Jurnal Ilmu Sosial Vol. 24 | Issue 1 | Edisi 2025 | Page 212-240

Available online at JIS website: https://jis.undip.ac.id

Research Article

Waste Management in Batu City through the Perspective of Good Environmental Governance

Received: 26th March 2025; Revised: 9th July 2025
Accepted: 9th July 2025; Available online: 31st July 2025

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Abstract

This paper discusses waste management that has undergone a very radical transition. The management shift that was previously centered on the Tlekung landfill in Batu City began to change hands at every village level which was institutionalized in the form of TPS 3R Temas Sae and TPS 3R Dadaprejo. TPS 3R is a place for reduce reuse recycle waste management based on the surrounding community which is accommodated in the form of self-help groups. This research was conducted using a descriptive qualitative method based on key informant interviews, supporting informants, literature study and field observations. In Batu City, TPS 3R has expanded due to the polemic over waste management at Tlekung landfill, which has not found an end point in processing waste that is increasingly escalating. Based on the perspective of good environmental governance, this research divides three important aspects that support good waste management, namely (1) multi-level interaction, (2) policy internalization, and (3) sustainable development. The purpose of this research is to analyze how TPS 3R Temas Sae and TPS 3R Dadaprejo create management based on good environmental governance based on three important aspects. The result of this study is that the aspect of multi-level interaction has not been well established, as well as the aspect of policy internalization. While the aspect of sustainable development is well realized. The causes of the obstacles to the achievement of this aspect are the submission system, the unchanged mindset and the lack of assertiveness.

Keywords: *Waste Management, Good Environmental Governance, Sustainable development*

How to cite: Muhammad Wahyu P, Romy H, Mardiyono. (2025). Waste Management in Batu City through the Perspective of Good Environmental Governance. Jurnal Ilmu Sosial, 24 (1): 212-240 (doi: 10.14710/jis.24.1.2025.212240), [Online]

Permalink/DOI: https://doi.org/10.14710/jis.24.1.2025.212-240
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INTRODUCTION

Good environmental governance related to waste is the dream of many regions in creating a balanced ecosystem. This issue is still deeply rooted in the environment of developing countries and their peers for various consequences (Khan et al., 2022), such as in the country of India which highlighted the transition of ineffective waste management during the Covid-19 Pandemic (Ganguly & Chakraborty, 2021), then shifted to the African continent including the countries of Ethiopia, Botswana, Nigeria and Algeria due to the lack of waste treatment guidelines (Amarachi et al., 2025; Hachemi et al., 2024; Mmereki et al., 2024; Moyen Massa & Archodoulaki, 2024) to the management that occurs in Asian neighborhoods such as Bangladesh, Pakistan and India due to low levels of local inclusion (Amin et al., 2023; Ganguly & Chakraborty, 2021), Nepal due to lack of awareness (Acharya et al., 2021).

In essence, the problem of waste is one of the environmental problems that is not difficult to solve. Liu et al. (2019) see indications of increased waste in the demographics of people moving to cities, the increase in manufacturing industries in various places and consumption patterns. While (Radwan & Khan, 2023) attributed to the increase in the education sector, modern lifestyle, monthly income etc. In short, if there is a continuous improvement in each indicator, preventive actions in reading the waste growth cycle will be more effective and efficient. Such is the recognition that has been implemented in Batu City, East Java Indonesia. Preventive actions in accommodating wet and dry waste generation in the past year began to be recorded in various indications of success.

This recognition comes after the government translates the operational domain of the waste management policy. The general orientation of Mayor Regulation Number 66 of 2021 concerning waste management does not reflect good potential. The implication gave birth to a more specific policy in the Mayor's Circular Letter number 660/2404/422.110/2023 on optimizing waste management through Waste Management Sites Reduce, Reuse, Recycle (TPS 3R) in every village and kelurahan

in Batu City and Circular Letter (SE) Number 660/2470/422.110/2023 on sorting and handling waste from the source (households, businesses and offices). This operational policy requires all urban villages and villages in Batu City to optimize TPS 3R, which number 31. However, this research focuses more on TPS 3R Temas Sae and TPS 3R Dadaprejo on the grounds that the objective capabilities of waste management are relatively different in one area.

The operation of TPS 3R Temas Sae and TPS 3R Dadaprejo was initiated as a concrete step in reducing the growth rate of waste in Tlekung landfill. So far, waste has dominated in creating serious disasters, especially the contamination of clean water due to leachate (Ed-Idoko et al., 2024) and soil degradation (Nfong-Ya et al., 2024; Precious & Nwakanma, 2022), pathogen development (Sangkachai et al., 2024), blockages and flooding (Hammed & Sridhar, 2021; Muhammad et al., 2021; Rana et al., 2017), even have significant effects on human and wildlife reproductive health (Prabhakar et al., 2012; Yang et al., 2024) triggering global warming (Hammed & Sridhar, 2021; Wilson et al., 2024) which in turn exacerbates environmental problems (Kopecká et al., 2024). This preaching has tainted the essence of good environmental governance, and is even relevant in discrediting the meaning of sustainable development in the governance system.

