Compilation of Thai Laws and International Standards:

A Gender-Sensitive Analysis of Waste Management Laws and Policies in the Tourism Sector

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CHAPTER 1
Introduction

1.1 Objectives

The issue of solid waste management within Thailand's tourism sector has consistently garnered attention from the government and relevant agencies. National policies and measures have been established with a focus on reducing the volume of waste, promoting the efficient use of resources, and developing waste management approaches aligned with international best practices. However, existing policies and legislation continue to prioritise environmental aspects and technical waste management solutions, while lacking comprehensive consideration of gender dimensions. Although women play an important role in waste management processes at the household and community levels, they are not equally represented in formal policy-making and waste management decision-making processes.[1]

Furthermore, women workers in the waste management sector—particularly in the recycling industry and the informal waste collection workforce—continue to encounter multiple barriers, including gender-based discrimination, occupational health and safety risks, limited access to economic opportunities, and a disproportionate burden of household responsibilities compared with men workers.[2] The lack of gender-sensitive approaches in national laws and policies, as well as at the local government level, restricts women's opportunities to participate in the waste management industry and hinders their access to essential resources needed for skills development and economic empowerment.

[1] United Nations Environment Programme. (2019). Gender and waste nexus: Experiences from Bhutan, Mongolia and Nepal.

[2] Sarah Winkler. (2024, April 15). The Role of Women Waste Pickers in Third World Countries. Everyday Recycler. Available at: https://everydayrecycler.com/women-waste-pickers/

The integration of gender perspectives into waste management in the tourism sector is therefore crucial, not only at the national policy level in Thailand but also at the local level and within the ASEAN context. Efforts are being made to advance policies that promote gender equality in sustainable development, particularly within the green economy and circular economy sectors. Establishing clear national policy frameworks and enforcing gender-responsive legislation would contribute to improving policy structures that support women's involvement in waste management processes and reduce gender-based barriers to accessing resources and economic opportunities.

This instrument has been developed as a guideline for the analysis of laws and policies related to solid waste management in the tourism sector with a gender-sensitive perspective. Its main objective is to assess the gender-related gaps and limitations within the laws and policies currently in force in Thailand, as well as within international and ASEAN standards, in order to propose appropriate recommendations for policy and legislative development in the Thai context. Moreover, the proposed guidelines are intended to serve as tools that can be applied in the development of regional and international policy frameworks.

Furthermore, this instrument serves as a supporting tool for policymakers and relevant agencies in formulating gender-sensitive policies, laws, and measures related to waste management in the tourism sector. It is intended to benefit operational officers and government policymakers at both central and local levels, as well as the academic sector.

This analytical document comprises five chapters as follows:

- **Chapter 1:** Introduction – Presents the objectives of the document, the scope of study, and the analytical framework.
- **Chapter 2:** National Strategies and Policies on Solid Waste Management and Gender-Sensitive Analysis – Presents an overview of national strategies, policies, and legislation on solid waste management in the tourism sector, alongside a gender-sensitive analysis based on the Reach–Benefit–Empower framework.
- **Chapter 3:** Local Policies and Municipal Ordinances on Waste Management in the Tourism Sector and Gender-Sensitive Analysis – Covers the role of local administrative organisations in solid waste management and provides a gender-sensitive analysis of local waste management policies and municipal ordinances, using case studies from Nan Municipality and Yasothon Municipality.
- **Chapter 4:** International and ASEAN Standards on Waste Management in the Tourism Sector and Gender-Sensitive Analysis – Presents the relevant international and ASEAN standards and provides gender-sensitive analysis.
- **Chapter 5:** Key Findings and Recommendations – Summarises key findings and presents policy recommendations.

1.2 Scope and Analytical Framework

This analysis covers national policies, legislation, local regulations, and international and ASEAN standards related to waste management within the tourism sector. The study aims to analyse the following:

- **National Level:** The analysis examines policies and legislation that impact waste management in Thailand across three levels. Level 1 comprises the National Strategy; Level 2 includes the Master Plans under the National Strategy and the National Economic and Social Development Plan; and Level 3 encompasses action plans developed by government agencies to operationalise the objectives and development priorities of Levels 1 and 2. Examples include the National Action Plan on Waste Management Phase 2 (2022–2027) and the Community Solid Waste Management Action Plan 'Clean Province' for the Year 2025. The analysis seeks to determine whether these policies incorporate gender perspectives.
- **Local Level:** The analysis reviews the roles of local administrative organisations (LAOs) and examples of local policies related to waste management, as well as municipal-level legislation concerning waste management in tourism cities, to assess whether gender considerations are integrated.
- **International and ASEAN Levels:** The study examines relevant international and ASEAN standards, along with good practices from other countries, to analyse and adapt global approaches and best practices for the development of gender-sensitive policy recommendations.

The analytical framework employed in this document is the Reach–Benefit–Empower (RBE) framework. This framework serves as a critical tool for ensuring that gender-sensitive waste management projects not only provide opportunities for women to participate in waste management systems but also create tangible opportunities for women to enhance their economic and leadership capacities. The framework consists of three main dimensions:

- **Reach:** This dimension analyses whether women and vulnerable groups have access to opportunities, resources, or rights to participate in waste management within the tourism sector. For instance, it examines whether policies facilitate women's access, whether women are encouraged to play roles in waste management leadership, and whether women workers in the waste sector can access necessary information, technology, and infrastructure.
- **Benefit:** This dimension considers whether laws and policies distribute benefits equitably across genders. It assesses whether women receive fair remuneration, labour rights, or economic opportunities from waste management initiatives in tourism cities; whether there are measures to protect the health and welfare of women workers in the waste sector; and whether women are supported to become entrepreneurs or business owners in the waste management industry.
- **Empower:** This dimension examines whether women and vulnerable groups can participate in policy formulation or decision-making processes related to solid waste management in the tourism sector. It analyses whether there are measures to encourage women's participation in the design and management of waste management projects; whether women are supported to assume leadership roles in waste management organisations; and whether there are initiatives to develop women's skills and capacities for policy-making leadership.

The Reach–Benefit–Empower analytical framework is crucial for developing gender-sensitive laws and policies in the tourism sector, especially in emerging tourist cities where waste management systems often face limitations, and where the majority of workers in the waste sector are women employed in the informal economy. Without integrating gender perspectives, waste management policies may inadvertently have adverse effects on women and hinder their economic and social empowerment. Thus, employing this framework ensures that the design of waste management laws and policies reflects the needs of all societal groups equally, establishing effective, inclusive waste management systems and promoting sustainable and gender-equitable tourism development.

1.3 Understanding of Gender and the Impact of Gender on Policies, Laws, and Standards

Sex refers to the biological and physical characteristics determined at birth, such as chromosomes, hormones, reproductive organs, and other physical attributes that distinguish males from females.

Gender is a social and cultural concept relating to the roles, responsibilities, expectations, and expressions of individuals as "men," "women," or other genders. Gender is therefore not confined to characteristics assigned at birth but is socially constructed and subject to change depending on societal context and period of time. Factors influencing gender include:

- **Social and cultural factors,** such as values and beliefs that shape male–female roles;
- **Economic factors,** which may determine opportunities and constraints for different genders in accessing employment and income;
- **Political and legal factors,** which affect rights, freedoms, and equality;
- **Personal factors,** such as life experiences, education, and personal values.

All these factors influence the definition and perception of gender for each individual in society. These factors are often interlinked and affect the way society assigns status, roles, and opportunities to individuals in daily life, as well as in structural dimensions such as policy design, public service delivery, labour standard setting, and management systems in both public and private sectors.

As a social construct, gender has significant implications for policy processes, law-making, and the establishment of standards in both the public sector and society. A lack of consideration of gender dimensions in policy design can lead to unjust outcomes or unintended gender inequalities. Examples include:

- **Policies or measures aimed at protecting workers in the formal labour sector** may overlook women in the informal sector or those with unpaid household care responsibilities, resulting in many women being excluded from benefits, social protection, and equal career development opportunities.
- **Laws that lack gender impact assessment** may contain provisions that indirectly discriminate–such as restricting women's or diverse genders' access to resources, welfare, or participation in public decision-making processes.
- **Design standards and technical specifications** that do not take into account physical characteristics or specific needs of different genders may result in women being unable to use facilities safely or effectively–for example, the design of public spaces lacking safety at night, or work equipment that does not match women's physical attributes in fieldwork or technical roles.

These impacts underline the necessity for the government and standard-setting bodies to integrate gender perspectives into all processes of policymaking, planning, and evaluation in order to reduce inequality and achieve genuine equality in society.

CHAPTER 2

National Strategies and Policies on Solid Waste Management and Gender-Sensitive Analysis

2.1 Overview of National Strategies and Policies on Solid Waste Management

Solid waste management is a critical issue that has been incorporated into national strategies and policies to support Thailand's sustainable development. Waste management approaches at the national level are structured into three tiers:

- **Level 1:** The 20-Year National Strategy (2018–2037) establishes the country's long-term development direction. Waste management is addressed under Strategy 5: The Strategy for Eco-Friendly Development and Growth, which emphasises the efficient use of resources through the circular economy concept and the reduction of waste at the source.
- **Level 2:** Master Plans and Policy Guidelines operationalise the objectives of the National Strategy across different sectors. These include the Master Plan under the National Strategy (2023–2037), which outlines approaches to waste and pollution management in accordance with international standards, through sub-plans such as sustainable growth within a green economy, pollution management, and the development of medium-sized tourist cities into sustainable tourist destinations; and the 13th National Economic and Social Development Plan (2023-2027), which sets targets for the development of a circular economy and a low-carbon society, including measures for waste reduction and the promotion of resource efficiency.
- **Level 3:** Action Plans are developed to support the implementation of Level 1 and Level 2 plans or are formulated to comply with legal requirements and international commitments. Key waste management-related action plans include:

1. Guidelines for the implementation of the Thailand Greenhouse Gas Reduction in 2021-2030 – Waste Management Sector

This plan focuses on reducing greenhouse gas emissions from community waste and wastewater management. The target is a reduction of 1.53 million tonnes of carbon dioxide equivalent, through measures such as waste reduction before disposal, promoting organic waste management to reduce methane emissions, and the application of waste-to-energy technologies.

2. National Waste Management Action Plan, Phase II (2022–2027)

This plan addresses waste management from the source, through midstream and downstream processes. It emphasises waste reduction at the point of origin, improved waste treatment efficiency, and the development of waste management infrastructure aligned with the principles of the circular economy. It also promotes waste valorisation and environmental impact mitigation through regulatory control and enforcement.

3. Action Plan on Plastic Waste Management Phase II (2023 - 2027)

As part of the Roadmap on Plastic Waste Management (2018–2030), this action plan focuses on reducing plastic waste at the source. It promotes eco-friendly product design, reduction of single-use plastics, and enhanced recycling. The plan adopts the principle of Extended Producer Responsibility (EPR) to ensure that producers play a role in sustainable packaging management.

4. Roadmap on Food Waste Management (2023–2030) and Food Waste Management Action Plan, Phase 1 (2023-2027)

This plan outlines strategies for reducing food waste across households, the food industry, and the service sector. It promotes efficient consumption, minimises waste during food production and processing, and encourages the valorisation of food waste into organic fertiliser or bioenergy. It also supports the development of information platforms for food waste management and the introduction of legal measures to reduce food loss.

