



Optimizing Compliance with Waste Management Regulations at PT PLN in South, Southeast, and West Sulawesi

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Abstract. In line with global issues related to the environment, the Ministry of Environment and Forestry aims to achieve a Zero Waste to Landfill policy by the year 2030. In order to achieve this target, the government requires support from various parties, including the central and local government sectors, the business world, community groups, and the private sector. One thing is done by strengthening multi-stakeholder collaboration through their respective roles and responsibilities to strategically solve waste problems from upstream to downstream.

PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi has also committed to enhancing waste management performance in alignment with the targets established by the government. The Waste management strategy is intricately linked to one of the fundamentals of Good Corporate Governance. Waste management is inextricably linked to the principle of management strategy science. The research method was carried out to find out the management strategy for fulfilling regulations with qualitative variables.

The results obtained are that PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi has implemented a management strategy in compliance by preparing a 5-year roadmap program. The objective is to achieve an optimal reduction in the volume of solid waste generated.

Keywords: Waste, Waste Management, Strategic Management, Environment, Regulations.

1 Background

The environmental crisis has become one of the global problems that has been faced for a few years. The waste problem is caused by various factors, such as natural factors and human behaviour factors. If it is not handled thoughtfully, this issue may avoid a substantial impact on the sustainability of the ecosystem. Various efforts need to be made which require the cooperation of various parties, including the government, business actors, and the community, as proof of involvement in preserving a sustainable environment.

The Ministry of Environment and Forestry, as the representative of government, is committed to realizing zero waste and zero emissions, including zero waste in 2030.

Waste management represents a significant environmental challenge that effect both the general populace and large companies, including PT PLN (Persero). As an energy company engaged in the energy sector, PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi is required to comply with a range of regulations concerning to environmental management, particularly in the management of hazardous waste, non-hazardous waste and domestic waste.

PT PLN (Persero) itself has one of the missions, namely running an environmentally sound business to participate in achieving Government targets. Therefore, strategic management is needed to make and implement policies related to environmental management, including waste management, by preparing of the ESG Framework and targets. In addition, the SWOT method can be applied to get maximum results.

In addition, a fundamental aim of Good Corporate Governance is to promote decision-making and actions within the Company that are anchored in high ethical standards and adherence to legal laws and regulations, a recognition of the social responsibility of Company to stakeholders and as well as the commitment of environmental sustainability. Waste Management aligns with the principle of responsibility in implementing Good Corporate Governance, where the Company management is based on compliance with the relevant laws and regulations.

Despite numerous initiatives undertaken, optimal regulatory compliance is still needs to be improved due to limited resources, operational complexity, and the dynamics of changes in Government regulations. Therefore, analyzing the optimal management strategy in achieving compliance with waste management regulations at PT PLN (Persero) is important. This analysis will be conducted through a case study of PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi.

2 Literature Review

2.1 Waste Management

The Republic of Indonesia Law Number 18 of 2008 regarding Waste Management defines waste as the solid byproduct of daily human activities and/or natural processes. This legislation articulates that waste management encompasses a systematic, comprehensive, and sustainable approach that incorporate both of waste reduction and handling [1].

Waste management is a systematic approuch to handling waste produced by various human activities. This process can be categorized into six distinct elements:

1. Control of generation
2. Storage
3. Collection
4. Transfer and transport
5. Processing
6. Disposal (Soekmana, 2010) [2].

Waste management strategies can be effectively developed through the comprehensive roadmap, referring to the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number P.75 / MENLHK / SETJEN / KUM.1 / 10/2019. This regulation concerns to a roadmap design for waste reduction by producers, such as planning, implementation, monitoring, evaluation and reporting [3].

2.2 Waste Management Regulation

The framework of waste management system in Indonesia is governed by Law Number 18 of 2008, which concern to Waste Management. This legislation specifies that entities engaged in efforts to reduce waste generation, as well as those involved in recycling and/or repurposing materials, should aim to minimize waste output. Furthermore, it emphasizes that material which can be reused, recycled and/or decomposed through natural processes with relative ease [1].

