



Suwung Landfill Closure as Acceleration to Improve Bali Waste Management System

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ABSTRACT

The Suwung landfill, located in Suwung Kauh Village, Denpasar City, has been gradually terminated since November 2022. Official closure began in March 2023 by the Bali Provincial Forestry and Environment Service and continued with the operation of three new integrated waste management sites in Denpasar City. Governor Koster argued that the previous policy related to the Suwung landfill was tactless. Its placement in Denpasar city discouraged the strategic area in Bali as well as the capital city of Bali. The growth of Bali's economy by 61% in 2019 was mostly due to the expansion of hotels, restaurants, and other tourism-related enterprises. It led to a rising figure of visitors, a movement of laborers, and increased population density on the island's business corridors. In contrast, Bali's dense population harms the ecosystem, essential to the island's reputation as a tourist destination. According to recent conversations, the trash management system will be accommodated at three Integrated Waste Treatment Sites (TPST) in Denpasar City beginning in June 2023. The TPS3R will no longer be built with the TPST, which is expected to be fully operational in June 2023.

Keywords: Suwung Landfill, waste management, TPS3R, TPST.

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BACKGROUND

The Suwung landfill, located in Suwung Kauh Village, Denpasar City, has been gradually terminated since November 2022.¹ Official closure began in March 2023 by the Bali Provincial Forestry and Environment Service and continued with the operation of three new integrated waste management sites in Denpasar City. In its gradual closing schedule, the Suwung landfill may receive only 1,200 tons of waste daily. The Closure aimed to support the operation of TPST, a new integrated concept of waste processing sites in Denpasar City and Badung Regency. Governor Koster took the opportunity to accelerate the performance of a source-based waste reduction program through Bali Governor Regulation Number 47, 2019, in all villages, sub-districts, and traditional villages in Bali. Koster argued that the previous policy related to the Suwung landfill was tactless. Its placement in Denpasar city discouraged the strategic area in Bali as well as the capital city of Bali.² He added that constructing a village-based waste management site (TPS3R) and an integrated waste processing site in each regency would stop the rubbish problem.

Thus, the Suwung landfill would no longer be needed.³

Later, the community would be encouraged to conduct source-based waste segregation in the future, starting from households. The proposal aligns with Bali Governor Regulation Number 47 of 2019 concerning Source-Based Waste Management. It reminds the community to sort waste from their Banjar and village levels before transporting it to Temporary Disposal Sites (TPS) or TPS3R (Reduce, Reuse, Recycle Waste Management Sites). TPS3R is waste management with the 3R (Reduce, Reuse, Recycle) concept, a new paradigm in consumption and production patterns at all levels that gives the highest priority to waste management oriented towards preventing waste generation and minimizing waste by encouraging goods that can be reused. Implementing 3R (reuse, reduce, recycle) is related to social issues in fostering changes in attitudes and mindsets towards realizing an environmentally friendly and sustainable society and regarding proper management in its implementation.⁴ In 2022, the local government targeted building nineteen new TPS3Rs, spread over seven points

around Denpasar city. Twelve more would be established outside Denpasar. Three sites have been operating in the central capital area, with an estimated construction budget reaching IDR 116 billion.^{5,6}

TPS3R to Unscramble Piled-up Waste

Bali Governor Regulation Number 47 of 2019 concerning Source-Based Waste Management mandates that the obligation to manage waste starts with individuals in the household as waste producers. Household waste management is carried out independently or in collaboration with Traditional Villages by:

- Use goods and packaging that can be recycled and easily decomposed by natural processes;
- Limiting waste generation by not using single-use plastics;
- Use products that generate as little waste as possible;
- sorting waste;
- Depositing waste that is not easily decomposed by nature to the Waste Bank and TPS;
- Processing waste that is easily decomposed by nature; And



Figure 1.⁷ Suwung landfill, the biggest landfill in Bali, received a mass amount of garbage daily without further attempting to process the waste.



Figure 2.¹⁰ Umasari's resident expressed their rejection of the TPS3R construction plan in their area.

g. Prepare trash bins to accommodate residual waste.

