

# Factors influencing utilization of municipal solid waste compost among urban farmers in western Uganda

Juliet Kiiza Kabasiita<sup>1\*</sup>, Geoffrey Maxwell Malinga<sup>2</sup>, Julius C.W. Odongo<sup>1†</sup> & Emmanuel Opolot<sup>3</sup>

1. Department of Agronomy, Faculty of Agriculture and Environment, Gulu University, P. O. Box 166, Gulu. 2. Department of Biology, Faculty of Science, Gulu University, P.O.Box 166, Gulu. 3. Department of Agricultural Production, College of Agricultural and Environmental Sciences, Makerere University, P. O. Box 7062, Kampala.

†Deceased

\*Corresponding author: jkab75@yahoo.co.uk

## Background

Effective management of solid waste is one of the most serious environmental problems confronting urban governments in developing countries due to insufficient financial resources and institutional capacity to provide basic solid waste management infrastructure, impoverished urban populations (Komakech et al. 2016; Komakech 2014b), low rates and coverage of collection, and rising food consumption rates (Medina 2011). Composting has been touted as the most economical solution for reducing organic fraction of the Municipal solid waste volumes while releasing vital nutrients for the soils (Danso et al. 2014; Komakech 2014a; Nigussie, Kuyper, and Neergaard 2015; Tweib, Rahman, and Kalil 2011). With the aims to address the mounting solid waste management problems, reduce greenhouse gas emissions from landfills and use the generated compost as a soil conditioner for crop production, the Uganda National Environment Management Authority (NEMA) with support from the World Bank initiated a municipal solid waste composting project in 2005 under the Clean Development Mechanism (CDM) in nine municipalities. However, there is limited information on the level utilization and associated factors and the extension approaches used to disseminate information about the compost, in urban areas of Uganda. This study aimed to determine the level of utilization and the associated factors and assess the extension approaches used to disseminate the information about the compost

## Objectives of study

- To determine the level of utilization of the compost among urban farmers and
- the factors that influenced utilization and
- assess the extension approaches that were used to promote MSW compost, the

## Methods

Data was collected using a cross-sectional survey from 359 and 361 randomly selected farmers in Mbarara and Fort Portal municipalities respectively. A semi-structured questionnaire was employed to collect quantitative data and analyzed statistically using descriptive statistics and the probit model. Key informant interviews were conducted to complement the survey results.

## Results

Results showed that the main extension methods used were

- individual and farmer group trainings,
- use of model farmers,
- radio outreach programmes and
- farm visits.

The main challenge reported by extension agents in promoting use of MSW compost was

