

Policy Brief

# Socioeconomic Impact Assessment of RDF in Indonesia: A Case in Tamanmartani, Sleman

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## Executive summary

This policy brief assesses the socio-economic impacts of implementing Refuse-Derived Fuel (RDF) technology at *Tempat Pembuangan Sementara Terpadu* (TPST) Tamanmartani, Sleman, in addressing Indonesia's landfill capacity challenges. The RDF project aims to reduce landfill dependency and offer environmental and socio-economic benefits. This research employs a mixed-methods approach, combining focus group discussions (FGDs), key informant interviews (KIIs), and Likert-scale questionnaires, to analyse the social and economic impacts of the RDF plant (TPST) on affected groups, including local communities, TPST workers, and TPST management.

The findings reveal that TPST has a positive influence on the community, creating stable employment for nearly 70 residents, fostering economic growth, and enhancing social cohesion. Nevertheless, challenges persist, including high operational costs and concerns related to odor. The local community advocates for sustainable operations with minimal odor, while the local government strives for an efficient and financially viable waste treatment system. TPST workers anticipate that the activation of the dryer facility will enhance operational capacity, whereas management prioritises financial sustainability and the achievement of RDF supply targets.

## 1. Background

Landfill overcapacity has become a significant challenge in Indonesia's waste management system<sup>1</sup>, prompting the government to seek more sustainable alternatives. One promising solution is the adoption of RDF, which converts combustible waste into usable industrial fuel<sup>2</sup>. RDF has garnered significant national attention and is included in Indonesia's Long-Term Strategy for Low Carbon and Climate Resilience (LTS-LCCR) 2050, which was submitted to the United Nations Framework Convention on Climate Change (UNFCCC) as one of the key measures for decarbonisation.

This national challenge is mirrored in the Special Region of Yogyakarta, which has long depended on the Piyungan Landfill. As the site has exceeded its technical capacity, its declining functionality has triggered a provincial waste emergency<sup>3</sup>. The crisis has compelled cities and regencies within Yogyakarta to find new waste management solutions, leading to the establishment of RDF facilities in Tamanmartani and Sendangsari, particularly in Sleman Regency.

Indonesia's growing reliance on RDF highlights the need for safeguards that ensure projects deliver both environmental and social benefits. While the Environmental Impact Assessment (Analisis Mengenai Dampak Lingkungan/AMDAL), regulated under Government Regulation No. 27 of 2012<sup>4</sup>, provides the main framework for permitting, it often emphasises biophysical impacts and pays limited attention to

socioeconomic dimensions. This gap can undermine legitimacy, as communities that perceive policies as unfair or disconnected from their needs often resist, weakening implementation<sup>5</sup>.

At the same time, many RDF projects rely on international financing, where institutions such as the World Bank or International Finance Corporation (IFC) require more rigorous safeguards that go beyond AMDAL. These mechanisms emphasise stakeholder engagement, social inclusion, and clear mitigation strategies. By integrating Social and Economic Impact Assessment (SEIA) into RDF development, Indonesia can align with international standards, strengthen community trust, and ensure that projects generate both environmental gains and tangible benefits for local people.

This policy brief applies the SEIA framework to examine the Tamanmartani RDF Plant, which is located in Sleman Regency, Special Region of Yogyakarta, drawing on observations and interviews with affected communities. It highlights the current impacts, proposes recommendations to mitigate them, and extracts lessons that can inform more sustainable and socially inclusive RDF development across Indonesia.

## 2. Study Approach

This policy brief aims to examine the positive and negative impacts of the RDF plant on the surrounding community, using the SEIA

<sup>1</sup> Budhijanto, W., Marleni, N. N. N., Wulaningtyas, A. H., Istiqomah, I., Ahmad, J. S. M., & Marbelia, L. (2024). Techno-economic analysis on community-based municipal solid waste processing facilities: A case study in Sleman Regency Indonesia. *Environmental Development*, 52, 101083. <https://doi.org/10.1016/j.envdev.2024.101083>

<sup>2</sup> Afnan, D., Wijaya, M., Kartono, D. T., & Wibowo, A. (2025). Community empowerment model in the refuse-derived fuel waste management program in Indonesia. *Cleaner Waste Systems*, 12, 100364. <https://doi.org/10.1016/j.clwas.2025.100364>

<sup>3</sup> Mulasari, S. A., Husodo, A. H., Sulistyawati, S., Sukesri, T. W., & Tentama, F. (2024). Community-driven waste management: Insights from an action research trial in Yogyakarta, Indonesia. *The Open Public Health Journal*, 17(1), e1874944X341224. <https://doi.org/10.2174/1874944X3412241122102430>

<sup>4</sup> Government Regulation No. 27/2012. Available at: <https://peraturan.bpk.go.id/Details/5239/pp-no-27-tahun-2012>.

