

Promoting Programs to Convert Solid Waste to Organic Fertilizer



INTEGRATED SOLID WASTE MANAGEMENT

Notes 5

Environmental Management



Local government can help communities convert solid waste to organic fertilizer at backyard- or commercial-scale.

From Waste to Benefits

Waste segregation activities have shown that the bulk of generated solid waste is biodegradable (“nabubulok” in Filipino). However, even with the promotion of awareness of recycling, much—if not all—of biodegradable waste is still thrown away.

Composting, a practice long encouraged and done in farms and areas not reached by municipal garbage trucks, is beginning to gain popularity. It is a process of converting biodegradable waste to organic fertilizer, which is a departure from the traditional burn, bury, or dump mentality. Several municipalities and private institutions have already set up pilot composting facilities.

The challenge to local governments is demonstrating to citizens and entrepreneurs that organic waste can be profitably converted to organic fertilizer. Data from the National Rapid Composting Program of the Philippine Council for Agriculture, Forestry, and Natural Resources Research and Development (PCARRD) show that at least PhP 216 million worth of compost and organic fertilizer was sold over a five-year period. For farmers, this means more earnings as a result of reduced cost of farm inputs. Products from organic fertilizer, such as organic vegetables, also command a higher price in the market. Other benefits from the use of organic fertilizer include conservation of soil fertility without sacrificing production, reduced pollution, and improved soil texture allowing the soil to retain more moisture.

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Technology

Promoting Household-Level Composting

These strategies have been proven to work as in the case of Bustos, Bulacan. In spreading the word about composting, first, promote composting hand-in-hand with other immediate income generating projects from recycling. Second, launch a massive information and education campaign. Teach citizens the correct segregation technique and convince them to cooperate with and support community activities related to the program. Involve school children. Hold contests. Third, pilot the program in a selected barangay. Create clusters of residents and train them in waste management and recycling.

Start your household-level composting program using containers like compost pits, clay flowerpots, plastic bags, or compost bins. Design them in a way that rainwater drains freely from the compost. To accelerate composting:

1. Mix food, garden, animal, and human waste that have already been cut, chopped, or shredded before putting them into the container.
2. After a 10-15-centimeter layer of waste, add a layer of soil approximately 2.5 cm thick. Continue alternating and

mixing layers and add water when necessary.

3. Remember to keep compost moist like a damp sponge.
4. Allow air access into the pit by providing air vents. Do not burn waste on top of the compost.



This household in Bustos, Bulacan uses a composting bin made of old tires.

Commercial-Scale Compost Fertilizer Production

Commercial-scale fertilizer production is viable when there is a large source of biodegradable solid waste, e.g., public markets and residential subdivisions. The same basic process used in household-level composting is applied, with these additions:

- Covered platforms and larger air

vents are provided because of a larger volume of waste.

- Microorganisms such as Compost Fungus Activators (CFA) are used to speed up decomposition.
- Measured amounts of mineral elements are added to conform to minimum organic fertilizer standards of the government.

• Efficacy tests are conducted on the fertilizer before actual commercial production and marketing.

The key steps in commercial organic fertilizer production are the following:

1. Determine market demand for organic fertilizer in the area and supply of material and production.
2. Observe successful ventures.
3. Prepare a feasibility study to determine technical and financial feasibility.
4. Determine whether the fertilizer facility will be managed directly by the local government or by a private partner.
5. Test the process – from waste collection to fertilizer production and distribution.
6. Conduct efficacy testing on the product based on government standards.
7. Establish distribution contacts and networks.
8. Implement commercial production and marketing.



Worker composting at Marilao Ecology Center in Bulacan.



Policy and Practice

Enabling Framework

Republic Act No. 7160 also known as the “Local Government Code of the Philippines” enjoins local government units to enforce sanitation laws, and prepare a solid waste management program. Section 3, article I encourages the participation of private sector in local governance.

Presidential Decrees 552, 825, 856, and 984 provide rules and penalties covering sanitation and disposal.

The Implementing Rules and

Regulations for Chapter XVII of Presidential Decree 856 (Code on Sanitation, Chapter on Refuse Disposal) provide specific guidelines for integrated solid waste management. The IRR document defines the scope of segregation, recycling, and collection activities to support segregation.

Memorandum Circular No. 39-A of January 19, 1988 from the Office of the President enjoins local governments to establish integrated solid waste management systems that in-

clude: management of waste generation; handling and on-site storage; collection, transfer, and transport; processing and recovery; and disposal.