Therefore, Muluk (2008) in his book knowledge management states the importance of strengthening the mandate results from the global consensus level through sustainable development planning, specifically related to waste management at the regional level. Good waste governance at the regional level is important to adjust the sustainable development goals, which so far the closest instrument is good environmental governance (Belbase, 2010). In a nutshell,

Belbase (2010) dividing the concept of good environmental governance into several principles that must be adhered to in achieving good governance, the mapping of the seven principles in question includes 1) rule of law, 2) participation and representation, 3) access to information, 4) accountability and transparency, 5) decentralization, 6) institutions and bodies, 7) access to justice (Belbase, 2010).

The strength in shaping good governance cannot be separated from multi-level interactions in seeking alignment of goals that are truly concrete (Fariz et al.,

2024). In addition, multi-level interaction is the main driver to create a comprehensive policy in touching the root of the problem, so that the consequences of the waste disposal system are not in accordance with best practices can be negated (Hammed & Sridhar, 2021). The need for policy internalization is the next aspect in encouraging good environmental governance at TPS 3R Temas Sae and TPS 3R Dadaprejo. This need has an impact on the externality of understanding and awareness, because policy internalization is a fundamental way to bring the environment into decision-making (van Noordwijk et al., 2023), to the perception of environmental protection and motivate community participation in waste segregation (Huang & Zhong, 2023). Furthermore, an aspect that has an important role in supporting good governance is sustainable development, which accommodates environmental, economic and social sustainability (Browning et al., 2021; Ganguly & Chakraborty, 2021).

The absoluteness of good governance at TPS 3R Temas Sae and TPS 3R Dadaprejo ideally accommodates multi-level interactions, policy internalization and sustainable development. These three aspects are taken into consideration in harmonizing the sustainable development goals instrument, namely good environmental governance. Considering that the construction of literature on good environmental governance in the perspective of good environmental governance is relatively complex and divided into various streams, the first is research that focuses on policy enforcement with the relationship between GEG by (Grano, 2016; Li & Ramanathan, 2018), the second is related to the application of the GEG principles (Putrijanti & Cahyaningtyas, 2023), third in the managerial context (Wijayanti & Azzahra, 2022), macro perspective on managing Indonesia (Fariz et al., 2024; Purniawati et al., 2020) and in environmental governance in North Africa (Affairs, 2010).

Based on the various explanations above, this research needs to provide enrichment in two places with similar characteristics in one city through good environmental governance at TPS 3R Temas Sae and TPS 3R Dadaprejo. Furthermore, that the practical utilization of this research is able to become an operational orientation in the field after the operationalization of a divided governance system at each rural and urban village level. Apart from other enrichments, that this research will

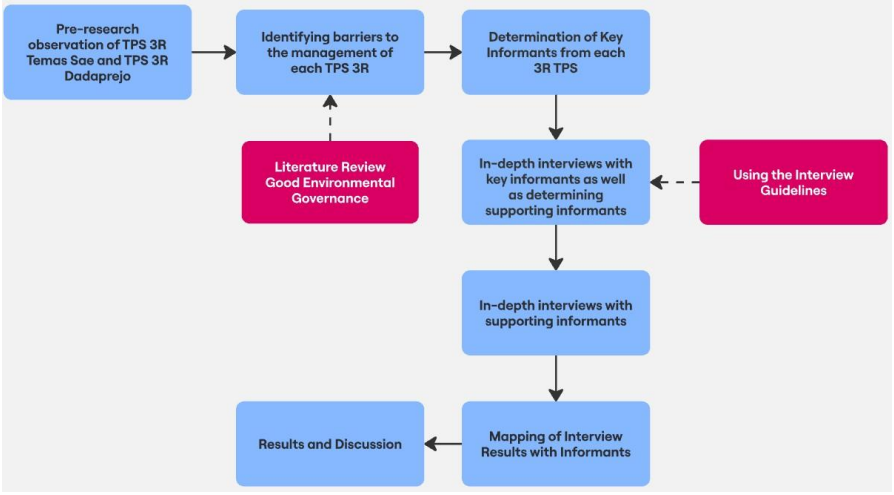
compare waste governance studies from several developing countries as an analytical reinforcement in providing enrichment of knowledge on good waste governance. In order for this research thesis to be able to update the enrichment of knowledge in the level of waste management.