<sup>5</sup> Mariki, S. B., Svarstad, H., & Benjaminsen, T. A. (2015). Elephants over the Cliff: Explaining Wildlife Killings in Tanzania. *Land Use Policy*, 44, 19–30. <https://doi.org/10.1016/j.landusepol.2014.10.018>



**Figure 1.** Map of Tamanmartani Village, Sleman Regency, Special Region of Yogyakarta

framework. The Tamanmartani RDF Plant was selected as the research site due to its unique characteristics, which allow for a focused assessment of socio-economic impacts. Unlike many other RDF facilities that are integrated with large-scale landfills, the Tamanmartani RDF Plant operates primarily as the main component of the site, with landfill activities confined to a small scale. This setup enables community perceptions and operational data to more accurately reflect the effects of the RDF plant, without being influenced by the impacts of landfill activities. This reduces bias and supports a more precise analysis of the RDF's contribution to the well-being of nearby communities and the regional economy.

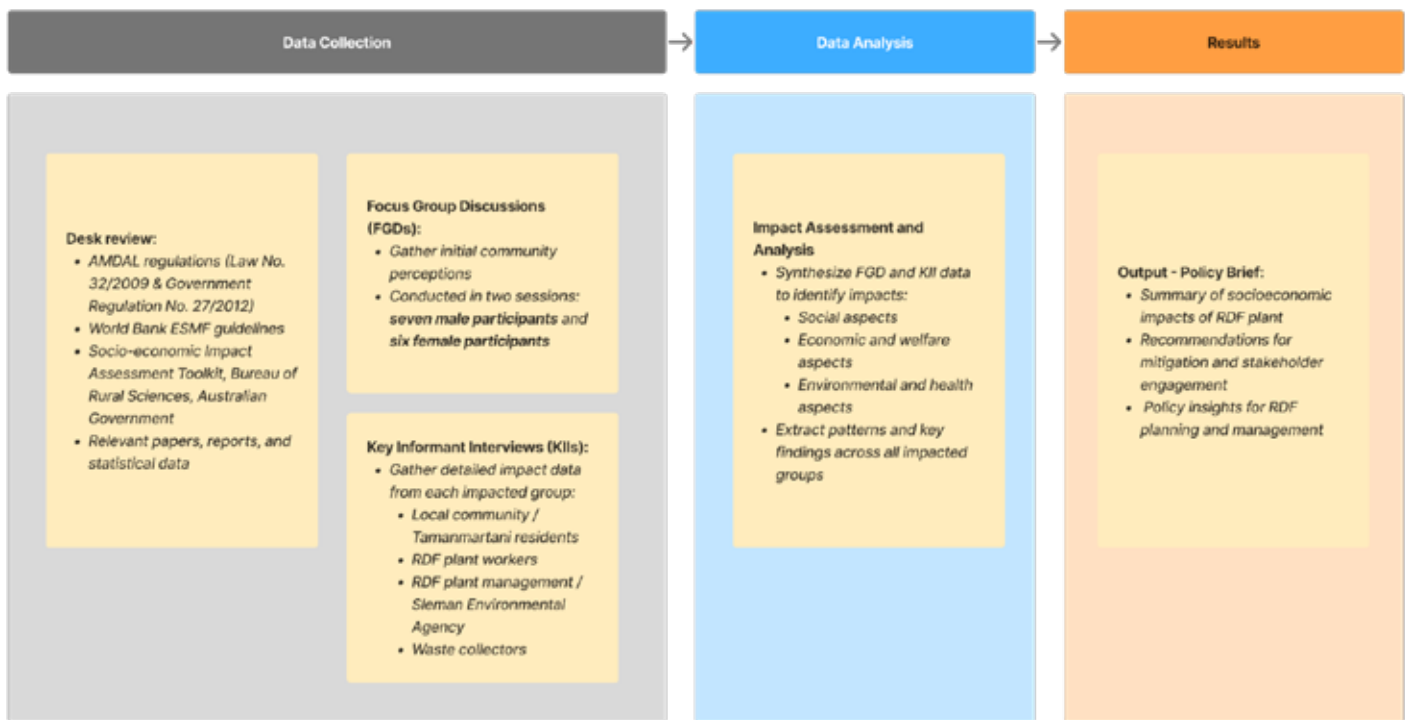
The plant is located in Sleman Regency, Special Region of Yogyakarta Province. The study focuses on an area within a 500-meter radius of the plant, as recommended by AMDAL regulations, which includes schools, public utilities, religious facilities, residential neighborhoods, and other community infrastructures. The study area is illustrated in Figure 1.