5. Community Solid Waste Management Action Plan 'Clean Province' for the Year 2025

This plan sets measures to reduce pollution from waste, with local administrative organisations (LAOs) playing a leading role. Key measures include waste segregation at the source, the development of local environmental volunteer networks, and the formation of waste management clusters. The plan also promotes the use of technology and information systems to enhance waste management efficiency at the local level.

6. Third National Tourism Development Plan (2023–2027)

This plan sets out guidelines for developing Thailand's tourism industry towards sustainable tourism. It promotes Zero Waste Tourism to reduce waste from tourism activities, encourages the use of clean energy, and develops regulations related to waste control and greenhouse gas reduction within the tourism sector.

7. Five-Year Strategic Plan for Health Promotion and Environmental Health Development (2023–2027)

This plan focuses on creating environments conducive to health, setting measures for sanitation, including hygienic waste management, the safe disposal of infectious and hazardous waste, and the development of knowledge in environmental sanitation and health impact assessments related to solid waste.

8. Pollution Management Plan (2023–2027)

This plan outlines measures to prevent and reduce pollution from waste. It emphasises waste management at the source, improving treatment system efficiency, and managing hazardous waste in accordance with international standards. The plan also includes regulatory enforcement and economic instruments to stimulate waste reduction and efficient waste management.

2.2 Policy and Legal Analysis Using the Reach–Benefit–Empower Framework

Solid waste management is one of the key national strategic issues in Thailand, aimed at ensuring that the country's waste management practices are efficient and aligned with the principles of sustainable development. The Thai government has formulated and implemented national waste management plans and policies covering multiple dimensions—environmental, economic, and social.

However, gender sensitivity remains a matter that requires deeper integration in waste management plans and policies. Women play a significant role throughout the waste management chain, yet continue to face multiple barriers in accessing economic opportunities, welfare, and participation in policy formulation processes.

To comprehensively assess the effectiveness of national strategies and policies on solid waste management, this section analyses national laws and policies related to waste management in the tourism sector using the Reach–Benefit–Empower framework. The objective is to identify policy-level limitations and propose improvements to ensure that waste management in Thailand is inclusive, equitable, and responsive to the needs of all population groups.

2.2.1 Gender-Sensitive Access in Tourism Sector Waste Management

The "Reach" dimension in the context of waste management in the tourism sector refers to the extent to which workers of all sexes, including vulnerable groups, can access resources, infrastructure, formal employment, and economic opportunities on an equal basis. Although women have a significant role in the waste management chain, they continue to face barriers in accessing economic opportunities compared to men. This analysis examines national plans and legislation relevant to waste management, focusing on identifying gaps and barriers that continue to limit opportunities—particularly for women—in this industry.

1. Barriers to Accessing Formal Employment Opportunities

Although Thailand has labour laws, such as the Labour Protection Act B.E. 2541 (1998), which require employers to treat male and female employees equally in employment—except where the description or nature of work prevents such treatment[3]—in practice, women in the waste management sector still face barriers to accessing higher-income or more secure employment. The Act also contains provisions governing the employment of women, including prohibitions on assigning female employees to certain hazardous work, such as working at heights of ten metres or more, handling hazardous substances, or working at night between 22.00 and 06.00 hours.[4] In addition, pregnant employees are prohibited from performing specified types of work that may affect their health and safety, including night work, overtime, and work involving physical strain.

While these restrictions are intended to protect women's health and safety, they can also limit women's access to jobs that offer higher wages or greater job security. This is evident even in the waste management sector, which involves both unskilled tasks and physically demanding or high-risk roles, such as lifting and transporting waste in elevated areas or performing field operations. Without compensatory measures designed with gender considerations in mind, such restrictions can inadvertently exclude women from these opportunities.

[3] Section 15 of the Labour Protection Act B.E. 2541 (1998)

[4] Chapter 3: Employment of Women – Sections 38 to 43 of the Labour Protection Act B.E. 2541 (1998)

A significant constraint for many women also stems from family care responsibilities, particularly childcare. These responsibilities lead many women to seek employment in the informal waste management sector, which allows flexible working hours and the possibility of bringing children to the workplace.[5] However, such work typically lacks income security, legal protections, and welfare benefits.

International evidence further shows that women play a critical role in informal waste systems, working as waste pickers or in community-based waste sorting. Yet, when waste management systems are formalised, women are often excluded from newly created positions and replaced by men in those roles.[6]

Although relevant plans and policies exist—such as the Community Solid Waste Management Action Plan "Clean Province" for the Year B.E. 2568 (2025), which aims to strengthen local waste management systems, and the Third National Tourism Development Plan (B.E. 2566–2570 / 2023–2027), which includes measures to improve waste management in tourist areas—there is still a lack of targeted strategies to support workers, particularly women with time and opportunity constraints, in accessing formal employment on an equal basis.

2. Access to Economic Opportunities in the Waste Management Sector

Several national plans—such as the 13th National Economic and Social Development Plan (B.E. 2566–2570) and the Action Plan on Plastic Waste Management Phase II (B.E. 2566–2570)—place emphasis on the development of a circular economy and the utilisation of waste as a resource, they lack clear measures to ensure that workers and entrepreneurs of all genders, particularly women, can access economic opportunities and own businesses in this industry on an equal basis with men.

Within the circular economy, the recycling and waste management industries have significant potential to generate business opportunities. However, women are often confined to lower-paid positions, such as waste separation,[7] while higher-income positions—such as owners of recycling businesses, plant managers, or commercial waste service providers—are predominantly occupied by men.

Key barriers limiting women's access to opportunities include restricted access to finance, technology, and marketing channels. Start-up businesses led by women receive substantially less financial support than those led by men, partly due to investor biases that perceive women entrepreneurs as higher-risk and less profitable.[8] Research also indicates that although the waste management sector offers opportunities for both women and men to establish small businesses, there is still a need for innovation support, and access to loans and credit remains a major obstacle—especially in contexts where women's labour force participation rates are lower.[9]

While the Action Plan on Plastic Waste Management Phase II (B.E. 2566–2570 / 2023–2027) focuses on expanding Extended Producer Responsibility (EPR) and promoting the recycling industry, these approaches do not adequately address the need to create equitable opportunities for entrepreneurs of all genders, particularly those facing gender-related constraints. Therefore, additional measures should be considered, such as establishing microfinance loan funds for small-scale entrepreneurs in the waste sector, supporting the creation of community enterprises that enable equitable participation by all genders, and developing online platforms for recycling businesses to improve market access and support business expansion.

[5] Ocean Conservancy. (2019). The role of gender in waste management: Gender perspectives on waste in India, Indonesia, the Philippines and Vietna

[6] United Nations Environment Programme (UNEP). Gender and Waste Management. Accessed 14 August 2025, from https://www.unep.org/ietc/what-we-do/gender-and-waste-management#:~:text=We%20see%20a%20division%20of,active%20roles%20in%20informal%20settings

[7] United Nations Environment Programme. (2019). Gender and waste nexus: Experiences from Bhutan, Mongolia and Nepal.

[8] Gerges-Yammine, R. (2025). Comment: Women entrepreneurs don't need more confidence. They need more capital

[9] Dorji, L. (2018). Women-owned micro and small enterprises in Bhutan: what major obstacles impede their growth and innovation? Institute of Developing Economies (IDE) Discussion Papers, No. 719. Chiba: Institute of Developing Economies, Japan External Trade Organization (IDE-JETRO).

3. Access to Education and Skills Development in Waste Management

Training in waste management is an essential tool for enabling workers of all sexes to enhance their skills and career prospects. Although many women are engaged in waste management work in the public/municipal and private sectors, certain barriers remain, including limited opportunities to participate in specialised training and skills development. This constraint prevents women from accessing higher-paying positions.

Although several national plans—such as the Food Waste Management Action Plan, Phase I (B.E. 2566–2570) and the Master Plans under the National Strategy (B.E. 2566–2580)—focus on promoting a circular economy and the development of waste-related technologies, they lack explicit measures to support skills development for workers, particularly to ensure that women have equal access to training as men.

Another barrier is the absence of sex-disaggregated statistical data on workers in the waste industry, which hinders effective monitoring of women's participation in training and skills development.

To strengthen the capacity of the waste management workforce, training programmes should be developed with a focus on specialised skills such as recycling, the use of waste separation technologies, and industrial-level waste management. Accessible community-level training centres should be established to accommodate workers of all sexes, taking into account gender-specific constraints and needs. Furthermore, networks among workers, entrepreneurs, and government agencies should be fostered to facilitate knowledge exchange and expand development opportunities. Waste management enterprises should also implement systematic skills development programmes to enable workers to progress into more secure and fairly remunerated positions.

2.2.2 Gender-Sensitive Benefits from Waste Management in the Tourism Sector

This analysis focuses on how women and vulnerable groups benefit from national policies and plans on waste management in the tourism sector, particularly in terms of economic opportunities, welfare, labour rights, and social participation. It draws upon information from national plans, relevant laws, and development guidelines set out in Thailand's national strategies and action plans to highlight potential limitations in accessing benefits from participation in the waste management sector.

1. Wages and Welfare of Women Workers in the Waste Management Sector

Although labour laws—such as the Labour Protection Act B.E. 2541—grant equal rights to women workers on par with men, in practice, women in the waste management sector continue to receive lower wages than their men counterparts and often work in environments that pose health risks, without adequate health insurance or access to appropriate medical services. This is particularly true for workers in the informal waste management sector, who are not covered by the law and therefore do not receive fair remuneration, basic welfare benefits, or social protection from the state. Such conditions result in job insecurity and limited access to healthcare services or insurance.[10]

Existing plans and policies—such as the National Waste Management Action Plan, Phase II (B.E. 2565–2570) and the Community Solid Waste Management Action Plan "Clean Province" for the Year B.E. 2568—do not contain specific measures to guarantee fair wages or to set minimum wage rates appropriate to the nature of work in the waste management sector, taking into account gender-based constraints and the working conditions of different groups of workers.

To address this, measures should be introduced to ensure that workers in the waste management sector receive fair remuneration and have equal access to social protection, with due consideration given to gender differences and the specific contexts of each group of workers. These measures could be integrated into the Ministry of Labour's operational plans to achieve broader coverage and greater effectiveness.

[10] Women in Informal Employment: Globalizing and Organizing (WIEGO). Occupational Groups in the Informal Economy – Waste Pickers. Retrieved from: https://www.wiego.org/informal-economy/occupational-groups/waste-pickers/

2. Access to Equipment and Work Infrastructure

Although several national plans–such as the National Waste Management Action Plan, Phase II (B.E. 2565–2570) and the Action Plan on Plastic Waste Management, Phase II (B.E. 2566–2570)–mention the development of more efficient waste management infrastructure, there remain no specific measures to ensure that workers can access equipment and facilities that are appropriate to their needs, taking into account gender-related constraints.

Evidence shows that many women are engaged in collecting and sorting mixed waste, exposing them to hazardous or toxic waste and unsafe working environments.[11] In addition, most waste disposal facilities–particularly in the informal waste management sector–tend to have low standards of occupational health, cleanliness, and sanitation. Workers are routinely exposed to unsafe and unhygienic conditions, such as direct contact with hazardous waste (e.g., medical waste mixed with household waste), sharp objects, toxic fumes, and other physical hazards. The level of awareness among workers regarding these risks is often relatively low.[12] Nevertheless, most waste-related establishments do not have adequate protective measures in place, such as chemical-resistant gloves, dust masks, or protective suits.