RESEARCH METHODS

This research uses a qualitative approach with a descriptive type, meaning that it produces findings that cannot be achieved using statistical procedures (Moleong, 2018). Descriptive qualitative research has generally been used in various scientific disciplines, including public administration. Through descriptive qualitative research as a mechanism for expressing findings as they are, which will ultimately be analyzed for the depiction of the phenomenon of a governance (Creswell, 2015; Sugiyono, 2019). The focus of this research is oriented towards multilevel interactions, policy internalization and sustainable development in the governance of TPS 3R Temas Sae and TPS 3R Dadaprejo through the perspective of good environmental governance.

Determination of subjects in this study using purposive snowball sampling technique. In short, the researcher sorted out the informant subjects deliberately with consideration according to the context and research criteria. In determining the research subject, it was preceded by determining key informants to pave the way for research, including the Batu City Environmental Agency (DLH), Head of TPS 3R Temas Sae, Head of TPS 3R Dadaprejo, Head of Temas Village and Head of Dadaprejo Village. Afterward, the researcher provided opportunities for key informants to recommend other individuals relevant to the context of the research. Where the manager of TPS 3R Temas Sae, the manager of TPS 3R Dadaprejo and the local community from each village were mapped until they reached the murky data.

Figure 1
Methodology Framework



Adopted : (Yadav et al., 2023)

The data used in this research are primary data and secondary data. Primary data is data obtained by researchers directly from the object which is sourced from data from in-depth interviews of researchers with informants who are immortalized through log books and recordings. While secondary data is data sourced indirectly from the object of research, but has existed before such as scientific journals, research results, books and other materials available on the internet. The function of secondary data itself is to strengthen the analysis of the discussion of field findings (Bungin, 2018). Furthermore, data analysis in this study uses an interactive model which has several important parts, including data condensation, data display and conclusions (Huberman, 2014).

RESULTS AND DISCUSSION

The governance system implemented by TPS 3R Temas Sae and TPS 3R Dadaprejo is an attention to various field findings. In short, in running the management system after the mayor's circular letter was produced, TPS 3R Temas Sae and TPS 3R Dadaprejo have relatively complex problems. This problem is then classified in certain aspects, such as multi-level interactions, policy internalization and sustainable development as shown in figure 2. The governance system is adapted to the organization's ability to translate the complexity of the root of the problem. This brings the management that was previously centralized in Tlekung landfill to be decentralized

or fragmented in each village and kelurahan, especially in TPS 3R Temas Sae and TPS 3R Dadaprejo. The following are some attentions to field findings in the perspective of good environmental governance combined with waste governance literature from developing countries.

Multi Level Interaction

The context of multi-level interaction in seeking alignment with the rule of law through the lens of good environmental governance in the case of TPS 3R Temas Sae and TPS 3R Dadaprejo does not appear to have been established optimally, this is evidenced when TPS 3R Temas Sae and TPS 3R Dadaprejo try to do the best management alone and collectively within TPS 3R. This paradox overrides the duties and functions that should be carried out by the local government of Batu City through the environmental agency (DLH) to be more active-responsive in reading the needs of each TPS 3R. The submission system is the main reason for DLH to organize the governance to be operated independently from TPS 3R Temas Sae and TPS 3R Dadaprejo. The submission system applied in waste governance by the local government of Batu City causes a discretion when TPS 3R Temas Sae and TPS 3R Dadaprejo do not interact intensively with DLH due to the relatively rigid submission system. This issue is not much different from the attention (Dagilienė et al., 2021) in Lithuania, the lack of local government's contribution to interaction with the lower hierarchy in harmonizing policy understandings is an obstacle to municipal waste management. The need to increase the intensity of top-bottom interaction is the most essential link.

In essence, multi-level interactions based on the government to the agencies below to facilitate in accommodating alignment and understanding. Rana et al. (2017) underlines the impact of the existence of multi-level interactions in Mohali and Panchkula-India on bringing cohesive and efficient management. This condition can then be visualized if the protection of multi-level interactions between TPS 3R Dadaprejo and TPS 3R Temas Sae with DLH becomes a priority. The multi-level interaction should also run optimally in the local community, although the submission system is often articulated as a form of opening up space for pure participation (bottom-up) (Fariz et al., 2024), However, this condition is not always able to be

fulfilled, especially in the community environment of TPS 3R Dadaprejo and TPS 3R Temas Sae. So that between TPS 3R Temas Sae and TPS 3R Dadaprejo it is not much different that community involvement in waste management is still relatively low and not entirely captivated, especially in the simplest practice of sorting organic and inorganic waste, to not throwing garbage in the river. Relocation from the submission system to the ball pickup system is the main solution that can be initiated in accommodating these partial needs.