The study method primarily draws on two key references: the Socio-Economic Impact Assessment Toolkit<sup>6</sup> published by the Bureau of Rural Sciences, Australia, and the Environmental and Social Management Framework<sup>7</sup> developed by the Indonesian Ministry of Public Works under the Improvement of Solid Waste Management to Support Regional and Metropolitan Cities (ISWM) Project. The project examines the potential social and economic impacts of the RDF plant on affected groups. The identified impacted groups include the local community, RDF plant workers, RDF plant management/authorities, and waste collectors. A detailed representation of the framework and these groups is shown in Figure 2.

For data collection, the research commenced with focus group discussions (FGDs) designed to gather community opinions, perceptions, and everyday experiences related to RDF practices in the target area. The FGDs served as an exploratory step to capture preliminary insights before undertaking more in-depth data collection. To

<sup>6</sup>Bureau of Rural Sciences, Australian Government. (2005). Socio-economic Impact Assessment Toolkit. Available at: <https://www.dcccew.gov.au/sites/default/files/documents/nrsmmpa-seia.pdf>.

<sup>7</sup>Ministry of Public Works. (2019). Environmental and Social Management Framework. Available at: <https://documents1.worldbank.org/curated/en/781051510608417715/Environmental-and-social-management-framework.pdf>



**Figure 2. Flowchart of SEIA Methodology for RDF Plant**

ensure inclusivity, separate sessions were conducted: one involving six female participants and another involving eight male participants. Based on the FGD results, the majority of participants had high awareness of the existence of TPST. High awareness indicates that they are aware of RDF as a technology used by TPST and have updated information about TPST. It is not merely the accessibility of information; they also actively report some issues caused by TPST, such as odour, and choose to pay for the solid waste transportation service on a continuous basis every month.

Subsequently, the research involved conducting key informant interviews (KIIs) with representatives from each impacted group: the community, RDF plant workers, RDF plant management and authorities, and waste collectors. A summary of the profiles of

respondents engaged in the KIIs is presented in Figure 3. The majority of respondents were senior individuals directly involved in RDF plant activities. The gender distribution among community members participating in FGDs was relatively balanced. At the same time, the predominance of male participants in the KIIs reflects the gender composition of the RDF workforce, which is largely male.

A structured set of questions was developed to assess perceptions of the RDF plant’s impacts, and interviews were conducted until data saturation was achieved. The KIIs enabled the research team to gain a comprehensive understanding of how the RDF plant has shaped the perceptions of the various involved groups.