Although health and safety regulations–such as The Ministerial Regulation on Hygienic General Waste Management B.E.2560–require that workers engaged in the collection and sorting of general waste be provided with appropriate personal protective equipment (PPE), undergo annual health check-ups, and receive training in occupational hygiene and safety, and that general waste-sorting facilities comply with prescribed sanitary standards–such as providing clean and sufficient toilets, lavatories, and handwashing stations for personal use and cleaning, and ensuring protection against disease-carrying animals and insects–in practice, it is still found that many workers lack appropriate PPE, such as chemical-resistant gloves, dust masks, or protective suits. Many workplaces lack basic amenities and adequate sanitation systems.[13] Such working conditions not only increase the risk of infectious diseases, respiratory illnesses, and skin disorders, but are also associated with accidents involving sharp objects, musculoskeletal problems resulting from lifting, carrying, pulling, or pushing waste containers, and mental health impacts arising from the social perception that waste collection work is a low-status and dirty occupation.[14]

Furthermore, the Community Solid Waste Management Action Plan "Clean Province" for the Year B.E. 2568)–which focuses on improving waste management infrastructure at the local level–does not include measures to support workers' access to equipment that can reduce the physical demands of the work, such as waste trolleys or mechanical lifting aids, taking into account differences in workers' physical build. Such measures would significantly help reduce occupational health risks.

[11] Ocean Conservancy. (2019). The role of gender in waste management: Gender perspectives on waste in India, Indonesia, the Philippines and Vietnam.

[12] United Nations Environment Programme. (2019). Gender and waste nexus: Experiences from Bhutan, Mongolia and Nepal.

[13] Wanpen Wisuwan, 1997, cited in Duripan Sirasakun, 2011.

[14] Sroithong Techasen et al., 1999; Office of Disease Prevention and Control Region 4, Ratchaburi, 2007, cited in Duripan Sirasakun, 2011.

2.2.3 Gender-Sensitive Decision-Making Power in Waste Management in the Tourism Sector

Decision-making power refers to the extent to which national plans and relevant legislation on waste management in the tourism sector include guidelines or measures that promote the ability of workers and vulnerable groups to develop their capacity, participate in decision-making processes, and gain equitable access to economic, social, and policy-related resources. This analysis covers women's roles in shaping waste management policy, capacity building for stakeholders in the waste management sector, and the promotion of entrepreneurship and business ownership in this industry.

The Role of Women in Waste Management Policy Development

Although Thailand has strategic and action plans encompassing waste management and the circular economy, women's participation in policy formulation remains limited. For instance, the Master Plan under the National Strategy B.E. 2566–2580 and the 13th National Economic and Social Development Plan B.E. 2566–2570 define directions for the development of the waste industry and the circular economy but lack explicit measures to ensure that stakeholders of all sexes have opportunities to hold leadership roles or take part in policymaking processes.

While legislation such as the Gender Equality Act B.E. 2558 is designed to promote equality between women and men, in practice, the proportion of women in high-level executive or policymaking positions remains low.[15] International studies have also found that in the formal waste economy, women are frequently excluded from higher-income roles, decision-making positions, and policy-setting responsibilities. This reflects how gender norms and existing opportunities significantly shape livelihood options within the sector.[16]

In addition, the Community Solid Waste Management Action Plan "Clean Province" for the Year B.E. 2568, which aims to strengthen waste management governance at the community level, does not set out clear measures to ensure that local workers can participate equally in decision-making. Despite the key role communities play in waste management, in many areas women still have fewer opportunities to be involved.

To foster gender balance in policymaking processes, measures should be put in place to enable genuine participation of workers of all sexes. These could include establishing representation quotas for provincial- and district-level waste management committees, creating public consultation forums that facilitate input from groups whose voices are often marginalised, and supporting relevant agencies in developing approaches that enable personnel of all sexes to access leadership roles in environmental and waste management bodies.

[15] Thailand data from Global Gender Gap by World Economic Forum 2025

[16] Nzeadibe, T.C. and Adama, O. (2015). Ingrained inequalities? Deconstructing gendered spaces in the informal waste economy of Nigerian cities. Urban Forum, 26(2), 113–130.

2.3 Conclusion

The analysis of policies and laws related to waste management in the tourism sector reveals that Thailand has, to a certain extent, established comprehensive strategic plans and measures for waste management. These focus on promoting a circular economy, reducing waste at source, improving infrastructure, and applying technology to enhance the efficiency of waste management systems. However, the integration of gender sensitivity into these policies remains limited, creating significant gaps that may affect the ability of women and vulnerable groups in the waste sector to access economic opportunities and welfare. These gaps are as follows:

1. Creating Fair Employment Opportunities in Both the Formal and Informal Waste Management Sector
Although national policies emphasise the promotion of the circular economy, they lack measures to ensure equitable access to stable employment, particularly for those facing gender-based constraints. Women in the sector are often confined to low-paid positions such as waste sorting and have limited opportunities to advance into managerial roles or become recycling business owners. There is also a lack of credit schemes or start-up funding to support their businesses. Many workers are in the informal sector, unprotected by labour laws, without access to social security, maternity leave, or health benefits. While laws guarantee equality, access to these rights remains limited.

2. Promoting Welfare and Occupational Safety that Responds to the Needs of Women
Although occupational safety laws—such as the Occupational Safety, Health, and Environment Act B.E. 2554 (2011)—exist, enforcement in the waste sector remains weak. Some workers face exposure to hazardous substances and unsafe working environments, including the lack of PPE designed to fit the women physique, safe toilets, handwashing stations, and adequate rest areas, which significantly affects hygiene and workplace safety.Developing Gender-Sensitive Waste Management Infrastructure

While national policies emphasise investment in infrastructure such as disposal facilities and recycling plants, the design and implementation largely focus on technical efficiency. They often overlook specific needs of women workers, such as women-friendly workspaces, adequate women's toilets, and equipment designed to accommodate the physical characteristics of women workers when lifting, moving, or handling waste. There is a lack of guidance to promote a safe and enabling working environment, leading to occupational illnesses among women workers and limiting their ability to pursue dignified employment in the waste sector.

3. Promoting Women's Participation in Waste Policy Formulation
While national policies focus on investing in infrastructure such as waste disposal facilities and recycling plants, the design and implementation tend to prioritise technical efficiency while overlooking the specific needs of workers of different sexes. These needs include women-friendly workspaces, adequate women's toilets, and equipment designed for lifting, transporting, or handling waste that takes account of the physical characteristics of men and women workers. There is also a lack of guidance to promote a safe and enabling working environment.

4. Developing Skills and Building the Capacity of Women in the Waste Sector
Many national plans highlight public participation, in practice women still have a limited role in policymaking and planning for waste management. Most policies and action plans do not clearly define targets for women's participation—such as quotas on committees or inclusive consultation forums that ensure balanced representation. The absence of gender-sensitive mechanisms results in the exclusion of women's specific needs and perspectives, as well as those of other vulnerable groups, from public waste management policy.

5. Creating Economic Opportunities and Supporting Women Entrepreneurs in the Circular Economy
National labour skills development policies often take a broad approach but lack tailored training programmes that address gender-specific constraints and needs. These could include training in recycling technologies, waste business management, marketing of recycled products, and leadership in the circular economy. There are also no supporting mechanisms to ensure access to training, such as flexible schedules or programmes accommodating workers with caregiving responsibilities. As a result, some workers cannot fully develop their economic potential.

6. Creating Economic Opportunities and Supporting Women Entrepreneurs in the Circular Economy
Promoting a circular economy that emphasises recycling and waste reuse presents an important opportunity to expand women's economic roles. However, existing policies still lack enabling measures for women entrepreneurs, such as establishing dedicated credit funds for women in recycling businesses, offering tax incentives, or supporting women-led waste business networks.

The gap in this area limits the ability of women and vulnerable groups to fully benefit from the economic opportunities arising from the transition to a circular economy.

In summary, while Thailand's waste management policies and laws are comprehensive in many respects, the integration of gender sensitivity still faces limitations—particularly regarding economic opportunities, access to welfare and labour rights, access to infrastructure and protective equipment, participation in policymaking, skills development, and occupational safety. These gaps prevent women and vulnerable groups from fully benefiting from waste management policies.

Addressing these issues requires the adoption of clear measures to promote gender equality in the waste industry, such as setting employment quotas, supporting entrepreneurs in the recycling sector, expanding training and skills development opportunities, and enforcing safety standards that consider gender-specific needs. Such reforms will ensure that waste management—particularly in the tourism sector—becomes more inclusive, equitable, and responsive to the needs of all population groups.

2.4 Policy Recommendations for Gender Integration in Waste Management Policies and Legislation

The analysis of gaps within national policies and legislation related to waste management in the tourism sector reveals that the integration of gender sensitivity remains limited. As a result, women and vulnerable groups have yet to receive equal access to resources, economic opportunities, and participation in decision-making processes within the sector. To ensure that Thailand's waste management system is inclusive and equitable, the following policy recommendations are proposed for national policy development and/or the amendment of relevant legislation at both national and local levels:

1. Improving Policies to Increase Economic Opportunities and Employment for Women in the Waste Sector

A key limitation is that women in the waste sector are often confined to low-paid positions, lack social protection, and have no pathways to economically secure occupations. National policies should therefore include measures to ensure that workers of all sexes can access jobs with potential and fair remuneration, such as:

- Establishing employment quotas or fair hiring targets: Waste management and circular economy policies should specify the proportion of women to be employed in formal positions, including roles in management or technical fields within waste management companies.
- Developing flexible employment systems: Policies should encourage enterprises to adopt flexible working arrangements, such as variable working hours, to accommodate workers with caregiving responsibilities.
- Providing inclusive benefits and welfare: Workers of all sexes should have access to health insurance, provident funds, and fair labour rights in the waste sector.

2. Promoting Women's Participation in Decision-Making and Policy Development

While many national plans recognise the importance of public participation, in practice women are often excluded from local-level policymaking and planning processes. Policies should include specific measures to enhance women's roles in waste governance, such as:

- Allocating a proportion of seats for women on relevant waste management committees: Both men and women representatives should be included on provincial and municipal waste management boards to ensure that the needs and concerns of all groups are addressed.
- Establishing consultation platforms that support participation of all sexes: Community members should have the opportunity to share feedback and proposals that reflect real experiences and needs.
- Supporting women's leadership in waste management: Leadership training should be provided, along with opportunities for women to assume executive positions in agencies related to waste management.

3. Expanding Economic Opportunities and Supporting Women as Recycling Business Owners

Encouraging women's entrepreneurship in waste management is a key strategy for reducing economic inequality and promoting sustainable development:

- Establishing special credit funds for waste sector entrepreneurs: Policies should facilitate access to financing for recycling or waste management businesses through favourable terms such as low-interest loans or co-investment funds.
- Supporting women-led community enterprises and start-ups: Government measures should include tax incentives and marketing support for recycling products produced by women-led businesses.
- Developing digital platforms to link women's recycling businesses with markets and consumers: Such platforms can improve market access and enhance the sales of products derived from waste management.