Another relevant regulation is the Regulation of the Minister of Environment of the Republic of Indonesia Number 13 of 2012, which provides Guidelines for the Implementation of Reduce, Reuse, and Recycle Through the establishment of waste banks. This regulation explains the collaborative mechanism involved in the operation of waste banks, which can also be used as a guide in waste management. These practices encompass waste sorting, transferring waste to waste banks, weighing and recording waste, and the execution of the waste sales system. Waste management, as outlined in this regulation, is based on several core principles, including of sustainability, collective responsibility, safety, security, and the recognition economic value [4].

2.3 Strategy Management Theory

Strategy refers to the methods used to achieve long-term goals that include plans that will be taken to achieve these goals, including the establishment of goals, policies, programs, and resource allocations that describe the activities to be carried out by the organization. The strategy itself is divided into three types:

1. Generic Strategy
2. Grand Strategy
3. Functional Strategy

The three strategies have different basic principles because they have different objectives in their implementation (Susita & Busharmaidi, 2024) [5].

In the book Strategic Management (Etika Sabariah, 2013), Strategic Management is a sub management of the organization, where strategic management is a diverse theoretical science and art of different companies in formulating formulations, starting from:

1. The thinking of plan makers (strategic conception)
2. Application (implementation)

3. Evaluation stage (evaluating) between functions that enable an organization to achieve future goals [6].

There are three processes of strategic management: strategy making, which is a formulation that begins with a SWOT analysis; implementation or implementation of strategies known as tactics; and evaluation of strategies through assessing overall results compared to previous data from various sources and making improvements if discrepancies are found. With strategic management, each function or department is expected to lead to one goal of organizational management.

PT PLN (Persero) organization in running a business is guided by the principle of Good Corporate Governance, as delineated in the Minister of State-Owned Enterprises Regulation Number PER-01 / MBU / 2011 concerning the implementing of Good Corporate Governance (GCG). This governance framework consists of five principles, namely:

1. Transparency, namely openness in the decision-making process and openness in disclosing material and relevant information about the Company.
2. Accountability, namely, the clarity of functions, implementation, and accountability of the Organ so that the Company management is managed effectively.
3. Responsibility, namely compliance of the management of the Company with the Laws and Rules and sound corporate principles.
4. Independency is a state in which the Company is managed professionally without conflict of interest and influence/pressure from any party that is not in accordance with the Laws and Rules and sound corporate principles.
5. Fairness is fairness and equality in the implementation of the rights of stakeholders arising from agreements, laws, regulations, and sound corporate principles [7].

3 Research Methods

3.1 Research Design

The research method for obtaining information to achieve the objectives of this study involves the qualitative variables in point to the implementation of waste management regulations within the operational framework of PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi.

3.2 Population and Sample

● Primary Data

- Primary data is derived from direct observations and structured interviews

● Secondary Data

- The data used are annual waste management reports, environmental policy documents, and regulations related to waste management.

3.3 Techniques and Data Analysis

In collecting and analyzing data, several methods are used, such as:

1. Observation of waste management activities in the work environment of PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi.
2. Interviews with the Management of PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi, environmental managers and other related parties
3. Literature review of applicable waste management regulations, internal policies, and PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi roadmaps.

The data obtained is then analyzed using SWOT analysis, which is intended to measure the strengths, weaknesses, opportunities, and threats possessed by PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi in optimizing compliance with waste management regulations.

4 Result and Discussion

4.1 Implementation of Fulfillment of Waste Management Regulations

The waste management system of PT PLN (Persero) Unit Induk Distribusi Sulselrabar has made a waste management road map consisting of planning, implementation, monitoring, evaluation, and reporting in line with the regulations of the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number P.75 / MENLHK / SETJEN / KUM.1/10/2019. The following is a program roadmap (5 years) 3R (Reduce, Reuse, Recycle) Non-Hazardous Waste of PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi as attached in Table. 1

Table 1. Program Roadmap (5 Years) for 3R (Reduce, Reuse, Recycle) Non-Hazardous Waste PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi.