### 3. Findings of the RDFact Survey of SEIA Practices

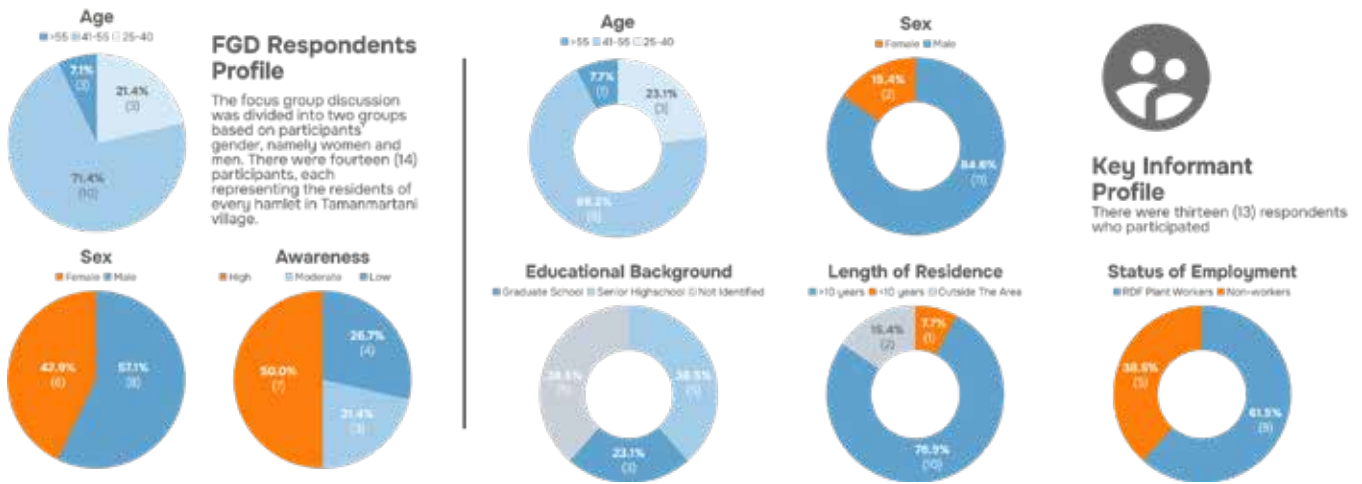


Figure 3. Respondent Profile

### 3.1 Conditions Prior to the Establishment of TPST Tamanmartani

Before the construction of the TPST Tamanmartani, featuring RDF technology, began operating in 2024, Sleman Regency faced a serious ticking time bomb in waste management. The complete dependency on the Piyungan Landfill, whose capacity had long been exceeded, created an acute waste emergency. The inevitable closure of Piyungan was not a surprise, but rather the culmination of a long-looming crisis that threatened to paralyse waste services and trigger an environmental emergency across the province. This situation compelled the local government to seek radical and immediate solutions.

The Sleman Regency government, through its Environmental Agency (*Dinas Lingkungan Hidup/DLH*), had demonstrated foresight by preparing a budget and a Detailed Engineering Design (DED) for integrated waste facilities prior to the closure of Piyungan. However, site selection and gaining community approval were significant obstacles. An initial attempt to build a TPST in an area like Tambakboyo[1] failed to gain residents' approval, highlighting the fact that even the most advanced technological solutions will not succeed

without community acceptance. The challenge was not merely about finding vacant land, but about building trust and demonstrating added value for the local community. Many residents initially equated TPST with a landfill, fearing foul odours and environmental damage. Before the TPST was planned, the Tamanmartani community was not passive on the issue of waste. A Waste Transport and Waste Management Unit was already operating under the Village-Owned Enterprise (*Badan Usaha Milik Desa/BUMDes*) since 2015, serving around 1,200 households with a monthly fee of IDR 25,000. Supported by two trucks (one large and one small) and a team of 12 members, BUMDes managed waste collection, sorting, and transport. Daily operations included household collection, midday sorting at the BUMDes warehouse, and final disposal, which still had to be disposed of at the Piyungan Landfill.

In parallel, the Independent Waste Management Groups (*Kelompok Pengelola Sampah Mandiri/KPSM*) also existed in at least nine hamlets that processed household waste through composting, biopores, eco-enzyme production, and recycling of inorganic materials. While these practices reflected community awareness and

creativity, they remained small-scale and could not accommodate the growing waste volume. On the other hand, reliance on Piyungan was costly. Villages spent up to IDR 6.5 million annually on disposal fees, straining local budgets. In other words, the closure of Piyungan would not only cripple the conventional waste management system but also threaten the sustainability of the well-established local initiative in Tamanmartani.

Community acceptance of TPST Tamanmartani was eventually built through continuous socialisation and education. The government emphasised that TPST would process rather than pile waste, and organised visits to Badung Regency in Bali for residents to observe functioning RDF facilities. These comparative studies proved decisive: seeing clean facilities without accumulated garbage has shifted community perceptions. Acceptance was formalised through an MoU outlining commitments to minimise odour, protect the environment, and employ local workers.

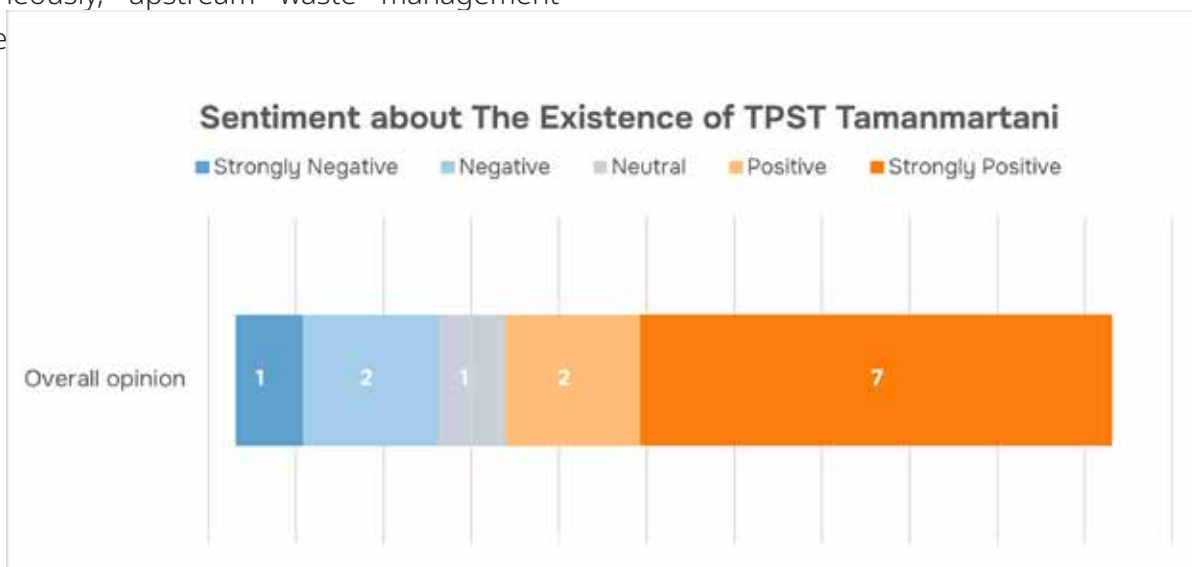
Simultaneously, upstream waste management was stre