4. Improving Occupational Health and Safety Standards for Workers in the Waste Sector

Women working in the waste sector face health and safety risks, particularly in waste sorting and roles involving hazardous substances. It is necessary to adopt measures that take into account the physical differences and needs of workers of all sexes, such as:

- Establishing gender-sensitive safety standards: PPE should be designed to fit the physique and working conditions of diverse groups of workers to provide effective protection.
- Enforcing occupational safety laws to cover waste sector workers: Enterprises should be required to provide annual health check-ups for those working in high-risk environments.
- Developing guidelines to prevent occupational hazards and illnesses: Special attention should be given to preventing respiratory diseases and illnesses resulting from chemical exposure.

5. Developing Gender-Sensitive Training and Skills Development Programmes

While many national plans refer to workforce skills development, there is a lack of specific measures for training tailored to waste sector workers. The following actions are recommended:

- Delivering training programmes that respond to workers' needs: Courses should cover recycling technologies, waste business management, and marketing for recycled products to enhance competitiveness and capability.
- Promoting accessible community-level training programmes: Training should be offered with flexible scheduling and financial support or scholarships.
- Establishing networks for waste sector workers: Networks should facilitate knowledge exchange and collaboration among workers, and encourage active participation from both public and private stakeholders in capacity development.

CHAPTER 3

Local Policies and Municipal Regulations on Waste Management in the Tourism Sector and Gender-Sensitive Analysis

3.1 Role of Local Administrative Organisations in Solid Waste Management

The Ministry of Interior is responsible for overseeing Local Administrative Organisations (LAOs), which serve as the principal agencies providing public services and managing solid waste at the local level. The LAOs include Provincial Administrative Organisations, municipalities, Subdistrict Administrative Organisations (SAOs), the Bangkok Metropolitan Administration, and Pattaya City, each operating under powers and duties defined by relevant laws, including the Acts establishing local administrative bodies. These powers are grounded in the Constitution of the Kingdom of Thailand B.E. 2560 (2017), specifically Sections 250 and 258 (Chor) (3), which mandate that LAOs must provide public services for the benefit of the population and manage solid waste efficiently, in an environmentally friendly manner, and in ways that promote reuse, thereby aligning with the country's sustainable development goals.

The specific responsibilities of LAOs regarding solid waste management are set out in the the Act on the Maintenance of the Cleanliness and Orderliness of the Country, B.E. 2535 (1992) (as amended in B.E. 2560 (2017)), which authorises LAOs to collect, transport, and dispose of solid waste within their jurisdictions, or to delegate such responsibilities to government agencies or private entities. The Act also empowers LAOs to issue local ordinances regulating waste collection, transport, and disposal activities according to prescribed standards. Additionally, Ministry of Interior Announcement on Waste Management B.E. 2567 (2024) strengthens requirements for local authorities to promote waste separation at source, emphasising public participation in waste reduction efforts.

From an environmental perspective, The Enhancement and Conservation of National Environmental Quality Act, B.E. 2535 (1992) requires LAOs to supervise solid waste disposal according to hygiene standards and to encourage recycling initiatives for environmental benefits. Meanwhile, the Public Health Act B.E. 2535 (1992) assigns LAOs the responsibility to prevent public health problems arising from waste through the issuance of local ordinances on appropriate waste disposal and segregation.

The duties of LAOs also include compliance with the Municipal Act, B.E. 2496 (1953) and related ministerial regulations, focusing on establishing sanitary waste collection and disposal infrastructure and pollution control measures. Moreover, under the Ministerial Regulation on Infectious Waste Disposal B.E. 2545 (2002), LAOs are mandated to ensure the proper separation and disposal of infectious waste from hospitals and healthcare facilities in accordance with scientific standards, safeguarding public health and the environment.

In summary, the role of Local Administrative Organisations in solid waste management encompasses planning, implementation, supervision, and promoting collaboration among various sectors. All actions must align with the national strategies and waste management plans to strengthen an efficient waste management system that supports sustainable long-term development.

3.2 Gender-Sensitive Analysis of Local Policies and Municipal Regulations on Waste Management in the Tourism Sector. Case Studies: Nan Municipality and Yasothon Municipality

3.2.1 Case Study: Nan Province

1. Community Solid Waste Management Action Plan "Clean Province" for the Year 2025, Nan Province
The Action Plan focuses on waste management at the source by promoting household waste segregation and managing organic waste through the "Wet Waste Bin to Reduce Global Warming" campaign. It expands community-level implementation by establishing waste banks to add value to recyclable waste. The plan also outlines management measures for various waste types—general waste, hazardous waste, and infectious waste—through proper collection, transportation, and disposal systems.

Additionally, it aims to upgrade waste disposal clusters to improve substandard disposal sites. The Nan Provincial Office of Local Administration Promotion is responsible for driving implementation in collaboration with all relevant sectors, designating waste management as a provincial agenda item. Progress is regularly reported to the heads of government agencies. The plan's indicators cover upstream, midstream, and downstream waste management, as well as mechanisms to support effective waste governance. It also includes province-specific indicators such as the organisation of at least six Big Cleaning Day events annually in key public areas.

2. Municipal Ordinance of Nan Municipality on the Disposal of Waste and Refuse B.E. 2541 (1998)
This ordinance establishes guidelines for the control of waste disposal, collection, transportation, and treatment within the municipal area in accordance with public sanitation principles. Its objectives are to prevent environmental pollution, maintain hygiene, and promote urban orderliness. It prohibits unauthorised dumping of waste in public areas, prescribes standards for waste containers, and designates the municipality as the primary authority responsible for waste collection and disposal operations within its jurisdiction.

3. Announcement of Nan Municipality on the Collection and Transportation of Tree Branch and Leaf Waste

Due to the increasing volume of tree branch and leaf waste, Nan Municipality has issued an announcement providing guidelines for its management. Waste owners may either pay a collection fee of 100 baht per cubic metre or collect and transport the waste themselves, in which case the fee will be waived. In both cases, waste owners must submit a request for permission to the Division of Public Health and Environment before proceeding. While this measure contributes to organising the management of this specific waste type, it lacks incentives or mechanisms to promote the utilisation of branch and leaf waste, such as composting or biofuel production, which would support the development of a local circular economy.

Analysis of Local Policies and Municipal Ordinances Related to Gender-Sensitive Waste Management in the Tourism Sector

• Participation of Women Workers in the Tourism Sector

The Action Plan and the Municipal Ordinance of Nan Municipality emphasise the establishment of measures for waste disposal control and solid waste management within the municipal area. The Municipal Ordinance requires business establishments and communities to comply with public sanitation standards and proper waste disposal practices.

Activities such as Big Cleaning Day and the Local Environmental Volunteer Programme, while serving as important mechanisms for waste management in tourist areas, lack systematic approaches to meaningfully and consistently engage women workers.

• Access to Economic Opportunities for Women Workers through Waste Management Programmes

The Municipal Ordinance of Nan Municipality designates the municipality as the primary authority responsible for waste management, including the regulation of waste collection, transportation, and disposal businesses. Operators intending to conduct such activities are required to obtain a licence from the municipality. Although the Action Plan promotes initiatives such as waste banks and circular economy projects to enable local communities to generate income from recyclable waste, neither the Municipal Ordinance nor the local implementation guidelines provide explicit measures to ensure that women can equitably access economic opportunities from recycling or waste processing.

Moreover, there is an absence of supportive measures for small-scale businesses operated by women, such as small restaurants in tourist areas, which are required to manage their own waste systems yet receive no support from the Action Plan.

• Health and Safety Measures for Women Workers in the Tourism Sector

While both the Action Plan and the Municipal Ordinance of Nan Municipality recognise the importance of proper disposal of hazardous waste—such as infectious waste and waste from commercial establishments—they do not include specific protection measures for women workers in the tourism sector. Many of these workers, often employed as cleaning staff in hotels or restaurants, are required to handle organic waste or hazardous materials, placing them at risk without adequate protection under current policies.

3.2.2 Case Study: Yasothon Province

Yasothon Province presents another example of a systematic approach to solid waste management through the development of the Community Solid Waste Management Action Plan "Clean Province" for the Year 2024, which focuses on waste reduction at the source, efficient resource utilisation, and scientifically sound waste disposal. Implementation aligns with the National Master Plan on Waste Management and is driven by the 3Rs principle (Reduce, Reuse, Recycle) alongside the "Pracharat" collaborative governance model.

1. Community Solid Waste Management Action Plan "Clean Province" for the Year 2024, Yasothon Province
The Yasothon action plan outlines seven core measures. Measures 1 to 4 mirror national strategies, focusing on waste management at the source, midstream, and final disposal stages. Measure 5 aims to raise public awareness and cooperation in reducing and separating waste, promoting the use of environmentally friendly products, and encouraging local administrative organisations to carry out activities in tourism areas. It also expands efforts to education and the development of appropriate waste management technologies.

Measure 6 promotes waste governance through incentive-based projects, such as the "Clean District Competition" to stimulate inter-district competition, and the "Waste for Merit Project," which encourages the public to donate recyclable waste to charitable activities. Another campaign, "Clean Province Free from Liver Fluke," focuses on hygiene promotion.

Measure 7 focuses on monitoring and evaluation by establishing an information system to collect data from local administrative organisations, enabling ongoing improvements in waste management efficiency. In summary, this plan adopts a comprehensive approach encompassing public engagement, infrastructure development, and performance monitoring to enhance solid waste management in Yasothon Province.

2. Yasothon Municipality Ordinance on Waste Collection, Transportation and Disposal, B.E. 2565 (2022)
At the municipal level, Yasothon City has revised its waste management ordinance to align with relevant national legislation. The ordinance ensures that the collection, transport, and disposal of waste are carried out efficiently and in accordance with public health standards. The municipality is authorised to manage waste directly or assign private operators to do so under strict supervision. It also promotes source separation of waste and mandates the use of colour-coded and symbol-specific containers for different types of waste.

Furthermore, the ordinance sets fees for waste management services and outlines licensing requirements for waste-related business operators. It also imposes penalties for violations of waste management regulations to ensure sustainable practices and minimise environmental impact.

Analysis of Local Policies and Municipal Ordinances Related to Gender-Sensitive Waste Management in the Tourism Sector

Although the Action Plan and Municipal Ordinances of Yasothon Province outline comprehensive waste management strategies and include mechanisms to encourage public participation, the integration of gender-sensitive considerations is still lacking.

Measure 5, which focuses on community participation in waste reduction, separation, and recycling, introduces behavioural change programmes but adopts a gender-neutral approach. It does not address the distinct roles of men and women in the waste management sector, despite the fact that women play a crucial role in waste separation at both household and community levels.

Measure 6, which aims to foster a Zero Waste culture through the integration of provincial networks, lacks an analysis of the differentiated impacts on women and men. This is particularly evident in the case of women small-scale entrepreneurs, such as shop and restaurant owners in tourist areas, who may face increased costs when switching to environmentally friendly packaging. No targeted assistance measures have been established to support these groups.

Measure 7 addresses the development of monitoring and evaluation systems for waste management; however, its data collection and performance indicators do not integrate gender dimensions. For example, there is no sex-disaggregated data on women's participation in the waste sector, nor any assessment of how waste management policies may differently affect the quality of life of women and men.