The increasing number of hotels, restaurants, and tourism sector-related businesses contributed to the growth of Bali's economy by 61% in 2019. It led to a rising number of tourists visiting, worker migration, and population density around business sanctuaries throughout the island. However, on the shady side, the dense population generated many wastes that slowly haunted the environment, which is fundamental to Bali's image in tourism. Waste problems have been discussed on numerous occasions. It is feared that

someday the island might be flooded by trash due to its uncontrollable production and lack of infrastructure to manage waste properly. Furthermore, on a social level, the community's low awareness worsens any effort to reduce waste production. As a result, Suwung landfill, the biggest landfill in Bali, received a mass amount of garbage daily without further attempting to process the waste. The phenomenon has been occurring for decades.⁸

In the webinar held by the Bandung Institute of Technology (Pkm ITB) Bali Mereresik Community Service Activities Team supported by the ITB Research and

Community Service Institute (LPPM), Head of the UPTD Waste Management DKLH Bali Province, Ni Made Armadi, gave a more detailed description of the condition of Suwung landfill. Armadi said that by early 2020, the capacity of the Suwung disposal site would have reached 90 percent capacity. In addition, the existence of several TPS 3R (Reduce, Reuse, and Recycle Waste Management Sites) as waste processing sites in smaller scopes in the surrounding villages were over capacity. The situation was predictable, considering that Denpasar City is the center of the Balinese government and has a high population increase every time. Mounds of garbage at the Suwung TPA, said Armadi, had reached as high as 25 meters above sea level. The landfill area of 32.46 hectares was filled with waste, causing the Suwung facility to be in danger since it would no longer be able to accommodate debris. The urgent matter prompted the provincial government to execute a plan to close the landfill permanently in early 2023. Before closing permanently, the government temporarily closed the Suwung landfill in November, when the G20 Summit was held in Bali.⁹

In 2019, data from Mongabay revealed that waste production in Bali Province reached 4,281 tons/day, of which 60% was organic waste, 20% was plastic waste, 11% was paper waste, and 9% was metal, glass, and other debris. Of the 4,281 metric tons/day of waste generated, 856.2 metric tons/day were plastic waste; 49% have been managed properly through the existing TPS3R/TPST/waste bank, while the remaining 51% still needs to be handled. This untreated plastic waste enters rivers (20.7 t/km²), beaches (3.9 t/km²), and land (2.1 t/km²). Multiple opinions were expressed by the bureaucrats, academics, and community leaders who supported the closure of the biggest landfill in Bali. However, a different idea was conveyed by Dr. I Made Sudharma, an academic scholar from Udayana University. Regarding the Suwung landfill termination, Sudharma argued that the waste, especially in the Denpasar and Badung areas, would be potentially overflowed and neglected. He doubted several TPS3R and TPST capacities would be sufficient replacements for the previous landfill, let alone as a



Figure 3.¹⁴ President Joko Widodo, accompanied by Bali Governor, I Wayan Koster and Mayor of Denpasar, Jaya Negara inaugurated TPST Kesiman Kertalangu.

solution to the waste problem.

Sudharma explained that he conducted many studies on waste management, believing that the construction of TPS3R and TPST did not solve the problem despite the landfill closure. He thought the capacity of the recently planned TPS3R and TPST built needed to be improved compared to the existing volume of waste. In addition, Sudharma added that the technology used in the Integrated Waste Management Site (TPST) could be clearer. The inability of TPS3R can be assessed from its processing capacity. The capacity TPS3R being built in one of the North Denpasar urban villages is capable of processing eight small-sized bed vehicles daily. Meanwhile, in a real situation, nearly fifteen small-sized bed vehicles of garbage were produced per day. He questioned how the official would overcome these seven remaining garbage boxes.

In the news published by Bali Post media, it was found that in several houses and business sites in Denpasar, piled up garbages has yet to be picked up. According to one of the self-managed waste collectors, there was a delay in collecting waste at the temporary disposal site to be taken to the Suwung landfill by the DLHK fleet. Apart from that, the conditions at the Suwung landfill also experienced a peak of challenges. It was said that garbage trucks had to line up for hours because the roads were muddy due to rain. In addition, the garbage collector excavator had undergone maintenance;

thus, the hauling process needed to be improved for days. Until 2022, 239 units of TPS3R have been realized, with additional 24 sites erected since 2021. This achievement, however, needs to be revised compared to the expected final target. According to the Governor of Bali Decree Number 381/03-P/HK/2021, every Village in Bali is expected to have at least a TPS 3R or waste bank.¹¹

