. Karadiyana garbage dump, Katunayake Seduwa Urban Council dump yard, and Deldorawatta garbage recycling center are the most identified solid waste landfills in Sri Lanka. However, there are approximately 330 landfills and open dumping sites in Sri Lanka. These would only make people produce more waste not less and the problem will never get resolved with the increase of the population.

Landfill areas contain many different types of plastics. Most of the waste in the form of plastic in landfills is single-use items such as packaging and due to lack of separation of waste, there is a risk of contaminating the hazardous waste in the residual waste.

The best solution to tackle the overflow of plastic pollution in landfills is to focus on preventing and reducing the generation of plastic in the first place. Manufacturers keep on producing plastic packaging products for profit and consumers just buy them without any effort to change their lifestyle, which has become a problem. The issue lies with the creation of plastic packaging, rather than with the waste generated from plastic packaging.

The most common single-use plastic packaging identified are plastic water bottles and shopping bags. Experts have revealed that the poor segregation of waste and poor disposal and collection systems have created a risk of contaminating hazardous waste with residual waste, which causes leaching chemicals into underground waters even through a sanitary landfill. Landfills cause a risk of groundwater intoxication. Toxic chemicals that have high concentrations of nitrate and phosphate derived from the waste in the soil can filter through the dump and contaminate both the ground and surface water (Akinbile, 2012). This

will not only negatively affect human health but also harm the ecosystem in Sri Lanka, posing a threat to biodiversity.

Further, it is identified that most landfills and open garbage dump sites cause air pollution as a result of the burning of post-consumer plastic packaging waste. When the plastic packaging in landfills are burnt, toxic fumes are released to the environment. Packaging made from non-renewable resources can cause long-term pollution of the environment, including air and soil, and may contain environmentally damaging chemicals, which can have serious effects on human health (Scipioni, 2012). Given the various types of plastic waste packaging, not all post-consumer products can be recycled. Therefore, it should be emphasized that the manufacturer's responsibility is crucial for the sustainability of the product material.

According to Al-Salem, Lettieri & Baeyens (2009), a significant downside of landfills from a sustainability perspective is that none of the material resources used in plastic production are recovered, resulting in a linear material flow rather than a cyclic one. According to the EU Council Directive 1999/31/EC on the landfill of waste, landfilling in Europe is limited to inert materials that are not biodegradable or combustible on a national level. (Mou, 2014)

These identified problems are still in existence due to inadequate regulations on plastic packaging waste. Mismanaged plastic packaging wastes are rapidly increasing when smaller percentages of plastic packaging wastes are recycled and the rest go to the landfills and the environment.

Proposed policy regulation on manufacturers and distributors will make consumers do the right thing whenever they are at home or on the roadside rewarding good behaviors. The proposed regulations aim to protect consumers by reducing unnecessary packaging costs for manufacturers and distributors, which in turn will contribute to poverty reduction in Sri Lanka.

It is expected that the findings of this research will focus on policymakers making decisions wisely when implementing regulations on plastic waste management. Regulations on package labelling will not only benefit the Central Environment Authority, Western Provincial Waste Management Authority, Supportive Unit and Local Authorities but also the business organisations and the community as a whole. Prevention of waste at generation through regulations will be focused on in this research highlighting the responsibility of the product manufacturer and will inevitably be a guiding principle for awareness of the packaging waste problem.

Accordingly, this paper intends to identify gaps existing in regulations on plastic waste management in Sri Lanka, with special emphasis on strict separation of plastic waste at source. The main problem examined in this paper is on how to implement a regulation on the manufacturer for the responsibility of the product packaging. The resources that become “plastic packaging waste” thus need to be more concerned and redirected in the production process by the manufactures.

Therefore, it is necessary to implement regulations, recommendations, and best practices to transition from a throwaway society to one that emphasizes greater recycling, repair, reuse, and reduction of plastic packaging waste. The proposals and recommendations made in this research paper will guide and shape the implementation plan for plastic packaging waste policies, encouraging businesses to act responsibly and rewarding good behavior among consumers.