At the Yasothon Municipality level, while there are regulatory frameworks in place for systematic waste management, there is still an absence of specific policies aimed at promoting women's access to opportunities in the waste management industry, as well as a lack of occupational health and safety measures that take gender differences into account. Consequently, waste management in the municipality continues to follow a gender-neutral approach, which may not adequately address the specific constraints and needs of women working in the tourism and waste sectors.

3.3 Summary and Policy Recommendations

An analysis of the Community Solid Waste Management Action Plan "Clean Province" and municipal regulations of Nan Municipality and Yasothon Municipality reveals that, while provincial and municipal policies and measures emphasise the development of efficient waste management systems based on the 3Rs principles (Reduce, Reuse, Recycle), the promotion of Zero Waste, and broad-based citizen participation, there are still significant gender-related gaps.

The implementation of tourism-related waste management measures—such as limiting waste generation, reducing single-use plastics, and supporting the circular economy—continues to be gender-neutral. These policies insufficiently address the distinct roles and impacts experienced by women and men, especially at the municipal level, where gender integration in circular economy initiatives, vocational development, and labour protection for women in the tourism and service sectors remains unclear.

Key findings include:

1. Lack of integration of women's roles in tourism and waste management – Women working in the tourism sector—such as hotel cleaners, restaurant staff, market vendors, and informal waste pickers—play essential roles in waste management. However, there are no specific measures in place to support their work or formally recognise their contributions.

2. Lack of gender-sensitive mechanisms supporting the circular economy – Although the action plans promote initiatives like waste banks and recycling, there are no mechanisms that enable people of all sex to access resources or economic opportunities generated from these programmes.

3. Absence of sex-disaggregated data collection and monitoring – For example, Measure 7 of the action plan focuses on monitoring and evaluation through local administrative organisations' information systems, but does not include sex-disaggregated data to track the beneficiaries or those affected by waste management policies and programmes.

4. Lack of consideration for health and safety of workers in waste management systems – There are no targeted measures to protect workers, particularly women, in high-risk environments, such as those handling hazardous or infectious waste, or working at night in unsafe areas.

5. Local laws do not support gender-sensitive waste management measures – The municipal ordinances in Nan and Yasothon mainly focus on sanitation control and legal enforcement. They do not incorporate measures that promote equitable access to economic resources or the empowerment of workers of different sex within the waste management system.

To address these gender sensitivity gaps and promote a more inclusive and equitable waste management system, local administrative organisations at the municipal level may consider the following policy recommendations:

1. Integrating gender perspectives into Solid Waste Management Action Plans

1.1 Enhance support mechanisms for workers of all sex in waste management and tourism – Municipalities should implement training and skill development programmes for workers in waste-related roles, particularly in the tourism sector such as hotel staff, restaurant workers, market vendors, and waste sorters. These programmes should aim to increase their access to economic opportunities in recycling systems and the circular economy, with flexible training schedules and accessible locations.

1.2 Promote a gender-sensitive circular economy – Municipalities should develop initiatives to support small-scale businesses, especially those operated by women, in the recycling and waste management sector. This may include transforming waste into new products or developing market channels for goods made from recycled materials.

1.3 Strengthen monitoring and evaluation systems to reflect gender perspectives – Data collection and activity reporting should include sex-disaggregated indicators, such as the number of participants by sex in recycling programmes, the number of workers trained in waste management, and the proportion of formal waste sector workers by sex.

2. Amending municipal laws and regulations to incorporate gender perspectives in waste management systems

2.1 Ensure municipal ordinances promote equitable access to economic resources – Local waste management laws should include specific provisions that enable both men and women to more easily obtain licences for operating recycling businesses. They should also introduce incentives to help enterprises operated by both sexes access funding or financial support in the waste sector.

2.2 Include occupational health and safety protections – Municipal ordinances should require that workers of all sex in waste management receive appropriate personal protective equipment (PPE) and access to safe and sanitary working environments, especially in tourism areas with high waste volumes.

2.3 Encourage participation of both sexes in municipal waste governance – Municipalities should actively promote the representation of both men and women in decision-making processes, ensuring balanced membership in waste management committees.

3. Integrating gender perspectives into plastic waste reduction initiatives in tourist areas

3.1 Design plastic waste reduction measures that support workers in the tourism sector – Municipalities should provide financial assistance or tax incentives for women-owned restaurants and businesses that adopt environmentally friendly packaging.

3.2 Develop plastic reduction strategies that address gender-specific limitations – Municipalities should research and design plastic waste reduction approaches that alleviate adjustment burdens on workers, especially women, by subsidising affordable and reusable packaging alternatives.

CHAPTER 4

International and ASEAN Standards on Waste Management in the Tourism Sector and Gender-Sensitive Analysis

4.1 Key International and ASEAN Standards

At present, tourism is a crucial sector for the economies of ASEAN countries; however, it is also a major contributor to solid waste generation. Consequently, several international and regional standards have been developed to govern waste management practices in the tourism sector. Nevertheless, most of these standards still lack explicit integration of gender perspectives, despite the vital role women play within the waste management system. This chapter analyses various standards from a gender perspective and offers recommendations for the integration of gender equality considerations into these frameworks.

4.1.1 Overview and Key Elements of Relevant Standards

The standards relevant to waste management in the tourism sector exist at both international and ASEAN levels, each with different objectives and scopes, as follows:

International Standards

1. ISO 14001:2015 – Environmental Management Systems (EMS)

ISO 14001:2015 is an internationally recognised standard that sets out a framework for establishing an Environmental Management System (EMS), enabling organisations to systematically identify, control, monitor, and continually improve their environmental performance.

The standard adopts the Plan-Do-Check-Act (PDCA) cycle as a core process for fostering continuous improvement and promotes the Life Cycle Perspective approach to assess the environmental impact of products and services across their entire life cycle—from design, production, and use, through to waste management, recycling, and disposal.

Another essential component of ISO 14001:2015 is the emphasis on stakeholder engagement, requiring organisations to integrate social, economic, and environmental dimensions when formulating environmental policies and practices.

Although ISO 14001:2015 does not explicitly address gender equality, its principles of inclusiveness and stakeholder engagement can be adapted to support gender-sensitive waste management practices, particularly in the tourism and waste management sectors.

The application of ISO 14001:2015 within the tourism sector also contributes to achieving the Sustainable Development Goals (SDGs) and supports ASEAN's sustainability commitments, thereby promoting socially and environmentally responsible business operations.

2. Global Sustainable Tourism Council (GSTC) Criteria

The Global Sustainable Tourism Council (GSTC) Criteria provide a global framework to promote sustainable tourism across environmental, social, and economic dimensions. The Core Criteria cover key issues, including the management of natural resources, reduction of environmental impacts, cultural protection, and the equitable distribution of economic benefits to local communities.

The GSTC Criteria encourage tourism businesses, destination management organisations, and tourism industry actors to implement sustainable development practices through systematic policy-making, operations, monitoring, and continuous improvement.

In terms of waste management, the GSTC Criteria require organisations to establish systems for waste reduction, separation, reuse, and hygienic disposal, while also encouraging the reduction of single-use plastics.

Although the GSTC Criteria broadly promote sustainability, they do not explicitly mandate the integration of gender perspectives into waste management or resource governance processes. Nevertheless, the application of GSTC principles offers an opportunity to integrate gender perspectives—for instance, by promoting women's participation in environmental management, fostering women's economic opportunities in recycling activities, and enhancing the involvement of vulnerable groups in sustainable tourism practices.

ASEAN-Level Standards

1. ASEAN Ecotourism Standard

The ASEAN Ecotourism Standard was developed to provide a framework for promoting sustainable ecotourism across the ASEAN region. It emphasises the conservation of natural and local cultural resources, the sustainable generation of income for communities, and active public participation in tourism management processes.

The key principles of this standard include minimising environmental impacts, sustainably managing resources, promoting environmental education and awareness among tourists and communities, and ensuring the fair distribution of economic benefits.

In terms of waste management, the standard promotes the establishment of efficient waste management systems at ecotourism sites, such as reducing plastic use, waste segregation, reuse, and recycling. However, it lacks specific provisions related to women's participation or the integration of gender perspectives in waste management processes.

Integrating the ASEAN Ecotourism Standard with initiatives that promote women's roles in waste management systems, support women entrepreneurs in ecotourism-related businesses, and apply gender-sensitive circular economy approaches would further strengthen environmental, economic, and social sustainability outcomes.

2. ASEAN Gender Mainstreaming Strategic Framework 2021–2025

The ASEAN Gender Mainstreaming Strategic Framework 2021–2025 was developed by the ASEAN Committee on Women (ACW) and the ASEAN Commission on the Promotion and Protection of the Rights of Women and Children (ACWC) with the objective of laying the foundation for structural change in the integration of gender dimensions into the policies, strategies, and action plans across all dimensions of the ASEAN Community under a long-term vision.

The Strategic Framework identifies four main goals: (1) to ensure that ASEAN's policies, mechanisms, and practices reflect a vision for a more just, equitable, and inclusive world; (2) to strengthen ASEAN's knowledge, technical competencies, and capacities on gender and inclusion issues; (3) to improve ASEAN's action plans to more effectively respond to the needs of women and girls; and (4) to support intergovernmental processes and collaboration with Member States in implementing gender mainstreaming efforts and initiatives that prioritise gender dimensions.

The Framework upholds human rights and structural transformation principles by identifying gender inequality as a systemic issue that must be addressed concretely. It promotes a Whole-of-ASEAN mechanism through a variety of structures and networks, such as the ASEAN Gender Mainstreaming Steering Committee (AGMSC), the Gender Mainstreaming Focal Team (GMFT), the Gender Focal Points (GFPs), and Communities of Practice (CoP). It also outlines a comprehensive monitoring and evaluation system with a focus on learning throughout the implementation process to ensure that gender mainstreaming efforts are accountable, sustainable, and policy impactful.

In the context of waste management in the tourism sector—one of the structural issues that directly affects the environment, public health, and people's well-being—the application of this Framework can concretely drive gender sensitivity in waste management. This includes promoting women's roles in the waste management value chain, developing the capacity of women workers in relevant industries, and designing policies that address women's specific needs at all levels. Such efforts serve as key mechanisms for advancing ASEAN's sustainable development goals in gender equality, urban sustainability, and efficient resource management.

3. ASEAN Gender and Development Tourism Framework and Work Plan (2020–2030)

The ASEAN Gender and Development Tourism Framework and Work Plan (2020–2030) was developed with the goal of promoting a gender-responsive tourism industry in ASEAN by 2030. It comprises both a core policy framework and a ten-year action plan that aim to mainstream gender perspectives into the development, operations, and governance of ASEAN's tourism sector.

The Framework originated from the ASEAN Gender and Development Forum on Tourism, held in November 2018 in Manila, Philippines, which emphasised the importance of promoting the role of women in tourism. It led to the establishment of a policy framework that recognises women and vulnerable groups as rights holders, resource users, and decision-makers within the tourism industry. The Framework is also aligned with the 2030 Sustainable Development Goals (SDGs), especially SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), and SDG 12 (Responsible Consumption and Production).

