

The compost factory simulation game

To secure its member farmers with a constant supply of organic fertilisers the farmers cooperative *Alayon sa Banika (ALAB)* (see page 6) established a compost factory. In the beginning this project was confronted with serious transport and labour problems. Erik Simonides explains how these problems were resolved.

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The idea evolved from the fact that composting by farmers on the farm is not enough to regenerate the soil in a deteriorated area like Cebu island. External organic inputs are needed. The compost factory gets its organic matter from 5 resources:

- bio-degradable waste from a local market, 5 km away
- slaughter house waste from a slaughter house, 6 km away
- rice hulls from a rice mill, 35 km away
- saw dust from a saw mill, 35 km away, and
- guano (bats dung) from a guano mine, 6 km away and not completely accessible by road.

Transportation main bottleneck

For the transportation of materials, a carabao cart was build, but it was too small and too slow to reach the desired output of 70 tons of compost per year (equivalent to 210 tons of raw materials). Hiring a truck seemed too expensive and ALAB decided to cease operation until a truck could be

afforded. But this dream would probably never come true. The need for additional compost was still obvious and discussions started again. Soon it became clear we lacked insight in the logistics of transportation. We decided to gain insight by means of a simulation game.

The simulation game

On a table we drew a map of the compost factory and the places of the resources and their distances. Small pieces of plastic of different colours served as a certain amount of 'resource' and were placed at their spots (e.g. a large heap of yellow pieces at the sawmill). A number of small plastic puppets (from a game) represented the labour force. A small boy's truck represented the truck.

First we went over the composting process and the time it takes. This was written on the blackboard for reference. We also calculated our maximum storage capacity.

Rules for the game were:

- the composting process should be as optimal as possible (no idle days for compartments in the factory)
- maximum storage capacity for raw materials cannot be exceeded
- since the truck will be rented by day, it should be on the road as much as possible
- working days are 8 hours.

Then we started the game. All staff members were participating. Soon it became clear how difficult it is to break down the process in different steps. But after long discussions we managed to do so. The preparatory work before the truck

could actually start driving were far more time consuming and labour-intensive than any of us had ever thought of. In order to let the truck run efficiently, we had to put raw materials in sacks. This is time-consuming and 6 to 8 people would be needed.

Assuming our preparations were accurate, we found that hiring a truck for 1.5 days a month was satisfactory. This meant that transportation would, in terms of finances, not be a big problem. Also the amount of labour needed to do the actual composting was relatively small compared to the amount of work to do the hauling.

Not transportation but labour

After the game, which took 2 days, we evaluated the outcome. The bottleneck was not in transportation, but in labour. A team of 6 had to work 23 days a month to do all the work. This also explained why the first set up did not work. Farmers would have to leave their farm for almost three months before the compost could be taken to the farm. It would be more feasible to sell the compost at the production price and find a group of unemployed people who would manage the factory.

Presently, sons of ALAB members are willing to invest time and labour in the compost factory. They have started to haul raw materials. They are not paid a salary but will receive a share from the sales of compost after three months. The share is 50 pesos a day, the normal salary people get for unskilled or semi-skilled jobs in this area. The cost price of one bag of compost (50 kgs) is approximately 100 pesos. This is quite reasonable, considering the nutrient content (2-2-2) and the price of commercial compost (150 pesos for 50 kgs). The maximum output is 90,000 kgs a year, enough to supplement the needs of 30 to 60 farmers. At present, availability of raw materials is more a problem, especially market waste, due to the uncooperative attitude of the municipality.



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