No. 22 of 2022, which promoted waste sorting, composting, and biopores at the household level. DLH supported these practices with training and tools in villages, while residents developed their own initiatives, including maggot cultivation and eco-enzyme production. These efforts showed resilience, though the issue of final waste disposal remained unresolved until the TPST was established. The TPST's establishment was not only a technical solution but also a social process, requiring trust-building between government and residents to secure long-term acceptance.

**3.2 Conditions after TPST Tamanmartani/RDF Plant existence**

*3.2.1. Perception and information around TPST Tamanmartani*

The construction of TPST Tamanmartani does not comply with Article 32 of the Minister of Public Works Regulation No. 03/PRT/M/2013<sup>8</sup>, which requires a minimum distance of 500 meters between TPST and a residential area. Meanwhile, the closest residential area within reach of the TPST area, namely Kenaji Hamlet, is



**Figure 4. Perception of TPST Tamanmartani from the community**

<sup>8</sup> Regulation of the Minister of Public Works No. 03/PRT/M/2013 on the Implementation of Infrastructure and Facilities in Domestic Waste Disposal. (2013). Available at: <https://peraturan.bpk.go.id/Details/144707/permen-pupr-no-03prtm2013-tahun-2013>

only ±120 metres away, causing rejection from the surrounding community. The Sleman Regency Environment Agency (DLH) initiated a socialisation for the Kenaji Hamlet community to introduce the concept and general description of waste management at TPST. However, it did not obtain approval through the gathering aspiration process. Therefore, the regency government decided to conduct a comparative study in 2023 with representatives of the Kenaji Hamlet community. The main destination of the comparative study was TPST in Badung, Bali. The results of the observation showed that waste management with TPST is different from the concept of a landfill as a place for waste disposal. These findings confirm that a transformation in the community's perceptions can occur as a result of direct observation, a process commonly occurs as a result of technological innovation diffusion<sup>9</sup>. While the Kenaji community received socialisation and aspiration gathering, the community outside Kenaji Hamlet experienced something different. Other communities in other areas, especially Kramen Hamlet, have never been informed regarding the construction of TPST, and the information they have received has only come from socialisation.

Quantitatively, the field conditions indicate that TPST Tamanmartani has a positive influence and impact on the community. Based on Figure 4, it can be seen that the majority of the community supports the sustainability of TPST Tamanmartani development. This is evidenced by the results of interviews, in which thirteen respondents assessed that the development of the TPST has a positive impact on environmental and socio-economic conditions. The community supports the government's efforts to expand

TPST Tamanmartani's development as they believe this effort could increase employment opportunities not only for Kenaji Hamlet but also for the surrounding areas of Tamanmartani Village. The existence of TPST Tamanmartani plays a vital role in the micro-economy of the community and has even transformed the consumption behaviour. However, qualitative identification results discovered that many respondents and parties outside the key informants expressed negative sentiments towards the existence of TPST. These negative sentiments refer to the odour and the effectiveness of RDF in processing waste to energy. One of the reasons for the rejection of RDF in TPST Tamanmartani is based on the respondent's support and knowledge regarding the implementation of incinerators, which are considered to be a more effective waste-to-energy technology.

