



# From Organic Waste to Recycling for Development (FORWARD)



Maggot/larvae at the FORWARD facility in Sidoarjo, East Java, Indonesia. (Photo: SECO)

## Rationale

The Indonesian Statistic Agency (BPS) showed that the use of open dumps, or waste that is burnt, buried, and disposed without control is contributing to around 13% of Indonesia's total Greenhouse Gas (GHG). The solid waste sector is, therefore, a crucial contributor to carbon emissions but receives comparatively little support. Furthermore, Indonesia is reported to produce 64 million tons of waste annually, and 60% of which are organic waste – the core focus of the FORWARD project.

The Government of Switzerland supports Indonesia's commitment in reducing its Greenhouse Gas (GHG) emissions. Therefore, in addition to the EUR8.0 million of grant contribution to the ERIC (Emission Reduction In Cities) project, the Government of Switzerland also put up another CHF3.2 million of grant funding for the FORWARD (From Organic Waste to Recycling for Development) project. The FORWARD project is conducted by the Department of Water and Sanitation in Developing Countries (SANDEC) of the Swiss Federal Institute of Aquatic Science and Technology (EAWAG).

Country/Region  
Indonesia

Executing  
Agency  
EAWAG-  
SANDEC

Government  
Partner  
Ministry of  
Public Works  
and Housing

Project Duration  
Phase 1  
2015-2018  
Phase Out  
2019-2020

Total Budget  
Phase 1  
CHF  
1'275'000  
Phase Out  
CHF 587,605

SECO  
Contribution  
CHF  
1,862,605

FORWARD is an applied research on the supply and demand of organic waste as well as the construction of a pilot plant for organic waste treatment utilising the Black Soldier Fly (BSF) Biowaste Processing Technology. BSF is a relatively novel approach to sustainable organic waste management whereby BSF larvae are being utilised to consume organic waste. Provided that organic waste makes up for the majority of Indonesia's waste production, this in-depth exploration of the BSF technology is very useful in providing an alternative solution to the country's waste problems.

### **Objectives and Activities**

The main objective is to support the Government of Indonesia in improving waste management and waste reduction at local level through the application of an organic waste treatment technology.

The main activities are:

- a. Technical assistance for the implementation of waste segregation at source at the community and market level.
- b. Technical assistance to setup and establish BSF facilities (nursery and treatment) in both public and private sectors.
- c. Technical assistance to supported public and private partners for post-processing and refining larvae for BSF products.
- d. Technical assistance to supported public and private partners for developing marketing strategy of BSF products.

### **Governance Structure**

The Ministry of Public Works and Housing-Directorate General of Human Settlement (MPWH-DGHS) is the Project Executing Agency (PEA), which is responsible for the implementation of both ERIC and FORWARD.

PEA then establishes a National Project Management Unit (NPMU), for daily management of both ERIC and FORWARD activities. Local Government (LG) establishes Local Project Management Unit (LPMU), which is the main counterpart of NPMU at the local level.

EAWAG carries out the FORWARD component in close collaboration with partners from both private and public sector such as the regency of Sidoarjo and the city of Surabaya.

### **Results to Date**

The results to date of the project are as follow:

- a. The project implementation has contributed to the waste reduction of approximately 1.65 tons per day amongst the 9 FORWARD partners (as of end of 2019). Waste reduction has been one of the most important objectives for central and sub-national governments in Indonesia.
- b. Partnership with a private entity that processes BSF-derived larvae into marketable products has been established. A total of 41 tons of BSF-derived products have been produced, amounting to a total revenue of approximately IDR 208 Million (USD 14,800). Such partnership is crucial to the sustainability of BSF technology in waste management.
- c. 269 people amongst the FORWARD partners are being / have been trained to set up and operate BSF facilities.
- d. Collaboration with the Environmental Agency of Central Java has been established through an MoU which aims to provide training and technical assistance on establishing BSF technologies in the community level.