Theme 14: Solid waste management – Approaches (at home, city, state)

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EFFECT OF PASSIVE AND ACTIVE AERATION ON COMPOSTING OF HOUSEHOLD WASTES

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Population upsurge, due to rapid industrialization in Indian cities, has led to the generation of thousands of tonnes of municipal solid waste (MSW) daily that are disposed in low-lying areas, without taking any precautions or operational controls. Therefore, Municipal Solid Waste Management (MSWM) has become one of the major environmental problems for all Indian cities that manage the activities associated with generation, storage, collection, transport, processing and disposal of solid wastes. Solid wastes are those materials, other than liquids or gases, that are considered no longer valuable by their owner and are discarded as useless or unwanted. They are generated by almost every activity, and the amount of solid waste generated depends upon the type of source, season, geography and time. The amount of municipal solid waste (MSW) generated in urban area ranges from 400 to 600 g per capita/day. The organic fraction of MSW in India ranges between 40–85% of the total. Composting was encouraged in the early initiatives of the Government of India (GOI) with MSW management focused primarily on promoting composting of urban waste. As far as large-scale composting is concerned, many mechanical compost plants with capacities ranging from 150–300 ton/day were set up in the cities of Bangalore, Baroda, Mumbai, Calcutta, Delhi, Jaipur and Kanpur during 1975–1980 under the central scheme of MSW disposal. The composting was done successfully for many years up to 1980, but afterwards the compost from MSW was not used for soil enrichment due to financial and other problems (Ajay S. Kalamdhad et al. Rotary drum composting of vegetable waste and tree leaves 2009). At present, about 9% of MSW is treated by composting. UNDP (UNDP/WB RWSG-SA, 1991) study hence recommended that instead of setting up single large mechanical compost plants, it would be beneficial and more effective to set up several small composting plants. This type of decentralized composting allows reuse of organic waste where it is generated, thereby reducing waste quantities to be transported as well as transport costs.

The purpose of this presentation is to study the process of aerobic composting for recycling of organic fraction of Municipal Solid Waste (MSW) at household level. The main goal of this study is to compare the quality and the optimal time of maturation required for the passively aerated and actively aerated compost.