Nonetheless, participation and representation has been close but limited to the kelurahan government and TPS 3R as well as civil society through self-help groups (KSMs) from Kelurahan Temas and Kelurahan Dadaprejo respectively. The point of representation in multi-level interactions requires components of good governance to be actively involved in establishing relational relationships (Belbase, 2010). At least, the governance of TPS 3R Temas Sae and TPS 3R Dadaprejo is able to expand more widely in attracting private attention, moreover providing opportunities for the informal sector to carry out waste management in Batu City as in Vietnam (Tong et al., 2021). However, the findings of the head of TPS 3R Dadaprejo that it is still difficult to attract the private sector is, in his opinion, the main reason. This expression is at least a message that success in improving good environmental governance in the aspect of multi-level interaction is still hampered by the competence of its leaders.

This consequence does not necessarily hamper collective interests in improving maximum waste management. TPS 3R Temas Sae and TPS 3R Dadaprejo open a meeting space with the local community in improving collective needs, namely through meetings once every three weeks. This opportunity also visualizes the transparency and accountability of waste management practices. Not closing the space, expertise in utilizing digitalization is optimized through the use of whatsapp groups for TPS 3R Temas Sae and TPS 3R Dadaprejo. More innovatively, TPS 3R Dadaprejo produces a waste management information system (SI PAPAH). The practice of these two spaces between conventional and modern has answered the dynamics of an increasingly dynamic society. In a digital context similar to (Dhanamjayulu et al., 2021) in India, the output is to control and monitor waste management.

It is efficient to use this technology to improve the efficiency of multi-level interactions, that whatsapp is more appropriate for harmonizing temporary information with the community and SI PAPAH is more effective in informing integrated management progress. However, it does not eliminate local values through conventional meetings.

Waste management initiated as a result of decentralization does not necessarily provide maximum penetration. The journey in animating the interaction of various actors from institutions or institutions called TPS 3R Temas Sae and TPS 3R Dadaprejo with the community illustrates the complexity. In addition to relatively fluctuating participation on the basis of undirected understanding, the community's perspective is that it is not appropriate for them to contribute to sorting or processing at the basic or household level. The voluntary payment or saving of retribution by each household led to a shift in thinking. Both the community of dadaprejo village and the temas community view that if they have paid then the services of a waste management should not be imposed on them. If they make a payment, even if it is the result of an agreement, in short, it has the potential to create unwanted prejudices, such as the governance in South Africa, especially the country of Bostwona, that waste levies are not able to reflect good management, and even become a space to increase the personal wealth of the waste management leader (Madigele & Mogomotsi, 2017).

In the end, the process of changing attitudes for the better has not been maximally installed, even though when talking about the most basic consequences of waste accumulation, it is the community that feels the consequences most directly or indirectly (Mor & Ravindra, 2023). Good environmental governance glasses offer goal alignment practices, if the alignment does not show quality practices then the waste management of TPS 3R Temas Sae and TPS 3R Dadaprejo is not optimal. This optimization is actually able to be accommodated, further disbursement of GEG principles related to access to justice is provided through weekly and monthly meetings depending on the agreement or incidental, TPS 3R Temas Sae and TPS 3R Dadaprejo accommodate at the same time, the need for connotations of justice has also been provided to come to each TPS 3R. This provision is the most interactive

space, when waste problems sometimes experience operationalization constraints. Thus, the aggregation of good environmental governance in the context of multi-level interactions still shows complexity in its operationalization, both at TPS 3R Temas Sae and TPS 3R Dadaprejo. Changing the submission system to pick up the ball by DLH to TPS 3R Temas Sae and TPS 3R Dadaprejo is a practical suggestion when reading the map of misunderstandings that lead to unwanted impacts.

In addition, ongoing education of the village community is needed to ensure that the journey to harmonize one understanding is not only incidental but measurable, especially on a weekly basis. Because if it is measured once a week, the alignment of the understanding of a waste management cycle is more easily accepted to the roots of society.

Policy Internalization

The next aspect is policy internalization, which is still one of the important attentions to be interpreted in depth. The first thing that becomes the attention of the application of good environmental governance in the content of policy internalization is based on the rule of law (Belbase, 2010). This regulation was conveyed in the Mayor's circular letter (SE) number 660/2404/422.110/2023 concerning optimization of waste management through Reduce, Reuse, Recycle Waste Management Sites (TPS 3R) as of August 15, 2023, and justified through Circular Letter (SE) Number 660/2470/422.110/2023 concerning sorting and managing waste from its source (households, businesses and offices) which was passed on August 25, 2023. Both of these policy outcomes were originally new products of the mayor's regulation number 66 of 2021 concerning waste management when their operation did not contribute positively to the waste problem in Batu City.