The Framework outlines six key development goals:

1. Strengthening ASEAN Member States' capacity for gender-responsive institutional development;
2. Preventing and addressing gender-based violence, discrimination, and harassment in the tourism sector;
3. Reducing issues related to trafficking and sex tourism in the region;
4. Developing and integrating gender policies in ASEAN tourism strategies;
5. Promoting equal economic opportunities and employment for women in tourism;
6. Enhancing the leadership capacities of tourism sector executives and policymakers on gender issues.

The Ten-Year Work Plan includes short-, medium-, and long-term interventions, such as training on gender-responsive planning and budgeting, conducting surveys and data analysis, integrating gender-sensitive tourism curricula into higher education, and establishing national mechanisms responsible for implementation.

Although the document does not specifically mention waste management in tourism, its emphasis on empowering women in tourism enterprises, strengthening women labour capacities, and promoting gender-sensitive policymaking can be effectively applied to the waste management sector. This is especially relevant in encouraging women's roles throughout the tourism waste management value chain–such as in recycling enterprises, service management, and participatory planning and governance at both local and ASEAN levels

4. ASEAN Clean Tourist City Standard (ACTCS)

The ASEAN Clean Tourist City Standard (ACTCS) was developed to enhance the cleanliness and environmental friendliness of tourist cities within the ASEAN region. Its objective is to improve the image of tourist cities, enhance residents' quality of life, and support sustainable tourism development.

The standard outlines seven main assessment criteria: environmental management, city cleanliness, solid waste management, green space promotion, environmental awareness, tourism infrastructure development, and certification and award mechanisms.

Regarding waste management, the ACTCS requires tourist cities to establish comprehensive systems for waste collection, transportation, reuse, and hygienic disposal, while encouraging public, business, and local authority participation.

However, the ACTCS currently lacks specific provisions for promoting women's roles in waste management, such as encouraging women's participation in environmental committees or supporting women workers within the waste sector.

Strengthening the ACTCS by incorporating measures to promote women's participation, developing infrastructure that is accessible and supportive for women workers, and introducing gender-sensitive health and safety measures would significantly enhance the effectiveness and inclusivity of the standard.

5. ASEAN Green Hotel Standard (AGHS)

The ASEAN Green Hotel Standard (AGHS) was developed under the ASEAN Tourism Strategic Plan to encourage hotels across the region to adopt sustainable practices, reduce environmental impacts, and promote social responsibility in the tourism industry.

The standard covers 11 main categories: environmental policy and operations, use of eco-friendly products, solid waste management, energy conservation, water resource management, air quality control, noise pollution control, wastewater treatment, chemical management, community cooperation, and human resource development.

In the area of waste management, the AGHS requires hotels to implement source separation of waste, promote recycling, and reduce waste generation at its source. It also supports the use of biodegradable or reusable products.

Nevertheless, although the AGHS focuses strongly on environmental sustainability, it lacks specific provisions related to gender, such as promoting women's roles in hotel waste management operations or ensuring appropriate welfare and working conditions for women, particularly in cleaning and waste-handling roles.

Integrating approaches that promote women's participation in waste management leadership, developing environmental skills among women workers, and fostering a gender-responsive circular economy through the support of women-led businesses would enhance the comprehensiveness and sustainability of the AGHS.

6. ASEAN Spa Services Standard

The ASEAN Spa Services Standard was developed to establish guidelines for spa establishments across ASEAN to achieve internationally recognised service quality while promoting environmentally friendly operations in line with sustainable tourism development.

This standard covers various areas, including service quality, human resource development, cleanliness and hygiene, and environmental practices, such as the use of natural products, water conservation, waste management, and the reduction of harmful chemical usage.

Regarding waste management, the standard requires spas to implement waste segregation, reuse, and hygienic disposal systems. It also promotes the use of eco-friendly and biodegradable cleaning products.

However, the ASEAN Spa Services Standard does not specifically address gender considerations in waste management, such as the health, safety, and welfare of women workers, who often play crucial roles in cleaning, waste handling, and hygiene maintenance in spa operations.

Integrating approaches such as providing personal protective equipment (PPE) suited to women workers, developing safe waste management skills, and encouraging women's participation in spa environmental management processes would enhance the inclusiveness and sustainability of this standard.

7. ASEAN Community-Based Tourism Standard (CBT Standard)

The ASEAN Community-Based Tourism Standard (CBT Standard) was developed to promote tourism managed by local communities, ensuring fair and sustainable distribution of tourism benefits. It emphasises natural resource conservation, preservation of local cultures, and strengthening of community capacities.

The standard outlines ten key assessment criteria, including community ownership and management, promotion of social well-being, environmental conservation, community-tourist interactions, quality of guiding services, food and accommodation services, tour operator competence, safety and hygiene in the community, and the promotion of technology and innovation use within communities.

On waste management, the standard requires communities to adopt sustainable practices, such as reducing plastic use, promoting recycling, and ensuring hygienic waste disposal, to protect natural resources and promote eco-friendly tourism.

Nevertheless, the CBT Standard does not include specific provisions that consider gender perspectives in waste management processes, despite women often playing crucial roles in waste segregation, recycling, and management within communities. Women also tend to lack opportunities for formal participation in decision-making and often do not receive adequate support in terms of equipment and knowledge.

Incorporating strategies that promote women's involvement in waste management committees, skill development, entrepreneurship support in the circular economy, and gender-sensitive training on waste technologies would significantly enhance the effectiveness and inclusiveness of this standard.

8. ASEAN Homestay Standard

The ASEAN Homestay Standard was developed to upgrade the quality of homestays across ASEAN countries in line with sustainable tourism practices. It emphasises community participation, environmental conservation, preservation of local cultures, and improving the quality of life of community residents.

The standard is based on nine main categories: homestay ownership, accommodation quality, tourism activities, management, location, hygiene and cleanliness, safety and security, marketing and promotion, and sustainability principles. It includes requirements for maintaining hygiene, promoting environmental conservation activities such as waste management within and around homestay premises.

Regarding waste management, the ASEAN Homestay Standard requires that homestays maintain cleanliness around their premises, prevent waste accumulation and breeding grounds for mosquitoes, and manage waste according to proper sanitary practices. It also promotes environmental conservation activities such as clean-up campaigns and nature conservation projects involving guests.

However, the standard lacks specific provisions for gender considerations, such as promoting women's roles in waste management or supporting women workers who are key actors in household management, accommodation services, and environmental activities related to homestays.

Integrating measures to promote women's participation in waste management programmes, skill development in waste reduction and recycling, and support for women-led circular economy initiatives in communities would enhance the ASEAN Homestay Standard's capacity to achieve sustainable development goals.

9. ASEAN Public Toilet Standard

The ASEAN Public Toilet Standard was developed to raise the quality of public toilets in ASEAN Member States, aiming to promote hygiene, comfort, safety, and environmental friendliness at tourist attractions, markets, airports, transport stations, and other public places.

The standard is organised into four main categories: design and environmental management system, amenities and facilities, cleanliness, and safety. It sets out requirements such as waste management systems, wastewater treatment approved by relevant authorities, the provision of waste bins and sanitary disposal units in women toilets, and regular cleaning and maintenance schedules.

Regarding waste management, the ASEAN Public Toilet Standard emphasises proper waste segregation and storage, including designated waste bin placements and procedures for the hygienic disposal of sanitary waste, alongside ventilation systems to reduce odours and microbial accumulation.

Nevertheless, the standard does not explicitly address gender-sensitive waste management, particularly in protecting the health of women cleaning workers or ensuring their workplace safety. Issues such as providing segregated facilities, safe working environments, and emergency alert systems have not been sufficiently addressed.

Integrating gender-sensitive approaches – such as providing appropriate PPE for women workers, installing emergency alert systems in restrooms, and designing facilities to prevent harassment – would significantly strengthen the ASEAN Public Toilet Standard in terms of safety, hygiene, and inclusivity.

4.2 Analysis of Standards in Gender Perspective and Recommendations

A review of international and ASEAN standards related to waste management in the tourism sector reveals that, although most standards promote sustainable environmental management practices, there remains a lack of systematic integration of gender perspectives. This is particularly evident in areas such as women's participation, skill and career development, occupational health and safety, and women's economic empowerment in the waste management sector. The detailed analysis for each aspect is as follows:

4.2.1 Women's Participation in Decision-Making and Policy Formulation

The ISO 14001:2015 Environmental Management System standard requires top management to be involved in establishing environmental policies (Clause 5.1: Leadership and Commitment), but it does not specifically promote the participation of women in this process. Similarly, the Global Sustainable Tourism Council (GSTC) Criteria, under requirement A3 (Sustainability Management System), outlines the framework for stakeholder engagement but does not explicitly address women's representation or participation.

The ASEAN Clean Tourist City Standard (ACTCS) mandates that tourist cities have efficient waste management systems (Criterion 3: Solid Waste Management) but does not mention women's involvement. Likewise, the ASEAN Green Hotel Standard (AGHS) emphasises hotels' environmental policies (Category 1: Environmental Policy and Operations) without addressing gender equality in decision-making, and the ASEAN Community-Based Tourism Standard (ASEAN CBT Standard), Category 1 (Community Ownership and Management), stresses transparent management structures but does not specifically incorporate women's roles.

Thus, to genuinely promote participation, there should be indicators for women's representation in environmental and waste management committees, such as setting minimum quotas for women members and establishing mechanisms that support women's roles in community and organisational policy-making processes.

4.2.2 Skill Development and Career Opportunities for Women Workers

Although ISO 14001:2015 stipulates the development of environmental competency under Clauses 7.2 (Competence) and 7.3 (Awareness), it does not specifically support women workers. The GSTC Criteria, under Clause C2 (Community Benefit), promotes benefits for local communities but does not mention strengthening the skills of women workers.

The ASEAN Green Hotel Standard (AGHS), under Human Resource Development, requires the development of environmental staff capacity but does not present specific pathways for women workers. Similarly, the ASEAN Spa Services Standard mentions staff training on hygiene and the environment but does not address gender-differentiated groups.

Therefore, training on waste management, recycling, and the circular economy should be promoted to be equally accessible to women. Furthermore, career advancement pathways should be developed to allow women to progress to higher roles within the circular economy system.

4.2.3 Health and Safety of Women Workers in the Waste Management Sector

Although ISO 14001:2015, through Clause 8.1 (Operational Planning and Control), requires the management of operations to prevent environmental impacts, it does not specify measures to protect the health and safety of women workers who are exposed to hazardous chemicals and waste.

While the ACTCS includes criteria on community hygiene and safety, it lacks specific provisions for women workers. The ASEAN Public Toilet Standard requires sanitary waste disposal facilities for women but does not mention protective measures for women cleaners handling such waste.

Thus, to protect women workers, personal protective equipment (PPE) that is suitable for women's body structures—such as gloves and safety shoes—should be provided. In addition, safe working environments should be allocated, emergency alert systems installed, and occupational health and safety policies should be developed with gender sensitivity.

4.2.4 Economic Empowerment of Women in the Waste Management Sector

While the GSTC Criteria (Clause C2) and the ASEAN CBT Standard (Category 2: Promoting Quality of Life and Well-Being) promote the distribution of economic benefits to communities, they do not provide specific measures to support women's economic empowerment in the waste sector.