1.2 literature review

Labels on products are powerful marketing tools (Treves & Jones, 2010) that act as essential communication conveyers between businesses, public authorities and consumers (Struwig & Adendorff, 2018). Eco-labels convey to consumers a sense of environmental consideration on the part of the manufacturer (Koos, 2011). As per Eco Label Index (2015), there are estimated 463 types of eco labels, across 199 countries and 25 industry sectors

(Eco Label Index, 2019). These eco-labels are managed either voluntarily or mandatorily with the support of governments, companies, and non-governmental organizations (Senaweera & Parasnis, 2018).

The ISO 14000 is an Environmental Management System (EMS) standard developed by the International Organization for Standardization (ISO) Technical Committee ISO/TC 207 and its various subcommittees (International Organization for Standardization, 2019). According to some findings, presumably, organizations that had implemented the ISO 14001 have succeeded in decreasing the amount of waste produced (Sroufe, 2003) and tend to reduce costs compared to their previous consumption or production (Penttilä, 2016).

1.2.1 International Standards on Eco-Labelling

1. ISO 14020

The Environmental Labelling General Principles standard outlines nine fundamental principles applicable to all environmental claims and labelling schemes. These principles are aimed at ensuring the provision of accurate, verifiable, and relevant information across the board, fostering transparency and reliability in environmental communications.

2. ISO 14021

The Environmental Labels and Declarations standard encompasses Self-Declaration, Environmental Claims, Terms, and Definitions, establishing requirements for Type II labels. These labels pertain to environmental claims made by producers about their goods and services.

3. ISO 14022

The Environmental Labels and Declarations framework, specifically Environmental Labelling Type I, lays out the guiding principles and procedures necessary to create programs that verify the environmental characteristics of a product. These programs typically include the issuance of a seal of approval, which serves as an indication that the

product complies with particular environmental standards and criteria.

4. ISO 14024

The Environmental Labels and Declarations framework, particularly Environmental Labelling Type I, provides guiding principles and procedures to develop programs that verify a product's environmental attributes. These programs often involve issuing a seal of approval, indicating that the product meets specific environmental standards and criteria.

5. ISO 14025

Environmental labels and declarations, specifically Type III environmental declarations, establish principles and procedures for providing quantified environmental information about products. These declarations are based on life-cycle data and are aimed at informing consumers and stakeholders about the environmental impact of products throughout their life cycle. These principles and procedures help standardize the process of issuing such declarations, ensuring consistency and reliability in the information provided.

The International Organization for Standardization (ISO) has classified these Eco-labels into three types according to principles, practices and key characteristics: Types I, II and III.

It is identified in a study and recommended for introducing a well-recognized internationally accepted product-based Eco label which considers the whole life cycle of a product. The study revealed that introducing eco labels promote the greening of the supply chain and competitiveness in the international markets (Senaweera & Parasnis, 2018). However, the study has not recommended adopting a green dot packaging labelling system in Sri Lanka for manufacturers from an organization for the recyclability or recoverability of plastic packaging waste.

Table 1 gives the summary of the eco-labelling systems available in Sri Lanka as identified through the literature findings.

1.2.2 Eco-labelling schemes available in Sri Lanka

Legal Framework for Labelling Schemes in Sri Lanka

National Environmental (Plastic Material Identification Standards) Regulations No.1 of 2021 implemented through Special Regulation No.2211/50. The regulation states, “any manufactured plastic item shall be marked clearly under the plastic material identification standards specified in the schedule” (S.R., No.2211/50).

Table 1

PLASTIC MATERIAL IDENTIFICATION STANDARDS

Column I Material	Column II Abbreviation of the material	Column III Symbol options		
		1	2	3
(1) Polyethylene terephthalate	PET or PETE			
(2) High-density polyethylene	HDPE or PE-HD			
(3) Polyvinyl chloride	PVC or V			
(4) Low-density polyethylene, Linear low-density polyethylene	LDPE or PE-LD			
(5) Polypropylene	PP			
(6) Polystyrene, expanded polystyrene, Styrofoam	PS			
(7) Other plastics, such as acrylic, nylon, polycarbonate, and multilayer combinations of different plastics	OTHER or O			

Source: National Environmental (Plastic Material Identification Standards) Regulations No.1 of 2021 implemented through Special Regulation No.2211/50

Plastic Material Identification Standards

However, the regulation has failed to address the issue of distributors who are equally responsible in Sri Lanka for post-consumer plastic packaging waste. Because National Environmental (Plastic Material Identification Standards) Regulations No.1 of 2021 only apply to the manufacturer, therefore the regulation has been ineffective in managing plastic packaging waste in Sri Lanka. Extraordinary Gazette No.2211/51 has prohibited.