### *3.2.2. RDF operations (work system and human resources)*

TPST Tamanmartani implements a structured waste management system by involving local labor. The number of workers at TPST reaches 75 people, of which around 90% of the workers involved in this process are residents of Tamanmartani Village, especially from Kenaji Hamlet. The workers start working from 8am to 4pm on Monday-Friday, with one break. On Saturdays, workers only come in for half a day. On holidays or national holidays, workers still come in but are rewarded with extra pay. Before starting work, workers attend a briefing on work safety procedures. Workers are also equipped with personal protective equipment (PPE), such as double gloves, helmets, vests, masks, and PPE

<sup>9</sup> Rogers, E. M. (2003). *Diffusion of Innovations*, 5th Edition. New York: Free Press.

shoes. Although most workers have relatively low educational background (elementary to senior high school), they have received hands-on training through On-Job Training (OJT), provided even before the TPST officially began operations. Female workers are mostly in the sorting position at the front, while male workers are mostly placed in the press machine in the back.

Every day, around 9-12 trucks carry 2-3 tons of waste which are then weighed at the weighbridge. After being weighed, the trucks are then directed to pour the waste on the dock. Workers use sweepers to direct the waste to the conveyor. Along the conveyor, workers sort the waste into organic and inorganic. Organic waste is processed separately, while inorganic waste is processed into RDF fluff, which is then pressurised to reduce the water content. The processed RDF is sent to TPST Sendangsari and forwarded to PT SBI in Cilacap for further processing. Human resource management at TPST Tamanmartani is under the supervision of PT Gemilang and Waste Management Unit of the DLH Sleman. Worker discipline is highly maintained at TPST, with provisions for neat appearance, such as short hair and free of tattoos. In addition, management has

implemented a digital attendance system to reduce disciplinary violations. Workers receive wages in accordance with Sleman's minimum wage, and receive Health and Employment BPJS facilities, plus incentives for national holidays and leave. However, TPST faces considerable operational challenges, particularly with high costs for human resources, electricity, transportation, and new technologies, all of which are currently funded by the Sleman Regency regional budget. Furthermore, RDF production has not met expectations; while DLH Sleman targets 60 tons of waste processing daily across three modules, the highest recorded output has been only 30 tons, falling short by approximately 50% of the target.

### 3.3 Impact for communities and workers

#### 3.3.1. Social aspect

The establishment of TPST Tamanmartani has yielded significant positive social returns, becoming a vital community asset. The primary benefit has been the creation of stable employment for nearly 70 residents, with approximately 90% from the local community, offering them consistent income and benefits. This economic uplift has had a tangible ripple effect on household well-being. One worker, for

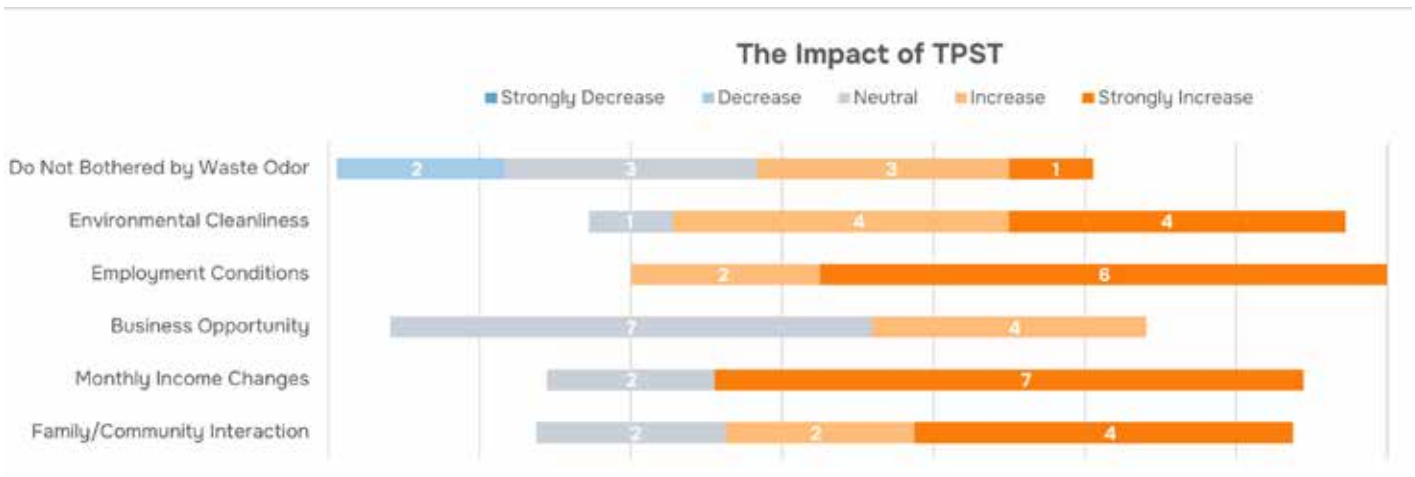


Figure 4. Perception of TPST Tamanmartani from the community

instance, transitioned from employment as an online motorcycle taxi driver to a TPST position, where he now receives a higher, more reliable income and regular daytime working hours, allowing him to better balance work with family responsibilities. This is reflected in broader community sentiment, where workers report a strong increase in positive family and community interaction, attributing newfound financial stability to greater household harmony.