Mixed Communities' Response

Despite the Government's effort to dismiss the waste problem in Suwung by constructing TPS3R, the community rejected some straightforwardly. For instance, in the northern Denpasar area, Residents of the Umasari estate disapprove of the plan to build a Reduce Reuse Recycle Waste Treatment Site (TPS3R) in their vicinity. Their aspiration was conveyed through numerous yellow-background rejection billboards along Jalan Sari Dana C, Ubung Kaja. It was planned to construct a 4-acre wide TPS3R with an estimated maximum capacity of 3 tons of inorganic waste in the area. Furthermore, where the site would be erected, right next to it, stands a currently uninhabited house. According to the Umasari residents' representative, Bagus Gina (55), the action to put up banners of rejection started on 10 July 2022. Previously, the residents received information regarding the site construction plan on 7 July 2022. They regretted that the stakeholder did not conduct any meetings with the

local civilian concerning the position of the waste processing site. Their refusal centered on the site location being in a residential area with a church, a school and a dormitory. The community feared the waste processing site would reek and disturb their convenience. They support government programs but have differing views regarding the construction location.

Meanwhile, the Head of the Waste and Hazardous Waste Processing Division of DLHK Denpasar, Ketut Adi Wiguna, explained that his party had coordinated with the public works and housing agency (PUPR). It began with socialization with village officials. Then, PUPR carried out socialization in the church, which had not yet given any approval. According to him, the TPS3R location was proposed by PUPR, with the land status being manageable. He added that the TPS3R on the area would only be filled with inorganic waste. Thus, DLHK Denpasar guarantees that there will be no unpleasant smell from the waste management site. Furthermore, on 8 November 2022, the TPS3R was inaugurated, although the rejection billboards were still being displayed.^{12,13}

In June 2023, three Integrated Waste Treatment Sites (TPST) in Denpasar City are scheduled to accommodate the rubbish management system. With its operation, the Denpasar City Government plans to pause the further construction of TPS3R as a waste treatment site. The reason was that the recent TPST facility could handle 800 tons of waste daily in Denpasar City. Previously the Denpasar City Environment and Sanitation Service (DLHK) continued to work on dealing with the waste disposal problem in Denpasar. Residents complained about the piling up and overflowing trash in several TPS. It was previously stated that DLHK plans to increase TPS3Rs as a long-term solution. Yet, this technology-based waste processing site was hastily constructed at some village level throughout Denpasar City.¹⁵ Assistant II to the Denpasar City Secretariat, Anak Agung Gde Risnawan, said that some of the waste in Denpasar City would be processed at TPS3R. Some would also be taken to the Suwung landfill. The decision was made because the TPSTs still need to operate. However, with the TPST, which is targeted to use 100 percent

in June 2023, the construction of TPS3R will likely no longer be continued. Because the three TPSTs built in the Kesiman Kertalangu Village area, East Denpasar, Tahura area, South Denpasar and in the Padangsembian Kaja Village area, West Denpasar, can accommodate as much as 1,020 tons of waste per day. According to Gung Risnawan, if it is 100 percent operational, the construction of the additional TPS3R may be stopped.¹⁶

CONCLUSION

Since November 2022, the Suwung landfill in Suwung Kauh Village, Denpasar City, has been gradually shut down. The Bali Provincial Forestry and Environment Service started the formal closure process in March 2023 and continued operating three new Integrated Waste Management Sites in Denpasar City. According to Koster, the earlier approach to the Suwung landfill was inappropriate. Its placement in Denpasar city dissuaded the crucial Bali region and the island's capital. The growth of Bali's economy by 61% in 2019 was mostly due to the expansion of hotels, restaurants, and other tourism-related enterprises. It led to a rising figure of visitors, a movement of laborers, and increased population density on the island's business corridors.

In contrast, Bali's dense population harms the ecosystem, essential to the island's reputation as a tourist destination. According to recent conversations, the trash management system will be accommodated at three Integrated Waste Treatment Sites (TPST) in Denpasar City beginning in June 2023. The TPS3R will no longer be built with the TPST, which is expected to be fully operational in June 2023.

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