2024	2025	2026	2027	2028
PLANNING	PLANNING	PLANNING	PLANNING	PLANNING
● Deve loping a Baseline of non- hazardous waste generation (Solid Waste / Garbage) in	● Deve loping a Baseline of hazardous waste generation (Solid Waste / Garbage) for the Year 2024	● Non- hazardous waste generation baseline (Year 2025) has been created ● The	● Non- hazardous waste generation baseline (Year 2026) has been created ● The Annual	● Non- hazardous waste generation baseline (Year 2026) has been created ● The

2023 ● Annual 3R activity program has been created and planned along with its budget allocation ● Policy, Commitment, and/or Memorandum of the Non-Hazardous Waste 3R Program signed by the GM / MUP Socialization of the 3R Program in the current year	● The Annual 3R activity program has been created and planned along with its budget allocation ● Update Policy, Commitment, and/or Memorandum of the Non-Hazardous Waste 3R Program signed by GM / MUP Socialization of the 3R Program in current year	Annual 3R activity program has been created and planned ● 3R Program Policy & Commitment ● Update signed by GM/MUP Unit	3R activity program has been created and planned ● 3R Program Policy Commitment Update signed by GM/MUP	Annual 3R activity program has been created and planned ● 3R Program Policy Commitment ● Update signed by GM/MUP
IMPLEMENTATION & ENFORCEMENT ● Recording of waste generation (Non B3 Waste) every month in tons maximum on the 8th	IMPLEMENTATION & ENFORCEMENT ● Review the suitability of recording waste generation (Non-Hazardous Waste) every month in tons,	IMPLEMENTATION & ENFORCEMENT ● Increased Consistency of Recording waste generation (Solid Waste) every month in tons maximum on	IMPLEMENTATION & ENFORCEMENT ● Consistent Recording of waste generation (non hazardous Waste) every month in tons maximum	IMPLEMENTATION & ENFORCEMENT ● Consistent Recording of waste generation (Non Hazardous Waste) every month in tons maximum

of the following month ● Management of Waste Management and Processing (Non-Hazardous Waste) ● Preparation/ Proposal of a budget for the Non-Hazardous Waste 3R Program (Year 2025) Implementation of the Non-Hazardous Waste 3R Program in the current year	maximum on the 8th of the following month. ● Review the suitability of the Waste Management and Processing process (Non-Hazardous Waste) ● Budgeting for the Non-Hazardous Waste 3R Program (Year 2026) Improved Implementation of Non-Hazardous Waste 3R Program in the current year	the 8th of the following month ● Increased Consistency of Management of Waste Management and Processing (Non-Hazardous Waste) ● Budgeting for Non-Hazardous Waste 3R Program (Year 2027) ● Consistency of Non-Hazardous Waste 3R Program Implementation in the current year	on the 8th of the following month ● Consistent Management of Waste Management and Processing (Non-Hazardous Waste) ● Budgeting for the Non-Hazardous Waste 3R Program (Year 2028) ● Consistent Implementation of the 3R Program in the current year	on the 8th of the following month ● Waste Management and Processing (Non-Hazardous Waste) has become a culture ● Implementation of the 3R Program in the current year has been cultivated
STRENGTH EN & MONITORING OF IMPLEMENTATION ● Monitoring monthly non-hazardous waste volume	STRENGTH EN & MONITORING OF IMPLEMENTATION ● Improved Consistency of monthly non-hazardous waste	STRENGTH EN & MONITORING OF IMPLEMENTATION ● Consistent monthly non-hazardous waste volume	STRENGTH EN & MONITORING OF IMPLEMENTATION ● Consistent monthly non-hazardous waste volume	STRENGTH EN & MONITORING OF IMPLEMENTATION ● Consistent monthly reporting non-hazardous waste

