GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN

IWMI International Water Management Institute

FiBL Forschungsinstitut für biologischen Landbau
Institut de recherche de l'agriculture biologique
Research Institute of Organic Agriculture
Istituto di ricerche dell'agricoltura biologica
Instituto de investigaciones para la agricultura orgánica
EXCELLENCE FOR SUSTAINABILITY

Improving peri-urban soils with re-cycled organic city waste: A case study from India

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Figure 1: Municipal waste dumped on the road side

Figure 2: Promoter group

Figure 3: Workshop

Figure 4: Waste collection

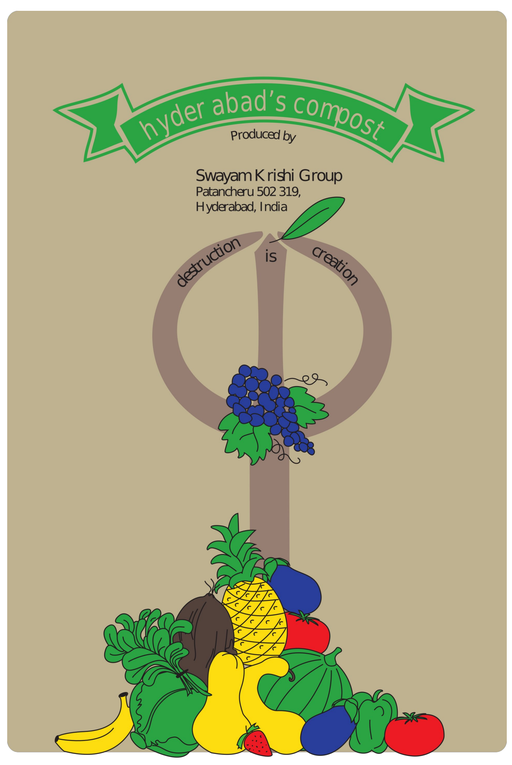

Figure 5: Branding the compost product

Figure 6: On-farm trial

Background and rationale

Hyderabad's current urbanization rate is 4.7 %. This has resulted in benefits, but has also led to pollution problems associated with solid waste management. Urbanization has also impacted peri-urban agriculture, with land fragmentation and high production costs. This paper looks at opportunities for improved sanitation, entrepreneur development and soil enrichment for increasing agriculture productivity, by recycling the organic waste of city municipalities.

Objective

The aim of the study was to revitalise peri-urban agriculture soils with organic compost prepared from city waste. The compost production was to be facilitated by the establishment of decentralised small-scale businesses that would convert waste into compost, improving urban sanitation and livelihood enhancement.

Material and methods

In August 2011, a multi-stakeholder platform comprising Greater Hyderabad Municipal Corporation (GHMC), International Water Management Institute (IWMI) and a women's self-help group developed a plan of action to develop a public-private partnership. Small-scale composting units were implemented after participatory diagnosis of viable processes, identification of promoters and demand for compost. An agronomic trial was performed to illustrate the benefits of using organic compost, in vegetable production.

Results

- In the municipality of Patancheru (GHMC), the organic fraction of the municipal waste is estimated at 14'280 kg per day. Assuming a reduction of volumne of 75%, 13'035 kg N, 3'911 kg P, and 11'732 kg K could be recycled per annum (Figure 1).

- The GHMC administration played a key role in the identification of suitable beneficiaries. They provided the space, water, and transport for the composting plant.

- The promoter group (Figure 2) was trained on windrow composting method (Figure 3). Their entrepreneur skills were developed over a period of six months, were registered as a welfare society, which allows them to receive subsidies.

- Municipal organic waste can be successfully collected in the municipality (Figure 4). The waste had less C-rich materials and had to be supplied from agriculture biomass. Branding of the product was attempted to supply the local market (Figure 5).

- On-farm trial revealed that the spinach leaves were significantly longer and wider in compost plots. The standard deviations were smaller indicating the greater resiliency of compost application. Cabbage and tomato did not show any significant difference.

Conclusion

The recycling of organic waste is feasible, if it can be organised in a participatory manner. Yet, in order to improve peri-urban soils, the final product has to be popularised, as the beneficial effects are not well known. Coupled with demonstration trials and awarness campaigns, such partnerships can thrive, and be an effective proposition for reducing pollution within cities.

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