In practice, the optimization of the rule of law at TPS 3R Temas Sae and TPS 3R Dadaprejo does not reflect relevant implementation. This was initiated due to the lack of strict and continuous enforcement by the local government to TPS 3R Temas Sae and TPS 3R Dadaprejo as well as the community. Both complain that the low enforcement of the rule of law is a problem of policy internalization unable to absorb fundamentally. As stated by the Head of TPS 3R Dadaprejo;

"The people of dadaprejo village have actually accepted the policy, but there are still people who always throw garbage in the river and on vacant land. We have mapped this action, which is always done in the morning before starting work." Interview December 21, 2024

In fact, this problem is rooted in the lack of enforcement of rules. If you justify actions that are not in accordance with the law, good waste management practices are just a dream. Relevant by (Kurniawan et al., 2024) which identifies the macro case in Indonesia, that the issue of enforcement of the rule of law still tends to be low, this condition is inherent in the level of effectiveness of improper management operationalization. The reasons for low enforcement are fragmented into several parts, including lack of awareness, lack of commitment, ineffective management, lack of collaboration, inadequate funding, limited infrastructure, lack of supervision, lack of national vision and lack of law enforcement. These various reasons are relatively relevant if juxtaposed in the waste management sector of TPS 3R Temas Sae and TPS 3R Dadaprejo, this complexity does not fully reflect the essence of the desired meaning of the rule of law (Negash et al., 2021).

In the second rule that justifies the optimization of TPS 3R, the sorting of organic and inorganic waste is required to be implemented by the community around the Temas and Dadaprejo villages. But in reality a paradox in implementation. The community returned to the initial setting, that is, the status quo of the old flow by mixing wet and dry waste which is very burdensome for the processing process. This action is very pervasive in the local community. However, this action is only at an estimated three months after the policy product was born, saving it is currently in a loose or weakened condition. This issue is the same as research conducted (Aulia & Rachmanto, 2024; Fahri, 2021; Pingky Yolanda Pramesti, 2023) that the policy composition only smells very optimal at the beginning of production, unable to last as the main goal. Thus, the feasibility of the rule of law, which is essentially to be enforced perfectly and firmly, does not necessarily translate into good governance.

Furthermore, related to the rule of law for TPS 3R has categorized each actor or rather component that affects the accumulation of waste to be involved. The context of TPS 3R Temas Sae and TPS 3R Dadaprejo is more on optimization actions.

This reconstruction is slowly revealed, that the process of diluting optimization is moved through small steps that have a big effect, namely self-taught in exploring knowledge of the systematics of waste management. So it can be ascertained, that internalization is currently constrained concretely in the realm of society, while in the realm of TPS 3R Dadaprejo and TPS 3R Temas Sae are relatively qualified in understanding the aspects of management that should be implemented. This indicates that the rule of law has been accepted by several components that influence the accumulation of waste, saving the management experiencing a transition to ideal actions and understanding. (Huang & Zhong, 2023). But this component of representation is rooted only in civil society and corporate governance. Corporate governance, which has become the basis of good environmental governance, has not been able to be accommodated in actual waste management at TPS 3R Temas Sae and TPS 3R Dadaprejo.

Without the involvement of corporate governance in fulfilling good governance through the rule of law, it is one indication that good environmental governance has not been fully implemented. Belbase (2010) categorizes the importance of the three components in translating environmental governance practices, especially in the aspect of policy internalization, because policy is the main source of power in translating all actions for good waste governance. It influences proper management decision-making to reflect an unequal consensus. Not accommodating the absoluteness to manifest the optimization meaning of the policy framework by TPS 3R Temas Sae and TPS 3R Dadaprejo needs to reconstruct a more pro-partisan policy in capturing the informal sector in urban areas (Shen et al., 2020). Because the existence of a policy that does not adequately and clearly accommodate various actors is often the reason for the lack of effectiveness of waste management.

Nevertheless, TPS 3R Temas Sae and TPS 3R Dadaprejo take advantage of this weakness through the process of weekly meetings with the surrounding community and utilizing digital potential through social media platforms. This matter is actually relevant to the aspect of multi-level interaction that brings together residents with TPS 3R managers to align policy intentions to translate transparency and

accountability. However, in the aspect of policy internalization that is oriented towards the rule of law, it does not accommodate the amount of retribution financing for the surrounding community. Problems that have been prevented through weekly meetings do not always justify fair retribution. The amount of retribution by TPS 3R Temas Sae and TPS 3R Dadaprejo is still the same categorizing based on the distance of waste collection ranging from Rp. 10,000 to Rp. 25,000. This amount of retribution is not always acceptable to the community, so some people avoid paying. This condition indicates an unfair amount, referring to the study of (Meidiana & Gamse, 2010) in determining the amount of the retribution, it should be based on three types, namely the type of house, the function of the building and the amount of electricity voltage. So that the appropriateness of the retribution is not just oriented to a distance that is too flat. Instead, it should try to capture fairly the potential of each waste customer who deposits the amount of waste.