Labelling Schemes available in the German Jurisdiction

The EU Directive 1994/62 on Packaging and Packaging Waste aims to harmonize packaging waste management across member states, promoting recycling and minimizing environmental impact. However, national regulations like Germany's Verpackungsgesetz (Packaging Act) impose stringent standards, potentially conflicting with the Directive's goal of uniformity and increasing compliance costs for businesses operating in multiple EU countries. This highlights the tension between EU-wide regulatory harmonization and national sovereignty.

Comparatively, Sri Lanka's packaging laws, governed by the National Environmental Act and the Consumer Affairs Authority Act, focus on reducing pollution and promoting sustainable practices. These laws mandate recyclability labelling and restrict hazardous materials, but are less complex and more centralized than the EU's fragmented regulatory landscape. While the EU faces challenges in balancing uniformity and sovereignty, Sri Lanka's straightforward regulations provide clearer business guidelines but may lack the comprehensive rigor of the EU Directive. Sri Lanka could enhance its packaging waste management by adopting elements from the German model, balancing stringent measures with local economic capacity to foster environmental sustainability.

The certification given under the green dot system will force the manufacturer to produce their packaging to improve the material resource efficiency of the packaging material. This system will monitor and minimize the plastic packaging waste disposed in landfills in Sri Lanka.

1.3 Theory of the study

Extended Producer Responsibility (EPR) is an environmental policy approach that holds producers accountable for the entire lifecycle of their products, particularly focusing on the take-back, recycling, and final disposal of products. The core principle of EPR is that manufacturers should bear the financial and/or physical responsibility for the environmental impacts

of their products from design through end-of-life. This shifts the burden of waste management from governments and taxpayers to producers, incentivizing them to design more sustainable products.

1.4 Research gap

Identifying the gaps in the current plastic packaging waste management system in Sri Lanka highlights several critical areas where improvements are needed. There is a significant gap in consumer knowledge about the different types of plastics, their recyclability, and proper waste separation methods. Many consumers are unaware of how to correctly dispose of plastic packaging, leading to improper waste handling. There is a need for more robust educational campaigns and programs to inform the public about the importance of proper waste segregation and recycling practices.

The diversity of plastic types used in packaging complicates the waste separation process at the source. Consumers often find it difficult to distinguish between recyclable and non-recyclable plastics. There is a lack of adequate infrastructure and systems to facilitate efficient waste separation at the source, which is crucial for effective recycling.

Existing regulations on plastic waste management may be insufficient or inadequately enforced. There is a need for stronger policies and stricter enforcement to ensure compliance with waste management protocols. There is a lack of incentives for producers and consumers to adhere to waste management regulations, which hinders the effectiveness of these policies.

The current recycling facilities in Sri Lanka may be inadequate to handle the volume and variety of plastic waste generated. This limits the overall capacity for recycling and recovery. The processes used in recycling facilities may not be efficient or advanced enough to handle the complexities of different plastic types, resulting in lower recycling rates.

Improper waste separation leads to the contamination of hazardous waste with residual waste. This renders sanitary landfills ineffective, posing serious

environmental and health risks. Contaminated waste can lead to chemical leakage into the soil and water sources, impacting the food chain and human health.

Mismanagement of plastic packaging waste negatively affects key industries such as tourism, fisheries, and agriculture, which are vital to Sri Lanka's economy. The economic burden of ineffective waste management is high, affecting public health, environmental quality, and the overall sustainability of industries. The environmental impact of plastic pollution includes significant biodiversity loss, as both marine and terrestrial ecosystems are affected by plastic waste. The pervasive pollution of oceans and land by plastic waste underscores the urgent need for improved waste management strategies to protect the environment.

There is a gap in the implementation of Extended Producer Responsibility (EPR) programs, which could hold producers accountable for the lifecycle of their products, including take-back, recycling, and disposal. There is insufficient engagement and participation from producers in managing the end-of-life disposal of their products.

