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Misalignment in Organic Waste Management Systems: A Review of Strategic and Institutional Failures in Indonesia

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ABSTRACT
Organic waste management is one of the main challenges in sustainable environmental development in Indonesia. Although waste sorting efforts have been encouraged at the household level, the reality is that there is still a remixing of organic and inorganic waste while in transportation facilities and in management units such as TPS and TPA. This study aims to systematically review the literature that discusses systemic failures in organic waste management, focusing on the strategic and institutional management aspects of waste management units. The method used is a systematic literature study of academic publications, policy reports, and relevant field studies in the period 2010–2024. The results of the study show that the mismatch between strategies at the upstream and downstream levels, the weak institution of TPS/TPA management, and the absence of incentive systems and results-based performance are key factors causing system inefficiency. This study recommends the need to redesign management strategies based on upstream-downstream integration, institutional strengthening of management units, and the application of performance measurement that encourages sustainable organic waste processing.

Keywords: organic waste, literature study, institutional, strategic management, landfill, TPS3R

INTRODUCTION

Organic waste is the largest component of total household waste generation in Indonesia, reaching 60.28% of the total 18.7 million tons/year according to data from the Ministry of Environment and Forestry (*KLHK*, 2023). This potential should be harnessed through a source-based waste sorting and processing system to support the principles of circular economy and low carbon development (Amrul et al., 2022; Ashokkumar et al., 2022; Kharola et al., 2022; Sayara et al., 2020; Xie et al., 2023). However, the reality is that the organic waste management system still faces various obstacles in the field, one of which is the remixing of waste that has been sorted during the transportation process, so that the recycling and composting process is not optimal.

This phenomenon reflects failures not only on a technical level, but also in strategic and institutional management aspects. Sorting as an upstream strategy is not supported

by the design of a harmonious downstream system (transportation and processing) or *strategic fit* (Mintzberg, 1994; Porter, 1996). The disintegration between strategies, organizational structures, and implementation processes causes programs that should have a positive impact to be unsustainable and cause public disappointment, thus reducing public participation in the long run (Kaplan & Norton, 1996).

From an institutional point of view, waste management is a form of *common pool resources* management that relies heavily on governance and coordination mechanisms between actors (Ostrom, 2009). Unfortunately, many local institutions such as *RTs*, *RWs*, or villages do not have sufficient capacity and authority in establishing *Standard Operating Procedures* (*SOPs*) or managing transportation systems that are in accordance with the principles of sorting. In addition, the weak incentive system for waste carriers and the absence of a performance-based monitoring system add to the complexity of this failure (North, 1990; UN-Habitat, 2022).

On the other hand, the waste management literature in Indonesia still highlights more aspects of education and community behavior change (*TPB*, *Nudge*), but there have not been many studies that examine systemic failures at the strategic and institutional levels as the root cause of the ineffectiveness of organic waste sorting programs. In fact, according to GIZ Indonesia (2021), without coordination between upstream-downstream systems, a community-based management system will only be a partial solution and will not be able to significantly reduce pressure on landfills.

Based on these issues, this article aims to critically analyze the causes of systemic failures in organic waste management, focusing on strategic and institutional analysis at the community level, and offering strategic management recommendations to promote system sustainability.

Waste management in Indonesia has stagnated despite various sorting initiatives at the household level and other sources have been carried out. The problem arises when waste that has been sorted is mixed again in the transportation and management process in downstream units such as landfill and *TPS3R*. This phenomenon shows that there is a mismatch between waste management strategies at the upstream level and policies and operations at the downstream level.

This study aims to examine in depth the systemic failures in organic waste management in Indonesia, focusing on strategic and institutional aspects at the landfill (*TPS*) and final processing site (*TPA*) levels. Based on a critical analysis of previous research, such as Agustina & Riani (2020) which focuses on community participation but does not touch on institutional aspects, and Rahmatullah et al. (2022) which examine the institutional capacity of *TPS3R* but do not associate it with the alignment of upstream-downstream strategies, this study seeks to fill the gap with a holistic approach. This research not only identifies problems, but also offers solutions in the form of strategy integration from the household level to final processing, institutional strengthening through clear *Standard Operating Procedures* (*SOPs*), and the implementation of performance-based incentive systems.

From the literature review, it was found that many waste management units do not have adequate institutions, such as formal organizational structures, *standard operating procedures* (*SOPs*), as well as incentive mechanisms and results-based performance measurement. This results in a low effectiveness of the overall organic waste sorting and processing system. Thus, it is necessary to examine in depth how institutional weaknesses and the lack of synchronization of strategies between management levels are the main causes of systemic failures in organic waste management.

On this basis, this research is directed to identify the root of institutional and strategic problems in the management unit (*TPA/TPS3R*), as well as formulate a strategic approach that is able to bridge upstream sorting efforts with downstream processing success.

RESEARCH METHODS

This study uses a *systematic literature review* (*SLR*) approach to identify, evaluate, and synthesize the results of previous research that addresses systemic failures in organic waste management, focusing on strategic and institutional management dimensions in management units such as landfills, *TPS*, and *TPS3R*. This research is descriptive-qualitative with a systematic literature study approach. The search was conducted systematically to collect secondary data from journal articles, policy reports, and other academic publications relevant to the topic.