Batu City's local government institutions with TPS 3R urgently need to present a more equitable amount of financing through a series of norms. If only the waste retribution agreement is returned and based on the consensus of each TPS 3R without a rule that provides a retribution limit, it has the potential for illegal levies that clearly violate the ethics of public services (Alfandia & Kusumawardhani, 2023). It does not discredit that the consensus is an unfair result, but rather an indication of the relatively heavy payment from the community by not heeding the results of the consensus and even leading to pragmatic thinking to dispose of garbage carelessly on riverbanks and vacant land. Even if the Batu City government is unable to protect through its authority within the framework of decentralization, at least the results of the consensus can be monitored more massively. Because the problem of waste alleviation requires commitment and seriousness from various actors, both by the government itself and the community.

Policy internalization is ultimately not a difficult problem, access to justice on this issue has actually been accommodated both conventionally and digitally. Implementors of the policy internalization sector are concerned with various complexities of the problem. In short, the policy framework has been idealized to sim-

plify an optimal governance practice, but its implementation has not shown a correlation between the community and TPS 3R Temas Sae and TPS 3R Dadaprejo. The acceleration of the ball pick-up system in enforcing the rules and reaffirming the meaning of the policy is the most rational relocation. The submission system is one of the obstacles despite agreeing on participation to be more active, but the situation is inversely proportional. This paradox is not the right time if it is forced to organize participation, either from the people who are not capable or the relatively rigid administrative syste

Sustainable Development

Sustainable development is an aspect that becomes the next consideration for the creation of good environmental governance. In the context of sustainable development, it accommodates three important pillars, namely the environment, economy and social, which are certainly relevant in achieving sustainable developments goals (Rashed & Shah, 2021). The rule of law as the first principle of good environmental governance manifests sustainable development in waste management practices through optimization. Optimization practices are fragmented into various important entities, including processing waste into goods that have value. The actualization by TPS 3R Temas Sae of this condition produces bar soap, fermentation liquid and some processed maggot into animal feed and fertilizer while TPS 3R Dadaprejo produces organic compost and processed maggot as fish feed. These kinds of preparations are relevant in supporting sustainable development regarding the environmental context. In short, the processed results have an effect on reducing environmental pollution and efficient utilization of resources because they are able to recycle waste to be useful again.

The relevance also intersects with SDG 13 and SDG 11 of the sustinable development goals in the environmental pillar. The offer from point 13 brings composting of organic waste results in reduced methane emissions, that the accumulation of organic waste has the potential to create relatively dangerous methane gas. This means that if through the composting system into organic fertilizer, the management of TPS 3R Temas Sae and TPS 3R Dadaprejo is able to suppress this growth. Meanwhile, through SDG 11, the management carried out contributes to

reducing environmental pollution while improving the quality of Batu City in general. Therefore, the importance of the existence of waste management with regard to sustainable development goals is very important to maintain a sustainable environment and climate. Considering that when the process of processing waste into valuable goods cannot be poured, the city's infrastructure and the lives of the surrounding community have the potential to become miserable due to the consequences given (Obaideen et al., 2022).

The processing practices carried out by TPS 3R Temas Sae and TPS 3R Dadaprejo into various variants have agreed to a circular economy. The circular economy is initially a transition from a linear economy rooted in a business model that replaces the concept of 'end-of-life' by reducing, reusing, recycling and recovering materials in the process of production or distribution and consumption (Kirchherr et al., 2017). As a pillar of sustainable development, it manifests the meaning of optimization of the rule of law. The circular economy implemented at TPS 3R, through the purchase of processed waste goods within the internal organization on a voluntary basis. This practice tends not to be able to expand the wider market, so that the processed output is still rotating by the managers of TPS 3R Temas Sae and TPS 3R Dadaprejo. This finding then questions the low attention to how to promote outside TPS 3R for processed products even though economic practices have been running. TPS 3R Temas Sae and TPS 3R Dadaprejo should be accommodated by the local government for the processed waste, at least as a form of appreciation for the independent ability to create valuable goods.