1.5 Research questions

1. What are the key components of Germany's legal framework on plastic packaging and labelling?
2. What are the current legal and regulatory frameworks governing plastic packaging and labelling in Sri Lanka?
3. How do the regulatory approaches of Germany and Sri Lanka compare regarding plastic packaging and labelling?
4. What specific policy recommendations can be derived from Germany's experience to enhance plastic packaging and labelling regulations in Sri Lanka?

1.6 Objectives

1. To analyze Germany's legal framework
2. To assess the current legal and regulatory environment in Sri Lanka
3. To compare and contrast legal approaches
4. To propose policy and regulatory recommendations for Sri Lanka

1.7 Significance of the study

Plastic packaging plays a pivotal role in delivering quality products to consumers. However, once its purpose is served, it becomes waste, posing significant challenges due to the diverse types of plastics used, which complicate waste separation at the source. The lack of awareness among private consumers regarding plastic types, recyclability, and recovery exacerbates the issue. Improper waste separation by consumers leads to the contamination of hazardous waste with residual waste, which renders sanitary landfills ineffective in managing the waste properly. This can result in chemical leakage into the soil, contaminating water sources and impacting the food chain, thereby affecting human health.

The mismanagement of plastic packaging waste also threatens key industries such as tourism, fisheries, and agriculture, endangering the country's economy. Additionally, the environmental consequences, including biodiversity loss and pollution of oceans and land, underscore the urgent need for improved plastic packaging waste management in Sri Lanka. Addressing these challenges is crucial to protect both the environment and the economy from the adverse effects of plastic waste.

2. METHODOLOGY

This research was based on secondary data. Literature was not limited to finding regulations on plastic packaging waste but it also extends to finding the best

strategic system as per the experts' views such as circular economy, cradle-to-cradle design, extended producer liability, stewardship and pay you as you-through.

Literature was collected to ascertain the existing legal framework governing the labelling of plastic packaging in Sri Lanka. This research paper considered options across the field of waste, recognizing that there are many lessons we can learn from Germany; a country that recycles at least half of its municipal waste (European Environment Agency, 2018). Further research focused on the directives of the European Union as the directives have had been the base for the regulation implemented by Germany.

An extensive literature review was conducted by referring to secondary sources which are available online such as legislation, books, journal articles, working articles, dissertations, research data, web pages, newspapers, and scientific papers to identify the plastic packaging labelling regulations in Germany for the last decade.

Data collection was done through both secondary and primary sources. The primary data related to this phase was collected mainly through observation on different food packaging.

The literature review identifies the existing waste management regulations and practices under German law and proposes regulations to adopt the best strategies for enhancing current packaging labelling practices to achieve zero waste management goals.

3. RESULTS AND DISCUSSION

From a legal perspective, the concept of zero waste as advocated by Zero Waste Europe presents several challenges and opportunities. Firstly, the shift from conventional waste management practices, which are typically designed for a linear economy, raises questions about the legal frameworks governing waste disposal and recycling. In many jurisdictions, waste management laws focus on disposal methods such as landfilling and incineration, which may not align with the goals of zero waste strategies. Therefore, there may be a need for legislative

amendments or new regulations to promote and incentivize zero waste practices.

One key aspect highlighted is the responsibility of manufacturers in labelling products for recyclability and sustainability. This intersects with existing consumer protection and environmental regulations that mandate accurate labelling and disclosure of product information. Manufacturers may be legally required to provide clear and verifiable information about the recyclability and sustainability of their packaging, ensuring that consumers can make informed choices.

Although plastics are technically recyclable most of them are not recyclable due to the infrastructure that does not exist in those packaging. Several major factors are limiting the effectiveness of plastics recycling. Recycling of single resins is limited by the lack of ability to separate a mixture of plastic easily (such as those collected at the curbside). Therefore, the separation of waste at source plays a major part in this issue.