Sources of literature come from:

- *SINTA*-accredited national journals (*SINTA* 1–2),
- Reputable international journals (*Scopus* and *WoS*),
- Reports of credible institutions (*MoEF*, *GIZ*, World Bank, *UNEP*, *UN-Habitat*),
- Strategic and institutional management theory books.

The inclusion criteria are:

- Published between 2010–2024,
- Discuss organic waste management, landfill/*TPS*/*TPS3R* management, environmental institutions, or public service strategies,
- Relevant to the context of Indonesia or developing countries with similar challenges.

The search was conducted using keywords as follows:

- "Organic waste management strategy",
- "Institutional failure waste system",
- "*TPA* governance Indonesia",
- "Community-based waste management",
- "*Strategic fit* environmental service".

Literature sources are analyzed using three stages, namely:

1. Identification by selecting by title and abstract.
2. Screening through content review to ensure topic suitability.
3. Synthesis is carried out by thematic narrative method based on categories:
    - Organic waste management strategy,

- Institutions and key actors in the management unit,
- Systemic failure models and strategic solutions.

The validity of the data is strengthened by reference to peer-reviewed literature and official sources. However, the limitation of this study lies in the absence of primary field data, so the findings are conceptual and need to be further studied through an empirical case study approach in the future.

RESULTS AND DISCUSSION

Strategy Incompatibility between Upstream and Downstream

The literature from Porter (1996) and Kaplan & Norton (1996) emphasizes the importance of strategic alignment between strategic planning and operational execution. However, in practice in Indonesia, there is a gap between the waste sorting strategy in households (upstream) and the transportation system and organic waste processing downstream.

GIZ research (2021) noted that the majority of TPS3R and TPA management units do not use separate vehicles for organic and inorganic waste. As a result, even though sorting is carried out at the source, the waste is mixed again when transported to the TPS or landfill. This shows a failure of the strategy in operational and technical aspects.

Agustina & Riani (2020) also showed that waste management strategies often do not consider the logistics and infrastructure flows available in the field. Without an integrated transportation and processing system design, the strategy becomes ineffective and even counter-productive.

Institutional Weaknesses of Waste Management Units

Referring to the institutional theories of Ostrom (2009) and North (1990), the success of the management of Shared Resources such as organic waste is largely determined by the existence of clear rules, institutional authority, and effective coordination mechanisms.

However, studies from Rahmatullah et al. (2022) and UNEP (2021) show that most landfill and TPS3R management units in Indonesia do not have written SOPs, formal organizational structures, or authority to regulate transportation and resorting operations. This causes technical decisions to be taken on an ad-hoc basis without reference to a long-term strategic plan.

This institutional indecisiveness creates a gray area, where responsibilities between the environmental agency, the TPS manager, and the transport partner become unclear. As a result, no single actor is truly responsible for the success of organic waste sorting and processing strategies.

Lack of Incentives and Performance Systems

In the study of public sector strategic management, Kaplan & Norton (1996) emphasized the need for outcome-based performance measurement, not just output. However, in the case of organic waste management, the existing performance system

places more emphasis on the volume of waste transported or disposed of, rather than on the quality of management, such as the success of sorting or processing organics.

UN-Habitat (2022) through the Waste Wise Cities Tool also shows that many landfill managers in big cities still work based on an input budget system (number of vehicle rits, tonnage, etc.), rather than a results-based system (the amount of organic waste processed or the economic value generated from compost). As a result, there is no structural motivation for field officers to keep waste sorted or direct organic waste to be processed.

Strategic and Theoretical Implications

The above findings indicate that organic waste management strategies will fail if they are not supported by strong institutional systems and appropriate incentive structures. In the Indonesian context, a technocratic approach that focuses too much on public education tends to ignore systemic factors that are prone to failure.

Therefore, a strategic redesign approach is needed that places TPA/TPS/TPS3R as a key node in the organic waste management value chain. Their role must be strengthened with policy support, institutional capacity building, and the implementation of measurable performance-based governance.

CONCLUSION

The results of the literature review show that systemic failures in waste management in Indonesia, especially in management units such as *TPA*, *TPS*, and *TPS3R*, are caused by three main factors: strategic misalignment, institutional weaknesses in the operationalization of sorting and processing systems, and a lack of incentive systems and results-based performance. These findings indicate that waste management approaches focusing solely on education and community participation (*RT/RW*) are not effective enough if they are not balanced with institutional reforms and technical strategies in key management units. Without a *strategic fit*, clear *Standard Operating Procedures* (*SOPs*), and proper performance measurements, the sorting carried out by the community will end up in vain because it is remixed during the transportation and handling process at the landfill. Theoretically, this condition reinforces the argument from Porter (1996) and Ostrom (2009) that the success of complex public services depends heavily on strategic alignment and institutional strength. This study also emphasizes the importance of a strategic management perspective in solving environmental problems that have been mostly handled through behavioral or technical approaches alone.

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