

# Preliminary Description of Composting Potential Action Research Pilot

New Nairobi Dam Community Group, Kibera, Nairobi

## 1. Background

The first phase of the Project “Converting City Waste into Compost Pilot Nairobi” conducted an inventory and analysis of users, producers and markets for compost, biogas and livestock feeds in urban and peri-urban areas of Nairobi. Results of the inventory indicated that in the urban and peri-urban areas of Nairobi, various small-scale decentralised composting schemes are operating with various levels of success. These schemes have been initiated and operated by Community Based Organisations (CBOs), which are umbrella for various self help groups (SHGs); and individual self help groups and youth groups. Other actors in urban and peri-urban composting include private companies, NGOs, Ministries-Agriculture, public schools, private educational institutions (colleges), Faith-Based Organisations and individual entrepreneurs (manure sellers along roadside). Most of the CBOs and SHGs doing composting are located in the low income residential areas and informal settlements (slums) (for example Kibera, Dandora, Maringo, Korogocho, Kawangware etc), partly in the middle-high income residential areas (e.g. Parklands) and in the peri-urban areas of Nairobi.

The first phase of the Project feeds into the second phase by identifying and implementing potential action research pilots based on converting city waste into economically useful products. Based on the results of the first phase, potential action research pilots are being explored on CBO and private sector led composting initiatives as well as in the area of bioenergy (biogas production). This report explores the potential of undertaking a CBO-based composting action research pilot with the New Nairobi Dam Community Group, Kibera, Nairobi; and documents preliminary assessment and discussion outputs with the CBO based on criteria set out by the project on selection of potential research pilots.

## 2. New Nairobi Dam Community Group, Kibera, Nairobi

The New Nairobi Dam Community Group located in Kibera, the largest slum in Nairobi, is part of the Kibera public space project. It is a Community Based Group (CBO) registered with the Department of Social Development in the Ministry of Gender, Children and Social Development. The CBO has a group size of 150 members and is currently expanding to 240 members. The CBO makes compost for sale and is envisaging using part of it for growing vegetables for sale.

The New Nairobi Dam Community Group has a structured leadership comprising a Council (Executive committee), Project Coordinator (the CEO) and Programme Managers in charge of various activities undertaken by the CBO, including composting. The CBO carries out the following activities:

- Composting and waste collection;
- HIV/AIDS awareness;
- Education;
- Advocacy;
- Peace and reconciliation;
- Basket weaving; and
- Youth programme: Social arts for the youth (football), drug abuse awareness and vocational training.

The composting programme has 50 members out of which 30 are actively involved in waste collection and composting. The composting programme has a programme manager. Current composting process takes 45-70 days to mature; the groups make about 1 pick-up of ready compost

per 1 ½ months period. About 20-40 wheelbarrows of organic waste are collected (free) and composted daily. A variant of open pile composting system, including the use of effective micro-organisms has been adopted. The waste for composting is obtained from households in Kibera. Other sources of waste used include kiosks and market waste. Composting system is manually operated, does not involve the harvesting of a leachate and is not pelleted. Currently, the compost is sold at KES 20 per kg to landscapers carrying out slum upgrading project and individual gardeners. However, the customer base is narrow and customers irregular.

Access to financial resources for the CBO remains a challenge. Although, the CBO is trying to address this situation by raising their own funds (membership fees, proceeds from composting, donations from well-wishers and NGOs etc), the funds raised are limited, unreliable and can neither expand composting activities substantially nor a sufficient source of income for long-term capital investment. Despite the financial constraints, the CBO has not borrowed a loan to carry out composting due to lack of collateral. The CBO also has weak marketing strategies in terms of branding and advertisements to enable them penetrate the market; and finding a market for compost is a major challenge.

### 3. Discussion outputs

The outputs of preliminary discussions with the group committee are presented below:

*Willingness to participate:* The CBO, through their Coordinator and committee expressed a willingness to participate in a pilot action research project in which responsibilities are clearly defined between group members, collaborators and stakeholders participating in such a project.

*Tentative objective:* To test feasibility of linking CBO produced compost production with users (through branding and opening of retail agro-shops). According to the committee members, this objective focusing on marketing and related activities will be further refined in subsequent planning meetings prior to the inception of the action research project.

*Pilot project design and innovative issues that can be addressed:* Areas in the value chain envisaged to be addressed, according to the group coordinator, includes among others:

- **Market linkages (the most important priority area):**
  - Branding (logo design and, advertisements, awareness creation, packaging materials);
  - Standardisation and quality assurance (analysis of compost by KBS)
  - logistical issues (transport to envisaged agro-shops)
- Availability of tools for composting:
  - wheel barrows for waste collection and transport
  - Hand gloves
  - Overalls
  - Effective micro-organisms
  - Waste collection bins
  - Fence for the composting areas to seclude roaming livestock.