Similarly, the AGHS and the ASEAN Spa Services Standard refer to corporate social responsibility but do not clearly promote women-led recycling businesses. Therefore, the following measures are recommended:

- Supporting women's access to microfinance loans;
- Developing public-private cooperation mechanisms;
- Promoting the creation of community enterprises led by women in the waste management and circular economy sectors.

4.2.5 Gender-Sensitive Awareness and Knowledge Building

Although the ACTCS includes a section on raising awareness about environmental protection and cleanliness, and both the ASEAN Spa Services Standard and the ASEAN Homestay Standard address environmental education for employees and communities, they still lack a focus on women's roles in waste management processes.
Therefore, the following should be developed:

- Campaigns highlighting women's roles in waste reduction, segregation, and recycling;
- Training programmes on waste management technologies suitable for women workers;
- Dissemination of information regarding the health impacts of waste on women and their families, in order to deepen understanding and encourage the sustainable involvement of women in the waste management system.

4.3 Case Studies Highlighting the Importance of Gender Dimensions in Waste Management

Waste management in the tourism sector plays a vital role in ensuring environmental sustainability, economic resilience, and quality of life for communities in tourist destinations. Integrating gender perspectives into waste policy and practice helps ensure fairness across all groups and enhances the overall efficiency of waste management systems.

Several countries have developed best practices that incorporate gender considerations in their waste governance strategies. These practices emphasise promoting women's roles in waste management processes, creating economic opportunities, and developing policies that systematically advance gender equality in the sector. This section presents international case studies that offer models for application in Thailand and other ASEAN member states.

4.3.1 Case Study: Bhutan[17]

Bhutan places a strong emphasis on gender equality in its national development agenda, identifying it as a core focus area in several planning instruments, including the National Plan of Action for Gender (NPAG) 2008–2013 and the Twelfth Five-Year Plan (2019–2024), in which gender equality is defined as National Key Result Area (NKRA) No. 10. However, policies relating specifically to waste management have not yet systematically integrated gender perspectives, and relevant legislation and strategies do not explicitly recognise the role of women in formal waste systems.

At the household and community levels, women play a critical role in waste management. Nevertheless, their participation remains limited in formal systems. Although community-level training programmes have been introduced, recycling and upcycling are still largely perceived as 'women's work', whereas managerial or entrepreneurial roles in waste businesses are predominantly occupied by men.

Civil Society Organisations Supporting Women in Waste Management in Bhutan

Clean Bhutan
A prominent non-governmental organisation focused on cultivating environmental awareness and promoting sustainable waste management. Women constitute more than 80% of the workforce and hold significant positions such as project coordinators, finance managers, and training facilitators.

Tarayana Foundation
An NGO that conducts waste management training for rural women through personalised, home-based instruction. This approach ensures that women gain practical knowledge and skills directly within their domestic environments, increasing accessibility and participation.

Despite these positive efforts, key barriers remain. Women are underrepresented in decision-making positions across both public and private waste sectors. In the informal economy, women are concentrated in low-paid roles such as waste sorting, while men dominate ownership of recycling or scrap businesses. Bhutan's recycling system is predominantly informal and lacks gender-responsive support structures. Women in rural areas also face limited access to formal training in waste management and continue to experience gender-biased attitudes that favour men's authority in policy-related discussions.

This case study illustrates that while women are central to community- and household-level waste systems, they remain excluded from leadership and formal roles. Programmes like Clean Bhutan and Tarayana Foundation demonstrate that targeted skill-building for women can significantly improve the overall efficiency and inclusivity of waste management systems.

[17] United Nations Environment Programme. (2019). Gender and waste nexus: Experiences from Bhutan, Mongolia and Nepal.

4.3.2 Case Study: Mongolia[18]

Mongolia enacted the Law on Promotion of Gender Equality in 2011, mandating the state to promote gender equality across all sectors. However, the Waste Management Law of 2017 does not include any provisions related to gender considerations, resulting in a lack of specific protections and support for women working in the waste management sector.

In Ulaanbaatar, the capital city, there is a stark inequality in waste management systems between apartment areas (housing approximately 40% of the population) and the "Ger Districts" (approximately 60%), which lack essential infrastructure. Waste collection services in the Ger Districts are significantly less efficient, and illegal dumping remains a chronic problem.

Although women in Mongolia have high education and employment rates overall, in the waste management sector they remain confined to low-paid or unpaid roles, such as street sweeping, whereas higher-paid positions like waste truck drivers are predominantly held by men. Furthermore, as waste-related jobs have become more lucrative, women have been increasingly displaced by men workers.

The lack of gender integration in waste policies has contributed to occupational inequality. Women's unpaid roles in household and community waste management are undervalued, and women waste pickers at landfill sites face considerable health risks and unstable incomes. It is estimated that around 60% of waste pickers at landfills are women.

Despite Mongolia's legal framework promoting overall gender equality, the absence of gender-sensitive approaches in waste management has created significant disparities. Nonetheless, the emerging trend of women-led recycling businesses presents an important opportunity for economic empowerment. If systematically supported by government policies and programmes, this trend could help to reduce inequality and strengthen the efficiency and sustainability of Mongolia's waste management systems.

[18] United Nations Environment Programme. (2019). Gender and waste nexus: Experiences from Bhutan, Mongolia and Nepal.

4.3.3 Case Study: Nepal[19]

Nepal is a landlocked country with a population of approximately 30 million, the majority of whom still reside in rural areas, particularly in the mountainous regions and the Terai lowlands. Only about 19% of the population lives in urban areas. However, the rapid pace of urban migration has exacerbated challenges related to urban management and waste disposal.

Nepal faces serious problems with indiscriminate waste dumping and open burning, which worsened after the 2015 earthquake that generated an additional 14 million tonnes of waste. Although the government has developed a Solid Waste Management Strategy aiming to reduce waste sent to landfills by 60% by 2030 and to achieve zero waste management, law enforcement remains weak. The Solid Waste Management Act 2011, which serves as Nepal's primary legal framework for waste management, references gender balance only superficially at the level of state waste management committees, without providing concrete measures to promote gender equality within the waste sector.

Women in Nepal play a crucial role in waste management at the household and community levels, particularly in managing organic waste and leading waste segregation awareness campaigns. Despite their active contributions, these roles are often unpaid or minimally compensated. At the operational level, women are largely confined to lower-income positions such as street sweeping and waste fee collection, while higher-paid jobs like waste truck driving and maintenance work are dominated by men.

Good Practice Example – NepWaste Project

The NepWaste Project is a collaboration between the Government of Nepal and a Finnish-Nepalese joint venture aimed at improving waste management in the Kathmandu Valley.

Key features include:

- Implementing a Public-Private Partnership (PPP) model to enhance household waste collection, street sweeping, riverbank cleaning, and efficient waste disposal.
- Actively promoting the involvement of local labour, particularly women, through training programmes and employment opportunities in the waste management sector.
- Reducing the volume of waste sent to landfills and supporting the circular economy model.
- Contributing to cleaner, safer urban environments while advancing gender equality within waste sector employment.

This project demonstrates an effective example of integrating environmental and gender objectives through public-private collaboration.

[19] United Nations Environment Programme. (2019). Gender and waste nexus: Experiences from Bhutan, Mongolia and Nepal.

In Nepal's informal waste sector, particularly in the Kathmandu Valley, there are approximately 10,000–15,000 waste pickers. Women predominantly work at transfer stations and landfill sites, whereas men are more likely to collect waste using bicycles. These roles are highly hazardous, as workers lack personal protective equipment and access to government welfare.

The absence of gender mainstreaming in Nepal's waste management policies has resulted in persistent inequalities in employment opportunities, health and safety risks, a lack of gender-disaggregated data, and a failure to introduce gender-specific support measures. Despite progress in developing national waste strategies, gender integration remains a crucial issue that must be addressed to achieve a sustainable and inclusive waste management system in the future.

4.3.4 Case Study: India[20]

India has a population of 1.339 billion people, with approximately 31% living in urban areas, a figure expected to rise to 50% by 2050. Urban expansion affects the efficiency of municipal solid waste management, with the current waste generation at around 62 million tonnes per year, projected to increase to 165 million tonnes by 2030.

The Indian government enacted the Solid Waste Management Rules, 2016, focusing on the concept of the Circular Economy and the principles of 5Rs: Reduce, Reuse, Recover, Recycle, and Remanufacture, aiming to reduce waste generation and eliminate landfill disposal. However, there remains a lack of clear national targets for recycling, and enforcement is constrained by public awareness, infrastructure, and inadequate enforcement mechanisms.

India's waste management system heavily relies on the informal sector, particularly in cities like Bangalore, where the informal sector handles about 80-85% of recycling operations. The caste system continues to influence employment, with lower caste individuals often pushed into waste-related work.

In terms of gender, women play a crucial role in waste management, particularly in low-income households. For example, in Pune, about 90% of recyclers are women, among whom 25% are widows, 30% are heads of households, and 8% are primary earners. These women choose waste picking because it offers more flexibility and autonomy compared to other jobs that carry higher risks of sexual harassment.

Example of a National Programme: Swachh Bharat Mission

The Swachh Bharat Mission (SBM – Clean India Mission) is one of the national programmes supporting local municipalities to employ women workers in waste management systems, such as street sweeping and waste collection. This policy has helped increase women's access to paid, formal employment.

[20] Ocean Conservancy. (2019). The role of gender in waste management: Gender perspectives on waste in India, Indonesia, the Philippines and Vietnam.

Nevertheless, gender inequality persists in the employment structure within the waste management sector. Women in "Pourakarmikas" positions, responsible for street sweeping and household waste collection, often have to take up additional work to supplement their income, while higher-paying jobs such as waste truck drivers or owners of recycling businesses are almost entirely held by men.

Although the Solid Waste Management Rules, 2016, recognise the role of informal workers, there is no clear policy promoting career opportunities or protection for women workers. The lack of support mechanisms for women workers leads to job insecurity, unstable incomes, and unsafe working conditions.

India's case study reflects structural and gender-specific challenges in the waste management sector. Despite promoting the circular economy and integrating informal labour into urban waste systems, gender mainstreaming remains limited. Addressing gender bias, promoting access to higher-paying positions, and developing supportive policies for women workers will play critical roles in restructuring the labour sector towards greater fairness and sustainability in the future.

Example of Initiatives Supporting Informal Workers and Policy Advancements

In recent years, the idea of integrating informal workers into urban waste management systems has gained more attention, particularly in Bangalore, where "Dry Waste Collection Centres (DWCC)" have been established to allow informal sector workers to participate in recycling management. Some DWCCs are operated by former waste workers who transitioned into entrepreneurs with the support of the city municipality.

Additionally, non-governmental organisations (NGOs) such as Hasiru Dala have been working with groups of informal waste pickers to enhance their economic opportunities and reduce social stigma against waste sector workers.

4.3.5 Case Study: Indonesia[21]

Indonesia had a population of 261.89 million people (as of 2017) and produced approximately 65.8 million tonnes of municipal solid waste per year. It is projected that waste generation will increase to 70.8 million tonnes by 2025, driven by population and urban growth. The Indonesian government has set a target to reduce waste generation at the source by 30% and decrease landfill disposal by 70% by 2025, with each city required to implement measures to achieve these goals.

