



BOGOR, INDONESIA: The Black Soldier Fly as a Waste Management Alternative

Circular strategy:
REDUCE



Introduction

Bogor city generates around 650 tons of waste per day. Approximately 60 percent of the total waste is organic and 40 percent is inorganic. Organic waste management is an ongoing challenge in Bogor; over half of all waste in the city's main landfill is organic. To combat this problem, the Environment Agency of Bogor City initiated an organic waste management protocol using the black soldier fly (BSF).

As a first step, the agency built a prototype at TPS3R, a waste management site in the Paledang area of the city. Implementation of the BSF initiative has already succeeded in reducing the city's daily organic waste by 2 tons. Additionally, fly eggs and larvae offer the community an alternative source of income. Following the prototype's success, the agency replicated the initiative at several other sites in collaboration with the community. The initiative demonstrated a circular economy model by promoting recovery of organic waste.





Context & Key Actors

Around 475 tons of Bogor's daily waste is transported to the Galuga Landfill, which is located outside Bogor city. Around 76 percent of waste received by the landfill is organic waste. The city has already implemented several initiatives that succeeded in reducing inorganic waste. On the other hand, initiatives to treat the city's significant amount of organic waste were limited to composting.

To address this issue, Bogor City's Environment Agency worked with the Kelompok Swadaya Masyarakat (KSM) local community group to pilot a new organic waste reduction strategy based on a natural agent, the black soldier fly.



Intervention

To facilitate management of organic waste, the Environment Agency of Bogor City is pioneering a strategy that involves the black soldier fly (BSF). Since July 2020, this initiative has been implemented at TPS3R Paledang (a waste management site which supports reduce, reuse, recycle activities).

The BSF is a beneficial insect that reproduces in organic waste. The fly's larvae consume a quantity of the waste, and can also be used as an alternative for animal feed. Remaining residual waste can later be used as organic fertilizer. This initiative promotes a circular economy in that waste is being reduced and reprocessed by natural means into an economically valuable product.

To date, this initiative has been replicated at several TPS3R sites in Bogor city in collaboration with the Kelompok Swadaya Masyarakat (KSM) community group. The government supports the BSF program by providing some inputs, including BSF eggs and storage facilities for BSF cultivation. KSM is providing initial financing for the program. In the future, the government aims to replicate this initiative in all areas of Bogor city in order to reduce landfilling of organic waste while simultaneously generating income for the community.



Success Factors

- **Community participation:** the program received a high level of buy-in from community residents and businesses (e.g. restaurants) who were willing to sort their waste.
- **Government support:** the local government provided supporting facilities and training for the operator.
- **Funding mechanism:** besides reducing waste, the program produces valuable outputs (animal feed, fertilizer) that can be monetized as a funding source.

Impacts

- **Waste reduction:** As a result of the intervention, daily landfilled organic waste has already been reduced by 2 tons.
- **Community economic benefits:** Payment for waste and sale of BSF eggs and larvae provides economic benefits to the community.
- **Employment opportunities:** the implementation of the BSF initiative provides job opportunities for the community as the operator.





Author

Happy Tiara Asvita, ICLEI Indonesia Program Office

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