

PREVENT Waste Alliance

Biomass Utilisation by Insects for Green Solutions (BUGS) in Africa

Factsheet - Uganda



Period:	12. 2023 – 10. 2026
Countries	Côte d'Ivoire, Ethiopia, and Uganda
Project partners	Africa Circular, Eclose, EAWAG and Trinomics. The project is co-funded by the Climate and Clean Air Coalition (CCAC) and PREVENT Waste Alliance.

The BUGS Project

Members of the PREVENT Waste Alliance—Africa Circular, Eclose, EAWAG, and Trinomics have partnered to support national governments and communities in Côte d'Ivoire, Ethiopia, and Uganda. Their goal: reduce greenhouse gas (GHG) emissions, boost food security, and turn waste into value using the Black Soldier Fly (BSF) waste processing technology. The project is co-funded by PREVENT and the Climate and Clean Air Coalition (CCAC). See the CCAC [TEAP Panel's Waste Brief](#), the [BUGS Factsheet](#) and [BSF infographic](#).

The Black Soldier Fly – A Bug with Big Impact

The larvae of the Black Soldier Fly (*Hermetia illucens*) are fed organic waste, rapidly converting it into high-value products: protein- and fat-rich animal feed and nutrient-rich fertiliser. Larvae can be harvested after around 14 days, achieving waste-to-biomass conversion rates of up to 20% (total solids). They can be processed into feed for livestock, poultry, fish, and pets. The leftover residue, called frass can be composted and used as a fertiliser and soil conditioner.

Ongoing initiatives, such as a [CCAC-supported site in Lima \(Peru\)](#), aim to demonstrate the business potential of the BSF technology for large-scale organic waste treatment.

Country case: Uganda

Black Soldier Fly (BSF) technology offers a promising solution to two major challenges in Uganda: managing rising volumes of organic waste and improving access to affordable animal feed.

Rapid urban growth has led to increasing amounts of organic waste from markets, kitchens, and farms. Much of this waste is improperly disposed of—ending up in landfills, waterways, or public spaces—causing environmental and health risks. At the same time, the availability of affordable animal feed remains a pressing issue for Uganda's growing livestock sector. BSF farming presents a scalable, sustainable approach to address these challenges. Interest in the technology is growing as it offers a way to convert waste into high-value animal feed and organic fertiliser.

A targeted scoping assessment was carried out to evaluate the potential for scaling BSF technology in Uganda.

Based on a review of existing literature and primary data from stakeholder interviews and workshops, the study gathered insights from representatives of academia, research institutions, government and policy bodies, entrepreneurs, and development partners. While not as extensive as a full feasibility study, this focused assessment aimed to identify key challenges and opportunities to guide further exploration and project planning in the Ugandan context.

Strategic Locations: Entebbe and Jinja

As part of a stakeholder workshop, Entebbe and Jinja were identified as priority sites for BSF implementation, based on high organic waste availability and favourable operational conditions:

Entebbe

With strong demand for animal feed, particularly from the poultry sector, and an international airport, Entebbe offers ideal conditions for BSF operations including potential export, which might be an option in the long term. Its favourable climate supports BSF rearing. Challenges include limited and high land and transport expenses.

Jinja

Jinja generates large volumes of organic waste and offers more space, lower congestion, and strong access to regional markets, making it well-suited for large-scale local production. While the slightly cooler climate may require technical adjustments, its logistics are better aligned with local and regional supply chains.

Uganda, BSF, and Environmental Benefits

BSF farming offers a sustainable and scalable solution for managing Uganda's growing organic waste streams.

By converting this waste into high-protein animal feed and nutrient-rich fertiliser, BSF technology can support the livestock and aquaculture sectors while reducing environmental and health risks. The approach aligns with Uganda's national waste reduction goals and presents a clear opportunity to turn waste into valuable economic resources, contributing to circular economy development and environmental protection.

BSF technology offers strong climate mitigation potential by significantly reducing GHG emissions compared to traditional landfilling.

BSF larvae efficiently convert organic waste, avoiding the methane emissions typically produced in landfills.

While landfilling emits around 930 kg of CO₂ equivalent (CO₂eq) per tonne of organic waste, BSF treatment produces only 50–300 kg CO₂eq per treated tonne. If all organic waste in Jinja and Entebbe were processed using BSF, the estimated annual GHG reductions would be:

- **Jinja:** 36,400 tonnes CO₂eq
- **Entebbe:** 13,000 tonnes CO₂eq

These figures highlight the significant climate benefits BSF farming can bring at the local level.

Challenges to Unlocking BSF Potential in Uganda

Key barriers to scaling BSF in Uganda include the lack of regulatory standards, limited awareness, and insufficient infrastructure.

Currently, there are no specific regulations for BSF-based products like insect-derived feed or fertilisers, which may hinder wider adoption. Encouragingly, upcoming policy changes—such as the National Livestock Policy, Animal Feed Bill, and standards for dried insect products—show progress.

Scaling Up BSF in Uganda: What's Needed

1. Regulatory & Policy Development

Develop clear national standards for BSF-based products and integrate BSF into Uganda's legal framework. Align policies across agencies like the National Environment Management Authority (NEMA) and the Uganda National Bureau of Standards (UNBS) to streamline approvals and enforcement.

2. Capacity Building & Market Development

Train key stakeholders in cooperation with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and local governments. Establish BSF demonstration sites and promote awareness of insect-based feed and fertiliser among farmers, aquaculture operators, and feed retailers. Support the formation of producer cooperatives to strengthen market access.

3. Waste Management & Infrastructure

Improve organic waste segregation at municipal level and invest in critical infrastructure, such as rearing units, pre-processing equipment, cold storage, and reliable transport systems, especially in cities like Entebbe and Jinja.

4. Research, Innovation & Financial Support

Expand BSF research at institutions like Makerere University. Offer targeted support to SMEs through grants, subsidies,

and affordable credit schemes to foster innovation and growth.

5. Public-Private Partnerships

Strengthen collaboration among government bodies, private enterprises, NGOs, and academic institutions to share expertise and scale BSF operations effectively across urban and peri-urban areas.

What's Next for the BUGS Project

The next steps of the BUGS project include:

1. Developing a BSF Implementation Guide with policy tools and business models.
2. Launching training workshops.
3. Rolling out a "BSF & Climate" campaign linking BSF to Uganda's NDC goals.
4. Supporting government proposals for large-

PREVENT Waste Alliance

The PREVENT Waste Alliance serves as a platform for exchange and international cooperation. Organisations from the private sector, academia, civil society and public institutions jointly engage for a circular economy. The PREVENT members contribute to minimising waste, eliminating pollutants and maximising the reutilization of resources in the economy worldwide. They strive to reduce waste pollution in low- and middle-income countries and work together for the prevention, collection, and recycling of waste, as well as the increased uptake of secondary resources.

The PREVENT Waste Alliance was launched in 2019 by the German Federal Ministry for Economic Cooperation and Development.



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