Indonesia's waste management system operates through community-based mechanisms, where neighbourhood heads (RT/RW) are responsible for hiring waste collectors to transfer waste to Temporary Waste Storage Stations (TPS) or TPS 3R stations where waste is sorted before being sold to recycling shops. According to the Ministry of Environment and Forestry (KLHK), approximately 66.39% of waste is sent to landfills (more than half to open dumpsites), while only around 2.2% is recycled or processed.

The recycling process heavily relies on the informal sector, where waste pickers and landfill workers play a key role in sorting recyclable materials. Women have an important role at the household level, being primarily responsible for waste sorting and participating in waste bank activities, which provide them with additional income without needing to travel far. However, in the informal sector, women are often confined to lower-value work and face physical limitations and social biases that limit their economic opportunities.

Waste sector workers in Indonesia face unsafe working conditions, lack social protection, and often do not have appropriate protective equipment, particularly women working at landfill sites who are at risk of long-term health problems. Higher-paying jobs are generally reserved for men.

At the policy level, Indonesia has issued the Presidential Regulation No. 97/2017 on Waste Management, which sets targets for waste reduction and landfill diversion. Nevertheless, there is still a lack of gender mainstreaming in waste management policies and related projects. Although efforts to promote a circular economy through waste bank systems have been advanced, women workers in the waste sector still face significant barriers in terms of income and occupational stability.

Expanding waste bank programmes and developing the economic capacity of women could significantly enhance sustainable gender participation and provide an important pathway to building a more inclusive and equitable waste management system in the future.

The establishment of "Waste Banks"

One of Indonesia's key policies is the establishment of "Waste Banks," a concept that encourages citizens to participate in waste sorting and recycling within their communities.

This system helps reduce the volume of waste requiring disposal while simultaneously opening economic opportunities for communities, including promoting the significant role of women in household and community waste management processes.

[21] Ocean Conservancy. (2019). The role of gender in waste management: Gender perspectives on waste in India, Indonesia, the Philippines and Vietnam.

4.3.6 Case Study: Kosovo

Kosovo continues to face challenges in waste management due to a lack of an integrated system. Most waste is disposed of without sorting, treatment, or recycling, especially in rural areas where infrastructure remains inadequate. This has led to chronic problems of waste accumulation and illegal dumping. Although the country promotes gender equality policies across many sectors, in the waste management sector women remain underrepresented, primarily holding administrative roles, with no clear policies to promote women's employment in operational positions.

To address these challenges, the Sustainable Municipal Services (Waste Management) – SMS project, supported by GIZ, has worked to build the capacity of municipalities, government agencies, and related sectors to improve waste management and systematically integrate gender perspectives into various plans. Key approaches include collecting sex-disaggregated data, incorporating gender considerations into Local Solid Waste Management Plans, appointing Municipal Gender Focal Persons in working groups, and organising consultation forums for women in rural communities.

The SMS project also collaborates with the Ministry of Environment and Spatial Planning to mainstream gender into national-level plans and promote gender-responsive budgeting.

Capacity building for women in the waste management sector is carried out through key activities such as integrating gender perspectives into e-learning curricula, organising summer camps on waste management and energy for students with a gender equality focus, and developing training programmes for waste managers, with proactive measures to ensure that at least 30% of certified participants are women.

Although men still dominate leadership roles in Kosovo's waste management sector, the SMS project demonstrates that systematic gender mainstreaming at policy, planning, and capacity development levels can strengthen gender equality, enhance the efficiency of waste management systems, and foster long-term sustainability. It offers important lessons for other countries aiming to develop inclusive and equitable waste management systems.

Overview of Case Studies and Good Practices in Gender Integration in Waste Management

From the study of different countries, it is evident that waste management faces distinct challenges and conditions in each area. However, there are commonalities that highlight the importance of systematically integrating gender perspectives, particularly regarding the role of women in the waste sector, access to economic opportunities, and participation in policy-making.

In many countries, women play a crucial role in waste management at the household and community levels, including waste sorting, reuse, and household waste management. Nevertheless, in the industrial and formal waste management sectors, women are often confined to low-paid jobs or excluded from decision-making positions.

Women workers in the waste sector also face precarious working conditions and insufficient occupational health and safety protections, particularly in the informal sector, which includes landfill waste pickers and recycling workers. In some countries, legal frameworks recognise and promote the participation of women in the waste sector, such as through legislation supporting informal workers or the establishment of waste sorting centres that enhance women's participation.

Furthermore, the study finds that women's participation in waste management policy-making remains low. Several countries are beginning to recognise the importance of including women representatives in national and local planning processes to ensure that gender issues are adequately considered in the development of waste management policies and related budget allocations.

Good Practices from Case Studies

From the case studies of various countries, several practices were identified that could serve as models for integrating gender perspectives into the waste management sector, as follows:

1. Formulating Policies and Legislation that Promote Gender Equality in the Waste Sector

- Enacting laws that protect the rights of women workers in the waste sector, such as occupational health and safety protections.
- Establishing policies with clear targets to increase the proportion of women in higher-paying positions, such as managers of waste sorting centres or owners of recycling businesses.
- Promoting measures to prevent gender-based discrimination in the workplace.

2. Promoting the Role of Women in the Waste Labour Sector

- Supporting women's access to economic opportunities, such as providing financial support for women who wish to become entrepreneurs in recycling businesses.
- Improving working environments to be suitable for women workers, such as ensuring safe workplaces with good hygiene standards and support systems for women with family responsibilities.
- Reducing social prejudices regarding the role of women in the waste management industry.

3. Developing Programmes to Encourage Women's Participation in Waste Management Systems

- Establishing waste sorting centres and waste banks that promote the employment of women workers, especially at the community level, enabling women to earn income from waste sorting and recycling.
- Developing cooperative recycling projects operated by women workers to help women build economic networks and enhance their competitiveness in the recycling market.

4. Promoting Women's Participation in Waste Management Policy-Making

- Appointing women representatives to waste management policy committees at both national and local levels to ensure that gender issues are taken into account.
- Mainstreaming gender perspectives into local waste management plans by consulting with women in communities to ensure that programmes meet the needs of women workers.

5. Building the Capacity of Women Workers in the Waste Sector

- Developing training courses focused on enhancing the capacity of women in the waste sector, such as courses on waste management, recycling technology, and recycling business development.
- Utilising online learning (E-Learning) approaches to provide education on waste management, with an emphasis on gender-sensitive language and promoting easier access to knowledge for women in the waste sector.

CHAPTER 5

Conclusion and Recommendations

5.1 Conclusion

The analysis of policies, legislation, and international standards concerning gender-sensitive waste management in the tourism sector indicates that Thailand has established comprehensive policy frameworks covering waste management at the national, local, and ASEAN levels, emphasising the principles of the circular economy and waste reduction at source. Nonetheless, substantial gaps remain in the integration of gender perspectives within the waste management system, particularly in relation to women workers' access to economic opportunities in the waste sector, the protection of their health and safety, the provision of support for career and skills development, and the promotion of women's roles in waste-related policymaking.

While many policies refer to the principle of public participation, in practice there is a lack of concrete measures that empower and create equitable opportunities for women workers. Key shortcomings include the absence of mechanisms enabling women to access financial resources to establish recycling businesses, the lack of fair wage standards for workers in the waste sector, and the failure to improve working conditions to safeguard health and safety—particularly in systems that continue to rely predominantly on informal labour. Furthermore, there are no clear measures to promote women's participation in waste management policymaking at either the local or national level.

5.2 Policy Recommendations

To ensure that waste management in the tourism sector is inclusive and equitable for all groups—particularly through the integration of gender perspectives into relevant policies, laws, and practices—it is necessary to improve and develop measures in five priority areas: enhancing economic opportunities, promoting women's participation, advancing the circular economy, improving health and safety standards, and strengthening workforce skills. The recommended measures are as follows:

1. Enhancing Economic Opportunities and Employment for Women in the Waste Sector

Although the waste management industry offers potential entry points for women, access to fair remuneration and secure employment remains limited. National-level policies, such as the National Action Plan on Waste Management and the Action Plan on Plastic Waste Management, focus on value creation from waste but lack measures to promote equitable economic opportunities for women. Recommended actions include:

- Designing employment support schemes that are conducive to women's participation, such as flexible working arrangements, workplace childcare services, and measures to reduce household-related barriers.
- Establishing fair wage standards in the recycling and waste management sectors, with particular attention to informal sector workers.
- Introducing tax policies and economic incentives to promote the employment of women in the waste management sector.

2. Promoting Women's Participation in Decision-Making and Policy Formulation

Despite women's critical role in community-level waste management, they remain underrepresented in policymaking and management at the macro level. National strategies, including the "Clean Province" Community Solid Waste Management Action Plan and the Strategic Plan for Environmental Health Promotion, do not clearly stipulate measures to strengthen women's roles in decision-making. Recommended measures include:

- Establishing quotas for women's representation in waste management committees at local and national levels.
- Creating formal and inclusive platforms for public consultation that systematically enable women to contribute to policy formulation.
- Supporting the formation of women's networks in the waste management sector to facilitate knowledge sharing and peer learning.

3. Developing the Circular Economy and Supporting Women-Led Recycling Businesses

The circular economy offers opportunities to enhance the value of waste and create new economic prospects. However, barriers such as limited access to finance and inadequate infrastructure hinder women's participation. Recommended measures include:

- Establishing dedicated funds for women entrepreneurs in the recycling industry to improve access to finance.
- Supporting the development of infrastructure—such as community-based recycling centres managed by women's groups—that enables women-led recycling businesses to compete effectively.
- Creating online platforms to link women-owned recycling businesses with wider domestic and international markets.

4. Improving Health and Safety Standards for Women Workers in the Waste Sector

Occupational conditions in the waste sector present significant health and safety risks, particularly for women, who are often more vulnerable to exposure to toxic substances, pollution, and physical injuries. Recommended measures include:

- Setting occupational safety standards that account for gender differences, including the design of equipment tailored to different body structures.
- Enforcing health and safety regulations across both the formal and informal waste sectors.
- Providing regular health check-ups and establishing ongoing health surveillance systems for waste sector workers.

5. Developing Gender-Sensitive Training and Skills Development Programmes

Skills gaps and limited access to knowledge hinder women's ability to secure higher-paid positions or to become entrepreneurs in the waste sector. Recommended measures include:

- Designing training curricula focusing on waste management skills such as recycling techniques, waste management technologies, and business management for the recycling sector.
- Establishing accessible training centres at community level.
- Forming women's networks in the waste sector to act as hubs for capacity-building and continuous professional development.

The implementation of these policy recommendations will promote more inclusive, equitable, and effective waste management in the tourism sector. Integrating gender perspectives into relevant policies, measures, and legislation will contribute to narrowing gender gaps in the waste sector and ensuring equal economic opportunities for all workers. These actions also directly support the achievement of:

- Goal 5: Gender Equality – by strengthening women's participation in policymaking and career advancement;
- Goal 8: Decent Work and Economic Growth – by promoting fair employment in the waste sector;
- Goal 12: Responsible Consumption and Production – by advancing the circular economy and supporting the recycling industry.

Adopting these measures will not only improve the overall efficiency of waste management but also ensure that tourism sector waste management incorporates gender-responsive approaches in a tangible and sustainable manner.