● Monitoring Activity Implementation (Ensuring all units have implemented the 3R program for non-hazardous waste) Monitoring Reporting Implementation of non-hazardous waste generation to 22.77 tons	● Review of Activity Implementation (Ensuring all units have implemented the 3R non-hazardous waste program) Reduction of waste generation / non-hazardous waste to 20.49 tons	● Consistent Implementation of Activities (Ensuring all units have implemented the 3R program for non-hazardous waste) Reduction of waste generation / non-hazardous waste to 18.44 tons	Consistent Implementation of Activities (Ensuring all units have implemented the 3R program for Non-Hazardous waste) Reduction of waste generation / Non-Hazardous waste to 16.60 tons	Volume Implementation of activities (ensuring that all units have implemented the 3R program for non-hazardous waste) has become a culture Reduction of waste generation / non-hazardous waste to 14.94 tons
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Source: *Author own estimation, 2024*

The waste management strategy at PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi has implemented the basic management principles consisting of planning, implementation, monitoring, evaluation, and reporting contained in the program roadmap 3R (Reduce, Reuse, Recycle) Non-Hazardous Waste which is set for 5 years or can be categorized as a medium-term program. The planning stage consists of preparing a baseline of non-hazardous waste generation (solid waste) based on the data of previous year, an annual 3R (Reduce, Reuse, Recycle) activity program is made and planned, including the budget allocation, making commitments and policies and official memoranda related to the non-hazardous waste 3R (Reduce, Reuse, Recycle) program signed by the General Manager or Manager, and the planned socialization of the Non-Hazardous 3R (Reduce, Reuse, Recycle) program for the current year.

The following stages of management are implementation and execution. These are a follow-up to the planning that has been made, such as baseline data on waste generation or non-hazardous waste, recording the volume of waste generated every month by referring to the measurement procedures, and reporting on the internal application of PT PLN (Persero) known as “Energyst,” making the budget realization of the non-hazardous waste 3R (Reduce, Reuse, Recycle) program, and implementing efforts consistently thus it can become a culture of waste management. This objective

can be achieved by strengthening and monitoring implementation, such as reporting on the implementation of the non-hazardous waste 3R (Reduce, Reuse, Recycle) program, and achievement of minimizing unmanaged waste generation, and checking the consistency of implementation and reporting activities.

4.2 SWOT Analysis

SWOT analysis is a systematic framework used for evaluating the strengths, weaknesses, opportunities, and threats of a particular organization, project, or situation. This analysis tool helps in understanding of both internal and external factors that may affect the performance of the organization or project.

Based on the results of data collection and data analysis through observation, literature review, and interviews that have been conducted, a SWOT analysis is obtained as follows:

Table 2. SWOT Analysis of Waste Management is implemented in PT PLN (Persero) Distribution Head Unit for South Sulawesi, Southeast Sulawesi, and West Sulawesi.

Strengths Government regulations that promote enhanced waste reduction and management efforts, such as the 2030 zero waste target	Opportunities ● The existence of the Recycle Program can increase the interest of Company to participate in waste reduction. ● Sustainable Initiatives align with the global trend towards sustainable practices that can support waste management.
Weaknesses Waste management technology requires high costs, which can be caused by funding priorities that may hinder efforts to improve waste management infrastructure and programs.	Threats Changing government policies can disrupt existing management programs, and extreme climate change can affect waste management.

Source: *Author own estimation, 2024*

5 Conclusion

As a company committed to environmental management and compliance with regulations set by the government, PT PLN (Persero) Unit Induk Distribusi Sulselrabar, in running its business, is required to develop a waste management strategy. In implementing this, it is necessary to understand that waste management management is a systematic approach, and implementation needs to be integrated with various important aspects to achieve environmental sustainability. Effective management must involve all elements of waste management, from source to

disposal. Things such as waste segregation, increasing the 3R program, and managing waste into use-value goods are considerations in the implementation.

Socialization and education activities are believed to encourage program success by raising awareness among employees. In addition, consistent monitoring and evaluation help ensure continuous improvement of the efforts implemented. Waste management must collaborate with various parties to create a cleaner and healthier environment.

It can be concluded that a planned waste management strategy can increase effectiveness in achieving a goal. Periodic evaluation and adjustment of strategies based on monitoring results and feedback can ensure sustainability and achievement of long-term goals.

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