Furthermore, the discussion on technological advances in recycling and life-cycle analysis (LCA) underscores the importance of incorporating scientific and technical data into waste management policies. Legal frameworks may need to encourage research and development in recycling technologies, while also mandating LCA assessments for certain products to quantify their environmental impacts. A recent LCA specifically for *Polyethylene Terephthalate* (PET) bottle manufacture calculated that the use of 100 percent recycled PET instead of 100 percent virgin PET would reduce the full life-cycle emissions from 446 to 327 g CO₂ per bottle, resulting in a 27% relative reduction in emissions (Gomes, Visconte & Pacheco, 2019).

The mention of toxic additives and hazardous chemicals in plastic packaging manufacturing raises regulatory concerns regarding product safety and environmental protection (Groh et al 2019). Laws governing the use of chemicals in manufacturing, such as restrictions on hazardous substances or requirements for safer alternatives, play a crucial role

in mitigating risks associated with packaging materials (Ong, Samsudin, & Soto-Valdez, 2020).

Making of plastic packaging may incorporate the use of toxic additives and hazardous processing chemicals. For example; Separation from polyvinyl chloride (PVC) is important in PET recycling processes due to its toxicity, which degrades the final quality of recycled PET (Galdón-Navarro et al, 2018). Unnecessary multi-layered packaging and non-recyclable plastic packaging are problematic and this type of packaging need to be restricted by implementing regulations on the packaging.

Manufacturers are responsible for producing the post consumed disposable plastic packaging waste, something at the end of its life cycle will end up in the trash bin. However, one must consider the fact that the recyclable product which end up in the trash bin must be recycled, and there is no other alternative for this problem. Packaging waste regulations have the ability to make manufacturers produce resource efficient packaging. By registering under a licensing body manufacturers should design their packaging by minimizing its harmfulness and its packaging quantities.

Waste minimization involves efforts to avoid creating waste during manufacturing. To effectively implement waste minimization, the manufacturer requires knowledge of the production process, cradle-to-grave analysis (the tracking of materials from their extraction to their return to earth) and details of the composition of the waste.

Regarding waste minimization and extended producer responsibility (EPR), legal mechanisms such as waste disposal taxes, deposit refund schemes, and EPR regulations can incentivize manufacturers to adopt sustainable practices. These instruments shift the financial burden of waste management onto producers, encouraging them to design products for easier recyclability and to minimize waste generation throughout the product lifecycle.

Manufactures who produce post-consumer plastic packaging waste that end up in land fill must be charged with a landfill tax. Due to this reason the cost

of product will be increased and this will discourage the consumer to buy products packed with plastic packaging and inevitably the consumer will tend to look for sustainable products.



Packaging of Chocolate Bar



Packaging of peanut butter jar

Figure 1: Packaging of products Manufactured in Australia

As per the above findings, waste generation and handling are a critical issue. Thus, it is important to implement the zero-waste management system to avoid waste problems. According to the literature findings, the design of the packaging is the best place to implement zero waste. Therefore, this research was considered about the manufacturing stage to prevent the generation of waste. Thus, this research was focused on applying the concept of zero waste to the manufacturing industry in Sri Lankan context.

Economic instruments are implemented through national or regional waste policies, such as waste disposal taxes, waste pricing, deposit refund schemes, extended producer responsibility, tradable

permits, recycling subsidies, value-added tax (VAT) exemptions for repair and recycling activities, etc. (Morlok. & Schoenberger, 2017).

Moreover, the importation of plastic packaging products and other unnecessary plastic toy products need to be restricted and monitored.

Importation controls on plastic packaging products and other plastic items also fall within the purview of trade and environmental regulations. Countries may impose import restrictions or standards on packaging materials to reduce environmental impact and promote domestic recycling industries.

In conclusion, the legal analysis of zero waste strategies involves a complex interplay of environmental, consumer protection, trade, and waste management laws. Implementing and promoting zero waste practices require a holistic approach that addresses regulatory gaps, incentivizes sustainable production, and fosters innovation in waste management technologies.

4. ANALYSIS

Despite their differences, Germany and Sri Lanka share several similarities, particularly during the 1980s when Germany grappled with waste management challenges like insufficient landfill capacities and excessive use of beverage packaging. However, these two nations also exhibit notable differences in various aspects.

German jurisdiction in packaging waste plays a significant role in increasing the recycling of plastic waste, more over the collection, and separation (Balachandra & Abeysekara, 2021). However German system is an expensive method as its sole concern goes for recycling targets which hinder focus on the national market economy. Therefore, the desired goal is to implement the Green dot labelling system with due respect to the national market economy in Sri Lanka.