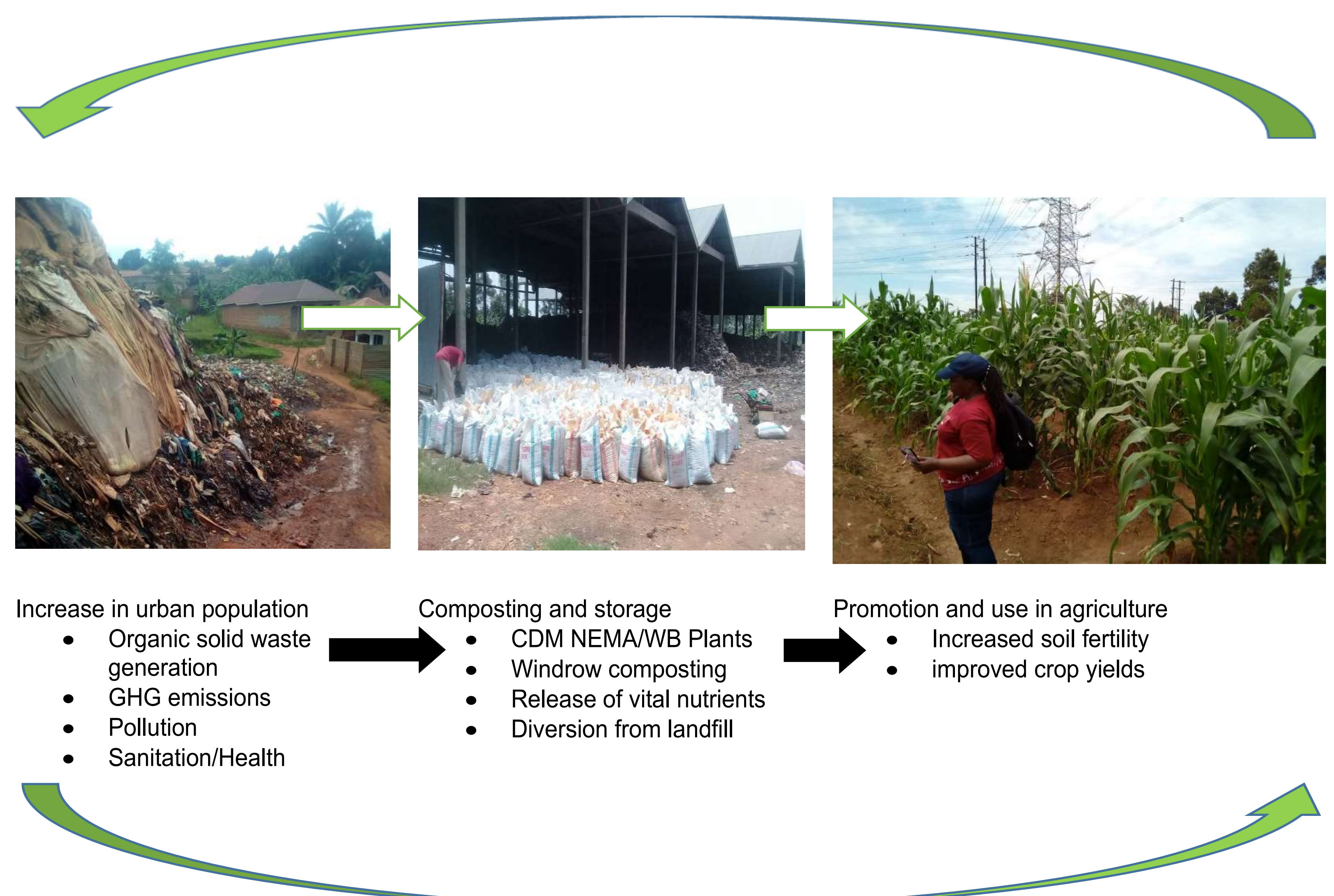
- lack of scientific information regarding the quality, application methods and effect of the MSW compost on soil properties and crop yield.

Results also showed that although 60% of farmers in Mbarara and 68% of farmers in Fort Portal municipalities reported they were aware of MSW compost produced by the municipalities, the findings revealed a very low level of utilization in both municipalities.

1.7% of the farmers in Fort Portal utilized MSW compost compared to 2.2% in Mbarara municipality.

Factors that significantly influenced farmers decisions to use MSW compost

- annual farm income
- access to soil conditioner
- experience with the use of fertilizers
- membership to a farmers' group
- how much farmers are willing to pay for the MSW compost



## Conclusions and recommendations

The findings call for the operators of the compost plants (municipalities) to

- continue disseminating information about MSW compost through the reported extension methods and other innovative communication approaches harnessing the benefits of digital tools and
- equip the extension agents with information regarding its quality and methods of use.

Government also needs to invest in policies aimed at increasing the level of utilization of the MSW compost such as

- improving accessibility to soil conditioners,
- creating opportunities for maximizing household incomes,
- promoting farmer-to-farmer experience sharing, operationalization of farmers' groups and
- introduction of subsidy schemes on compost in urban areas of Uganda.

Finally, to guarantee quality and to improve the adoption of compost generated at the CDM plants, there is a need for research to

- assess the quality of MSW compost,
- undertake a cost-benefit study and set a price commensurate with the quality, and
- develop guidelines and rates of application of the MSW compost.