In addition, the management practices at TPS 3R Temas Sae and TPS 3R Dadaprejo have created a social pillar of sustainable development. Because the management body is based on the surrounding community accommodated in the form of KSM. In short, the village community working in TPS 3R Temas Sae and TPS 3R Dadaprejo increasingly understand the other benefits of smelting waste into more valuable goods and positive consequences. Even voluntarily, especially the community of TPS 3R Dadaprejo requires to make a modern juglangan (JUMOD), a kind of organic waste processing place such as a well with a diameter of 1.5 meters

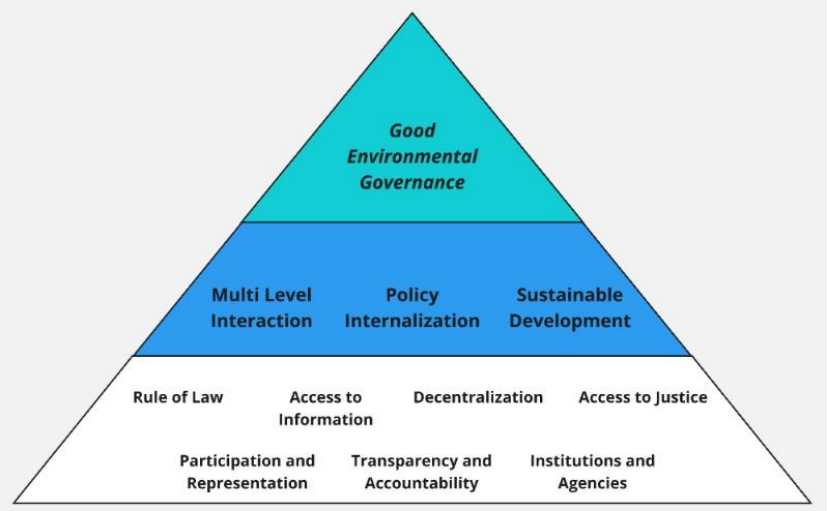
with a total of two in each RT, where there are 76 Jumods in total. All these implications might not have been realized if the internal turmoil of TPS 3R Temas Sae and TPS 3R Dadaprejo had not reached its culmination at the beginning of the policy's operation. As stated by the Head of TPS 3R Dadaprejo as follows

"We were confused about where to put all this waste if it was not handled immediately, especially as it accumulated every day. Finally we did a leapfrog, a kind of comparative study program to Bali at that time, finally we adopted the Juglangan Modern organic waste processing system or we call it (JUMOD)." Interview December 21, 2024

In line with (X. Liu et al., 2023) on recycling waste, including waste to fertilizer, waste to feed and waste to industrial materials, is effective in reducing resource and environmental pollution due to overconsumption. The mapping of the construction is only relevant if it relates to waste that has been systematically segregated. Because from similar cases, both TPS 3R Temas Sae and TPS 3R Dadaprejo are hampered by the sorting process. The sorting of wet and dry waste is not directly implemented from the community, this is a consequence of the low multi-level interaction and internalization of policies that tend not to be firm. The framework of good environmental governance strongly calls for management practices that are in line, aligned and on the same page with the various actors contributing to waste. The fluctuating understanding of the community is a double implication of the low participation of the community itself in the waste problem and the low participation of the local government to carry out education. Speaking of participation and representation of waste governance, TPS 3R Temas Sae and TPS 3R Dadaprejo do not want to accommodate corporate governance. This means that it is still bound to civil society through self-help groups (KSM) and public governance through the village government. It has been conveyed that TPS 3R Temas Sae and TPS 3R Dadaprejo are agencies that have been institutionalized through legal rules that agree with the village government and KSM to form TPS 3R. That so far it has experienced difficulties in expanding relations, this difficulty is due to not knowing the mechanism in capturing relationships with outside actors even though legally it has been refined in mayoral regulation number 66 of 2021. The construction of good environmental

governance in the aspect of sustainable development will actually not run perfectly if corporate governance is absent in waste management. Finally, the representation of TPS 3R Temas Sae and TPS 3R Dadaprejo is only through KSM with the local village government. The representation of these two entities has provided adequacy in the processing of accumulated waste, regardless, it still opens space for the entry of corporate governance to be affiliated in management, so that its nature is no longer picking up the ball but waiting for the ball from the waste polemic that occurs.