*Tentative activities:* Tentative activities were discussed with the CBO coordinator pending subsequent planning meetings with the rest of the CBO members to re-focus on limited plausible activities. These activities were identified as:

- Collection and transportation of source segregated wastes and or organic wastes in general
- Compost production and packaging
- Reinforcing a fence around compost production area
- Branding activities
  - Designing logos

- Carrying out laboratory analysis of compost samples (Kenya Bureau of Standards)
- Preparing advertisement materials (pamphlets, brochures, posters, labels)
- Awareness creation (radio broadcasts, exhibitions in agricultural shows, public barazas)
- Opening of agro-stock shops (slum and in affluent areas in urban and peri-urban areas of Nairobi)
- Acquisition of input materials
  - wheel barrows for waste collection and transport
  - Hand gloves
  - Overalls
  - Effective micro-organisms
  - Waste collection bins
  - Fence for the composting areas to seclude roaming livestock
  - Packaging materials
- Transportation of compost to agro-stock shops
- Creating linkages with existing compost users and stockists
- Start an organic farm where compost can be used for growing vegetables
- Training compost producers to up-grade their skills

*Location of the pilot and availability of space:* The CBO suggested that the pilot be located in their current premises in Kibera (near Undugu Society premises) where they have acquired space under the “Public Space Project”. The land was allocated to the group through the Provincial Administration. The land allocated to the group has a composting shed and sufficient space for making compost. However, compost storage structure is currently lacking, but has been borrowed-in free of charge from Undugu Society-run Primary school, which has also allocated an office space to the group. The group has recently acquired another piece of land, a former dumping site, close to Nairobi dam. The group intends to rehabilitate the land for vegetable production in the future. The location of the group is near to urban container gardeners who also use compost in growing vegetables.

*Composting materials and products:* The group sources household wastes and market wastes from Kibera residents. Also, about 100 members of the group supply household waste materials to the group on a regular basis. Out of the 100 group members, about 50 supply good quality composting materials.

The CBO envisages producing solid/powder compost for sale starting with one pick-up per month and up-grading as the project progresses. The quality of the compost will be ascertained through laboratory analysis of various compost samples to enable the establishment of compost quality range.

*Host organisation and ownership of pilot project and results:* This will be discussed in detail during project planning with the stakeholders. However, the CBO indicated that materials, equipment and assets will be owned by the group as some will be contributed by the group; any other material purchased during the running phase of the project is also envisaged to remain with the group at the end of the project period. Similarly, revenues accruing from the project will be banked in the group account and its use subjected to group’s by-laws and any other restriction that may be put on such funds during the joint planning period with pilot project partners. The CBO will implement the pilot project in partnership with pilot project partners and it is envisaged that responsibilities will be shared out during pilot project planning/design stage with the CBO.

The roles of the project partners were discussed with the Coordinator of the CBO and included the following, among others to be determined during group meetings with the CBO members:

- Technical advice;
- Training;
- Establishment of linkages with relevant partners and institutions; and
- Introducing new ideas as required;
- Study the impacts and results of the experiments; and
- Provision of feedbacks to participating stakeholders.

*Contacts with formal (government) control institutions:* Discussions with the CBO coordinator indicated that the CBO has met most legal requirements and is not in danger of being interfered with Government and civil society bodies. However, the following contacts will need to be made as the pilot project progresses:

- City Council for issuance of trading permits-selling of compost (permits/license are issued at a fee)
- Kenya Bureau of Standards for issuance of S-Mark and or for laboratory tests (done at a fee); Currently there are no standards for compost.
- Developing an MoU with track/pick-up owner for transporting compost to agro-shops

Waste materials are currently being obtained for free while land has been availed to the CBO by the Provincial Administration. The NEMA regulations on waste collection and transportation have not been implemented in the slum areas where the CBO is situated.

#### *Financial responsibilities, rights, benefits and risks*

The preliminary discussions with the CBO coordinator indicated that some of the materials required for the pilot (labour for making compost etc) will be partly provided by the CBO while the CBO will require financial support in running some of the pilot activities. The sharing of financial responsibilities will be discussed in an envisaged planning meeting prior to the start of the pilot project.

#### *Potential for replicability and sustainability*

Discussions with the CBO coordinator indicated that there is a potential to sustain the pilot activity through:

- Ploughing back some of the income generated in compost sales to the pilot project itself e.g. for branding.
- The CBO members themselves will meet incremental costs from their labour supply and cash accruing from the sale of compost. The CBO has sufficient labour to sustain composting operations and is envisaging expanding their activities to other areas of Kibera slum.
- When sufficient funds are generated from the composting activity, some of the income can be used to initiate other supportive income generating activities e.g. through organic vegetable production.
- By creating linkages to agro-shops and increasing income generating power of the CBOs through compost sales, the CBO will be strengthened financially with envisaged self-perpetuating linkages that can be sustain composting process in the long run.
- Technology of composting promoted is envisaged to have positive impact on the environment by reducing waste accumulation at the household and markets.

- The CBO participating in the project has its own leadership hierarchy. The pilot will strengthen the operations of the CBO including accountability and record keeping and to institute measures to ensure the operations of the group continue beyond the project period.

#### *Anticipated impacts of the composting unit*

The following are the anticipated impacts of the project:

- Reduced waste accumulation at household and at market levels;
- Provision of employment to community members;
- Enhanced unity and cohesion among the community members either directly through participating in pilot activities or indirectly through on-going peace building initiatives by the CBO; and
- Income generation for the CBO and group members.

No negative environmental impacts are anticipated by members of the CBO.

#### *Anticipated risks*

- As income gets generated by the CBO through composting, household waste might have a cash value in the future
- The development of quality standards

#### *Exit strategies*

At the end of the pilot project phase, it is envisaged that:

- The cost of branding would be met by the cash generated from the pilot phase in a self-perpetuating manner.
- Other income generating activities would have been started alongside composting e.g. vegetable gardening that uses compost produced by the CBO. Vegetable production will be started before the end of the project period alongside the pilot project on marketing compost.