Beyond individual households, the TPST has fostered a remarkable sense of social cohesion. Social cohesion refers to the positive social relationships in communities<sup>10</sup>. Employees demonstrate strong solidarity, pooling personal funds monthly to support colleagues during hardships and to contribute to community events like Indonesia's Independence Day celebrations in Tamanmartani. Findings indicate that the sentiment is positive, with workers and residents maintaining excellent and harmonious relationships. The project successfully transitioned from a source of conflict to a cornerstone of local economic and social well-being, strengthening community bonds through shared purpose and prosperity.

### ***3.3.2. Economic and welfare aspect***

The TPST Tamanmartani has a significant economic impact at both the household and village levels. The most notable effect is the employment of around 70 local workers from Tamanmartani Village, particularly from Kenaji Hamlet, where the TPST is located. This creates a stable income of approximately IDR 2.7 million, along with health and employment BPJS, death insurance, and additional incentives. This stability can be seen in the community's more

confident consumption behavior (for example, buying a motorcycle on credit), ability to provide for daily needs, and ability to save for family education and recreation. In addition, due to the close distance, workers are able to go home for lunch during breaks, which reduces their daily expenses. The shift from informal work to regular employment also ultimately lowers the financial risk of households in the event of calamities or unwanted events..

Since the establishment of the TPST, the village also does not need to pay any money to dispose of waste there because the waste originating from Tamanmartani Village is free of charge. Therefore, the contribution from residents can be allocated to the operational needs of BUMDes as the responsible party for picking up and delivering waste to the TPST. On the other hand, the relatively high operational burden of TPST to pay for electricity, fuel, human resources, and technology cannot be borne independently and is still supported by the Sleman Regency Government's regional budget. This is because the RDF production results still cannot cover the operational costs that arise. This can be a serious concern for stakeholders considering the long-term effects that can occur in the future.

### ***3.3.3. Environment and health aspect***

From the environmental perspective, most residents, workers, and stakeholders agreed that the TPST facility has improved cleanliness in the surrounding area. While one household located farther from the site reported no noticeable change, the majority highlighted a cleaner environment overall. The main concern relates to odour. As shown in survey data, two

respondents reported disturbance from the facility's smell, including one near a kindergarten located 200 meters away. Another resident noted odour from leachate dripping from passing garbage trucks. Complaints can be filed directly to the TPST, which are usually responded by spraying odour-reducing bacteria. The "Arrive Clean, Leave Clean" principle is actively implemented, including same-day waste processing and regular mopping after all waste has been processed to minimise odour. No significant externalities such as noise, pests, or vibration were reported. Village officers and Sleman local environmental agency also always encourage waste segregation at source to households to support more effective facility operations.

Regarding occupational safety, workers are provided with personal protective equipment (PPEs) such as helmets, gloves, masks, vests, and safety shoes. PPE importance is always reinforced through daily briefings. However, PPE is not available for visitors, and workers sometimes remove masks or helmets due to heat. There are also no designated pedestrian-vehicle separation markings. Workers receive medical check-ups every three months. Although two accidents occurred during early operations (hand caught in conveyor and hand punctured by medical syringe), both were covered by BPJS insurance.

### 3.4 Stakeholder Analysis

*The matrix of stakeholder analysis can be observed in Table 1 below.*

**Table 1. The stakeholder analysis matrix**

Stakeholder	Power/Influence	Interest	Impact Summary
Local Community	High	Livelihood, health, environment	Free waste services (only Kenaji Hamlet), jobs, but odour
Workers	Medium	Stable jobs, income	Steady income, social cohesion/solidarity, but limited career growth
CV. Gemilang (Operator/Human Resource)	High	Operational efficiency, compliance	Professionalised HR, digital systems, but initial distrust
PT Bakti Bumi	Medium	Technical contracts, training	Provides maintenance & knowledge transfer
Offtakers (PT SBI, BUMDes, PT UPC)	Medium	Supply consistency, quality RDF	Drive RDF targets, but production shortfalls remain
DLH Sleman & UPTD	Very High	Policy, regulation, performance	Regulates and oversees TPST, but faces complaints
BUMDes	Medium	Revenue, local waste management	Buys plastics, ensures free collection, but is financially strained