Figure 2
Framework Good Environmental Governance



Adopted : (Haque, 2015)

Deeper, the sustainable development goals in point 12 related to responsible consumption and production strongly consider heterogeneity in waste management. That the enrichment of waste management practices is not only oriented to the user but also to the producer of a product, if governance is able to accommodate more comprehensive practices, especially the most basic partnering with corporate governance, it is likely that the composition of management strategies can be mapped in clear targets for waste reduction, efficient use of resources and sustainable production practices in the waste management practices of TPS 3R Temas Sae and TPS 3R Dadaprejo (Rashed & Shah, 2021). As research (Tong et al., 2021) In Vietnam,

the perception of the informal sector has been that it is an irresponsible supplier of waste from an environmental perspective, but from an economic perspective solid waste treatment systems are essential when the informal sector is encouraged to develop in a sustainable and controlled way. Another operationalization is to increase public perception and awareness of the issue, so as to break the stereotype of the irresponsibility of the informal sector.

Indeed, the Batu City government along with TPS 3R Temas Sae and TPS 3R Dadaprejko began to maximize the available potential, both through the promotion of processed goods to expand relations. Through the principle of decentralization, which is the aggregate of good environmental governance, it will not stick if left unchecked. Therefore, patching up some shortcomings and improving some capabilities is a rational matter in supporting optimization. Moreover, the use of digital as an open space for information has been conveyed through the use of whatsapp groups and the SI PAPAH application by TPS 3R Dadaprejo, which is inherent in the principles of transparency and accountability. Thus, the potential for sustainable development at TPS 3R Temas Sae and TPS 3R Dadaprejo has been running but is not fully able to form an ideal framework.

CONCLUSIONS

Waste management from the perspective of good environmental governance in the aspects of policy internalization, multi-level interactions and sustainable development by TPS 3R Temas Sae and TPS 3R Dadaprejo have been conveyed but not maximally expressed. Of the three aspects can be mapped as follows.

First, in the aspect of multi-level interaction, TPS 3R Temas Sae and TPS 3R Dadaprejo have the same problem that the interaction carried out with the community and with the government through the environmental agency is relatively low. The main cause of this low hierarchical interaction is the submission system when going to carry out a certain activity such as socialization and education related to processing and management. The unmotivated participation of TPS 3R Temas Sae and TPS 3R Dadaprejo and the unresponsiveness of the local government through the environmental agency are the two main problems of non-inclusive interaction. Thus, optimization which is the purpose of the rule of law in the concept of good

environmental governance has not been able to be fulfilled by TPS 3R Temas Sae and TPS 3R Dadaprejo. Therefore, it is necessary to transition from a submission system to a pick-up system. This means that the Batu City government through DLH is more often involved in the TPS 3R Temas Sae and TPS 3R Dadaprejo environment to provide direction to temporary evaluations. Meanwhile, it also requires the existence of TPS 3R Temas Sae and TPS 3R Dadaprejo to carry out interactions with the community once a week. In my opinion, these two organizations are more responsive to the lower levels. Other matters that are material for good environmental governance in the waste management practices of TPS 3R Temas Sae and TPS 3R Dadaprejo have been running well, one of which is the use of digital and conventional spaces which essentially facilitate multi-level interactions through the whatsapp application and SI PAPAH. The second is related to the aspect of policy internalization. The practice of policy internalization in the perspective of good environmental governance is not able to run optimally. The rule of law has indeed been produced, but in particular its implementation has not shown serious assertiveness from the local government or from TPS 3R Temas Sae and TPS 3R Dadaprejo. As a result, the status quo decision to litter on riverbanks and vacant land is a form of implication from some unscrupulous people. Nonetheless, some communities have agreed to the intent of the policy and dispose of waste according to the legal basis for sorting from the source. Other concerns related to the actor component of waste management have also not been able to be fulfilled, which so far is still colored by civil society and public governance. The involvement of corporate governance, which is a vital actor, is not accommodated in the management, as a result the decision of waste management is potentially lame because optimization includes informal sector networking. In addition, the legal basis related to retribution has also not been legally accommodated, as a result some people still do not want to pay waste retribution. In short, good environmental governance in the aspect of policy internalization has not been fully achieved.

Finally, it relates to sustainable development which has three pillars including social, economic and environmental. In the perspective of good environmental governance, it runs smoothly in the environmental context, that TPS 3R Temas Sae

and TPS 3R Dadaprejo have actualized a recycling system that has the potential to create a circular economy. Processed products are in the form of bar soap, fermentation liquid, organic fertilizer and processed maggot for animal feed. These results also intersect on the basis of the collective will of the KSM as the main manager of TPS 3R Temas Sae and TPS 3R Dadaprejo, thus inherent in the social pillar. But the shortcomings in the practice of sustainable development are still not as complete in promoting processed products, as a result the circular economy only revolves around the body of TPS 3R Temas Sae and TPS 3R Dadaprejo to voluntarily buy processed products. So it can be concluded that the enrichment of good environmental governance in waste management at TPS 3R Temas Sae and TPS 3R Dadaprejo is very complex and has not been maximally implemented.

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