The Department of Agriculture (DA) and the Department of Science and Technology (DOST) encourage cooperatives, private entrepreneurs, and nongovernmental organizations (NGOs) to engage in commercial-scale composting using beneficial microorganisms that accelerate the composting process.

Practices That Are Working

Marilao, Bulacan produces organic fertilizer by adapting and innovating on the basic technology used in the Ecological Resource Recovery System of Sta. Maria, Bulacan. Biodegradable waste is collected from two public markets and three pilot residential subdivisions with approximately 2,000 households and turned into commercial organic fertilizer.

Initial funding for the composting facility came from the municipal government’s contribution through its Annual Investment Plan augmented by funds from other sources like the Countryside Development Fund. The municipal government also provided personnel and infrastructure including the activator laboratory, storage area, compost beds, horticulture and

agriculture supplies, and other needed machinery. At present, other government line agencies and the private sector continue to support the program through technical and operational assistance. The DOST and the Central Luzon State University provide technical assistance in product development, efficacy testing, and monitoring. A farmers’ cooperative conducts additional efficacy testing. NGOs assist in social marketing the segregation process and the application of organic fertilizer in household gardens and vegetable plots at the household level.

To sustain the program, the local government has improved its collection system. Trucks collect biodegradable waste three times a week while non-biodegradable materials are collected twice a month. The Mayor has also identified a point person responsible for managing the composting facility. Tying up the composting program to the promotion of urban agriculture provides additional support by encouraging households in the municipality to use fertilizer from composted solid waste in growing vegetables in vacant lots.



Personnel and Infrastructure component of the Mankao commercial-scale compost fertilizer production facility has been provided by the local government.



LGU Action Agenda

Other Initiatives

Begin a backyard composting project in your community. **Bustos, Bulacan** is composting in what used to be idle land. Ask Dr. Rosalinda Mendoza, Rural Health Physician at (044) 766-2176 for more ideas.

Sta. Maria, Bulacan has tapped the Assorted Waste Administration

and Recycling Enterprise, Inc. (AWARE), an NGO, to undertake organic fertilizer production using market waste. Get in touch with AWARE, Inc. at (044) 641-1601, and find out how you can get into organic fertilizer production.



Participants from General Santos City during their cross visit to Bustos, Bulacan

What You Can Do

1. Get more information on rapid composting technology and successful organic fertilizer enterprises from PCARRD National Composting Program or regional offices of DOST and DA (See list of resources).

2. Determine potential major users of organic fertilizer, e.g., adjacent farming communities, garden associations, landscaping firms, and sellers of ornamental plants and garden soil.

3. Visit ongoing local government-assisted organic fertilizer projects.

Resources and References

For more information on backyard composting and the organic fertilizer production project in **Marilao, Bulacan**, contact the Office of the Mayor at (044) 711-3142.

If you're looking for additional technical information, these resource organizations will help you prepare your feasibility studies and provide funding references:

- **PCARRD** – National Composting Center, Los Baños, Laguna (049) 536-0014 – 20
- **Department of Science and Technology (DOST)**, Bicutan, Taguig, Metro Manila
- **Biotech**, UPLB, Laguna (049) 536-1576 c/o Dr. Bayani Espiritu
- **Foundation for a Sustainable Society, Inc. (FSSI)** Tele-fax (02) 928-8671, 928-8422 c/o Mr. Ricardo E. Torres, Jr.

Regional **Department of Agriculture (DA)** or **DOST** offices and the PCARRD can also provide information on how to get in touch with NGOs and private organizations like **AWARE, Agtalon, DFFCI**, and **FSSI**. These NGOs can help get your compost production program underway.

As you already know, Compost Fungus Activators (CFA) hasten the decomposition process. For local sources of CFAs, contact the regional **DA** or **DOST** offices or selected local **State Colleges of Agriculture**.

Should you decide to go into commercial-scale organic fertilizer production, your product has to be tested and meet government fertilizer standards. Get information on efficacy testing procedures and standards from these organizations:

- **Fertilizer and Pesticide Authority**, 4th Flr., Bldg. B, NIA Complex, EDSA, Quezon City (02) 926-5877; 922-3368
- Selected state colleges of agriculture like the **Central Luzon State University, College of Agriculture, Muñoz, Nueva Ecija**