cleaner environment overall. The main concern relates to odour. As shown in survey data, two respondents reported disturbance from the facility's smell, including one near a kindergarten located 200 meters away. Another resident noted odour from leachate dripping from passing garbage trucks. Complaints can be filed directly to the TPST, which are usually responded by spraying odour-reducing bacteria. The "Arrive Clean, Leave Clean" principle is actively implemented, including same-day waste processing and regular mopping after all waste has been processed to minimise odour. No significant externalities such as noise, pests, or vibration were reported. Village officers and Sleman local environmental agency also always encourage waste segregation at source to households to support more effective facility operations.

The operational and socioeconomic outcomes of the TPST Tamanmartani are influenced by a multi-stakeholder ecosystem, with each actor holding distinct levels of power and interest.

- **Public Sector Regulators:** DLH Sleman and the UPTD hold the highest authority, setting waste reduction policies and overseeing the facility's strategic direction. Their role is primarily regulatory and performance-driven.
- **Local Community:** The community wields significant power, as its consent was critical for the project's establishment. They remain highly invested, balancing the tangible benefits of local employment, improved infrastructure, and waste services against persistent challenges such as odour and social stigma.
- **Private Sector Operators & Market Actors:** The private operator, CV Gemilang, is a key influencer of day-to-day operations and

human resource management. The economic viability of the facility is heavily dependent on offtakers like PT SBI, whose demand for RDF underpins the financial model.

- **Facility Workers and Support Entities:** While possessing moderate formal power, workers are high-interest stakeholders whose well-being is central to the facility's social success. Their benefits include stable employment and strong social solidarity. Supporting entities, including BUMDes Tamanmartani and PT Bakti Bumi, fulfill essential roles in community engagement and ensuring technical continuity.

### 3.5 Hopes from workers and society

The establishment of TPST Tamanmartani has generated diverse expectations for the future among key stakeholders. From the community's perspective, the TPST is expected to reduce odour issues. Residents hope the facility will keep operating sustainably, creating employment opportunities for local people. Local government representatives express the hope that TPST Tamanmartani will achieve a more efficient and financially viable waste processing system, supported by more advanced technologies such as pivoting to incineration. From the perspective of workers, activation of the currently idle dryer facility is preferable, which would not only expand employment opportunities for local residents but also enhance operational capacity. A worker also emphasised the need to optimise the third processing module, which is currently operating at only half of its potential.

The TPST management team highlights several additional expectations. First, they stress the importance of household-level waste separation

to facilitate RDF processing. Second, they seek sustainable financial solutions, given the current reliance on regional budgets. Furthermore, management aspires to meet contractual RDF supply targets for clients while also ensuring that workforce composition, particularly in terms of age and education level, aligns more closely with established standards.

#### 4. Conclusion and policy recommendations

To conclude the study, it is evident that both the community and workers support the sustainability of the RDF Plant at the TPST Tamanmartani. The TPST has effectively supported social and economic conditions in Tamanmartani Village through multi-stakeholder collaboration. The economic conditions of the community have improved with the high absorption of labour from the local community and the provision of wage guarantees and health insurance by the local government. However, from an institutional perspective, the involvement of academics is still low in the implementation of TPST Tamanmartani, both in terms of community empowerment and technical supervision.

As for recommendations, this policy brief highlights the advantage of establishing good relationships with local communities through community empowerment, which can help the government and RDF Management maintain the sustainability of the RDF Plant at the TPST. Community involvement extends beyond socialisation and deliberation activities to include participation in comparative studies and labour absorption. The regency government, especially the environmental agency or public works agency, can consider allocating a budget to realise these various empowerment strategies. On the other hand, academics, such as universities and research organisations, also

have an important role in checks and balances the management of TPST development and the implementation of waste-to-energy. From a human resources perspective, local governments and communities can collaborate with third parties to assist in human resource management and work plans for odour control and environmental impact at the site. For regulators, developing a legal framework for RDF is essential, aligning with the national government's efforts to implement waste-to-energy technology for effective waste management. Waste management can also be optimised through the involvement of multiple stakeholders, ranging from local governments, academics, and the community (cadre) in waste sorting to sustainable processing. By considering these insights, all stakeholders can collaborate to develop mitigation and management efforts that address the socioeconomic impacts of RDF implementation in TPST.