Hence, these German experiences can be extracted to fulfill the lacuna that exist in the context of domestic

jurisdiction by implementing national laws on waste management upholding producers' responsibility over the plastic packaging waste in Sri Lanka.

Packaging is necessary for society to transport, protect, store and market products. (Boz, Korhonen, & Koelsch Sand, 2020) Therefore, Government policy should encourage innovation in packaging designs and uses before implementing regulation targeting on the manufacturers.

DSD created and maintained an infrastructure for the collection and sorting of materials. Collection bins were placed in convenient locations to allow consumers to dispose of packaging materials.

DSD then contracts with companies to handle the recovery and the delivery of these materials to sorting plants. Recyclers are paid by DSD to take the sorted materials. Companies, who wish to participate in the DSD program, thereby complying with the German statutory take-back requirement without the necessity of creating their system, must apply for permission to use a "green spot" symbol on their packaging materials. A product bearing the green spot is guaranteed to be composed of recyclable packaging (Ramasubramanian et al , 2023).

For a fee, DSD licenses the use of this symbol to companies whose materials DSD is willing to accept. Consumers and retailers may dispose of sales packaging bearing the green spot in DSD collection bins. Packaging not bearing this symbol cannot be disposed of in DSD bins and cannot be landfilled. The practical result is that retailers, who do not want to have to send materials back to their suppliers, even if the supplier pays for any expenses, insist on using the symbol (Ferreira et al, 2017)

The researcher identifies that compliance with the producer's responsibility in legislative framework and by implementation of Green dot system would contribute to the prevention of waste overflow in landfilling in Sri Lanka. Therefore, it is vital to implement regulations to maximize the recycling and recovery of plastic packaging waste and to minimize the impact of packaging waste on the environment in Sri Lanka. Product labelling system is a system which

would allow consumers to choose products with more sustainable features and materials (Preston, 2012).

Most of the consumers in Sri Lanka are not aware of the recyclability and biodegradability of the plastic packaging waste which negatively impact on separating the plastic packaging waste and finally hinders recycling and recovery of plastic packaging in Sri Lanka. Lack of information on plastic packaging has misguided the consumers and finally ended up not separating the waste precisely.

Regulation on material efficiency of product packaging is vital to force manufacturers to use recycling-friendly plastic materials for their plastic packaging. The green dot system adopted in compliance with a waste ordinance in Germany is an effective and efficient system to increase the plastic packaging waste recovery, recycling, and a proper plastic packaging waste disposal system in the market.

5. RECOMMENDATIONS

It is recommended to implement regulations on the manufacturers for mandatory labelling for reporting of quantities on the plastic packaging together with the plastic packaging material therefore making consumers aware of the recyclability, recovery of the plastic packaging waste.

Further, it is recommended to have an eco-labelling in Sri Lanka for take-back packaging by the producer for the increase of sustainable consumption through a legal framework for the procurement of eco-friendly products.

Legislation on plastic packaging will be vital for effective and efficient separation of plastic waste and an increase in recycling and recovery of plastic packaging waste and therefore to reduce mismanaged plastic waste and plastic pollution.

The regulation on plastic packaging will increase on sustainable consumption. This will increase the investable will be able. This will have an impact on the increase of the legal writing on the will inevitably increase on the packaging.

This will inevitably direct private consumers to do the right thing, whether at home or at work; rewarding good behaviours. Implementing regulations is as vital as introducing the alternative option for the consumers and also for the manufacturers.

6. CONCLUSION

The dual system in Germany requires examination of its impact on waste reduction, packaging usage, and the technological innovation and development of recycling. This system is concerned with reducing the volume of packaging introduced in Germany. Waste management in Germany has been characterized by effective development in the last 40 years. The German packaging ordinance uses the principle of recovering value from end-of-life and it is concerned about the producer's liability over the plastic packaging. Waste management regulations in Sri Lanka have not prioritized the increase of recycling or recovery of plastic packaging waste. Therefore, inadequate regulations on producer liability on plastic packaging hinder the preventive impact of unnecessary land consumption for landfilling in Sri Lanka.

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