



Solid Waste Management

A Social Business for Waste Management

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Entrepreneur Background

- **Moral Noor Mohammad (Ashoka Fellow)**
- **Executive Director RUSTIC (Rural Unfortunates Safety Talisman Illumination)**
- **RUSTIC is currently a non-government, and non profit voluntary organization involved in environmental management and socio-economic development in Bangladesh.**
- **It currently conducts a Solid Waste Management Program in Khulna City Corporation. The program has 2 major components.**
 - ❖ **House to House Waste Collection (Household Waste Products)**
 - ❖ **Composting**

Mission

- **Protect the environment and deduce health hazards by introducing an organized household waste collection system**
- **Produce high quality compost and improve production efficiency: quality and quantity**
- **Recover valuable by-products (paper, plastic, metal others)**
- **Lower the costs associated with waste disposal**
- **Create awareness about the benefits of compost versus chemical fertilizers.**
- **Improve occupational health and safety.**
- **Extend the Compost Plant and recycling coverage to cover greater areas of the city.**

Vision

- **Protect soil organic matter (OM) and help raise it to the optimum level (5%) level**
- **Install sound technology for compost production efficiency**
- **Promote market linkages with different stakeholders**
- **Reduce Carbon emissions and protect Biodiversity**

Business Objective:

- To protect the environment and save agricultural lands from soil disaster by producing and marketing high quality compost made from household waste materials.



What is the Social Problem?

◆ Risk of Soil Disaster:

-Indiscriminate use of unbalanced chemical fertilizers has significantly reduced soil fertility of farmlands.

-Bangladesh is at high-risk due to reduced percentage of organic fertilizer use. (Optimum rate: min 5% whereas the current rate <1.5%)

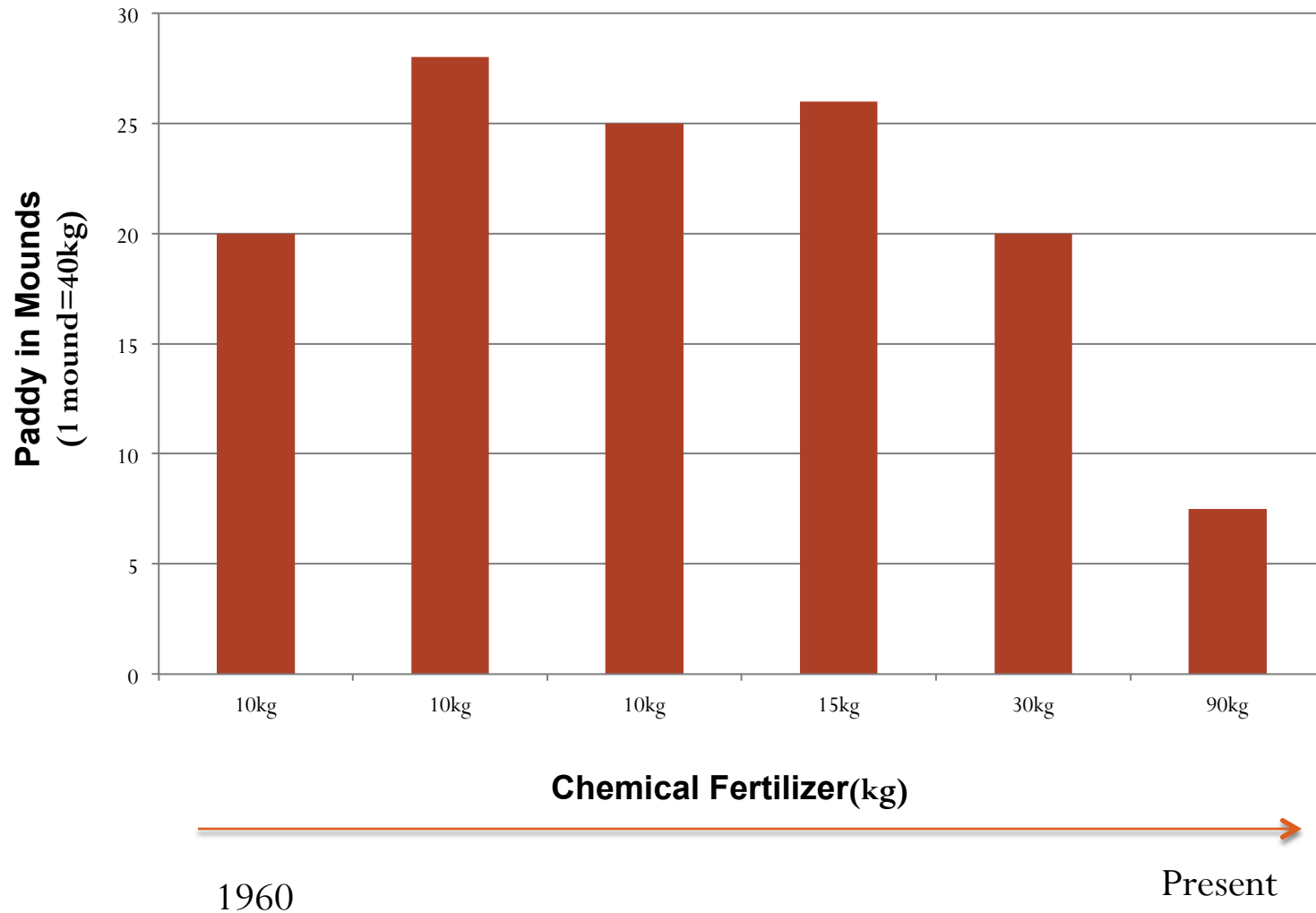
◆ Lack of Awareness and Knowledge:

-Most farmers and landowners have no or limited knowledge on land fertility and the importance of organic compost.

◆ Health and Safety Hazards resulting from the improper disposal of household waste: 250000 households in the Khulna City Corporation (KCC) area dump an average 350-400 metric tons of garbage daily creating the problem of unmanaged waste in the city



Chemical Fertilizer Vs Paddy Output



How it can be overcome?

- ◆ **Better management of household waste materials:** By engaging trained garbage collectors to collect wastes from households and transferring them to proper recycling and disposal sites will help reduce the indiscriminate dumping of wastes which create many environmental and health hazards.
- ◆ **Transforming waste materials into compost for sale will:**
 - Reduce the use of inorganic fertilizers
 - Maintain nutrient balance of the soil
 - Reduce the cost of cropping

PRESENT ACTIVITIES:

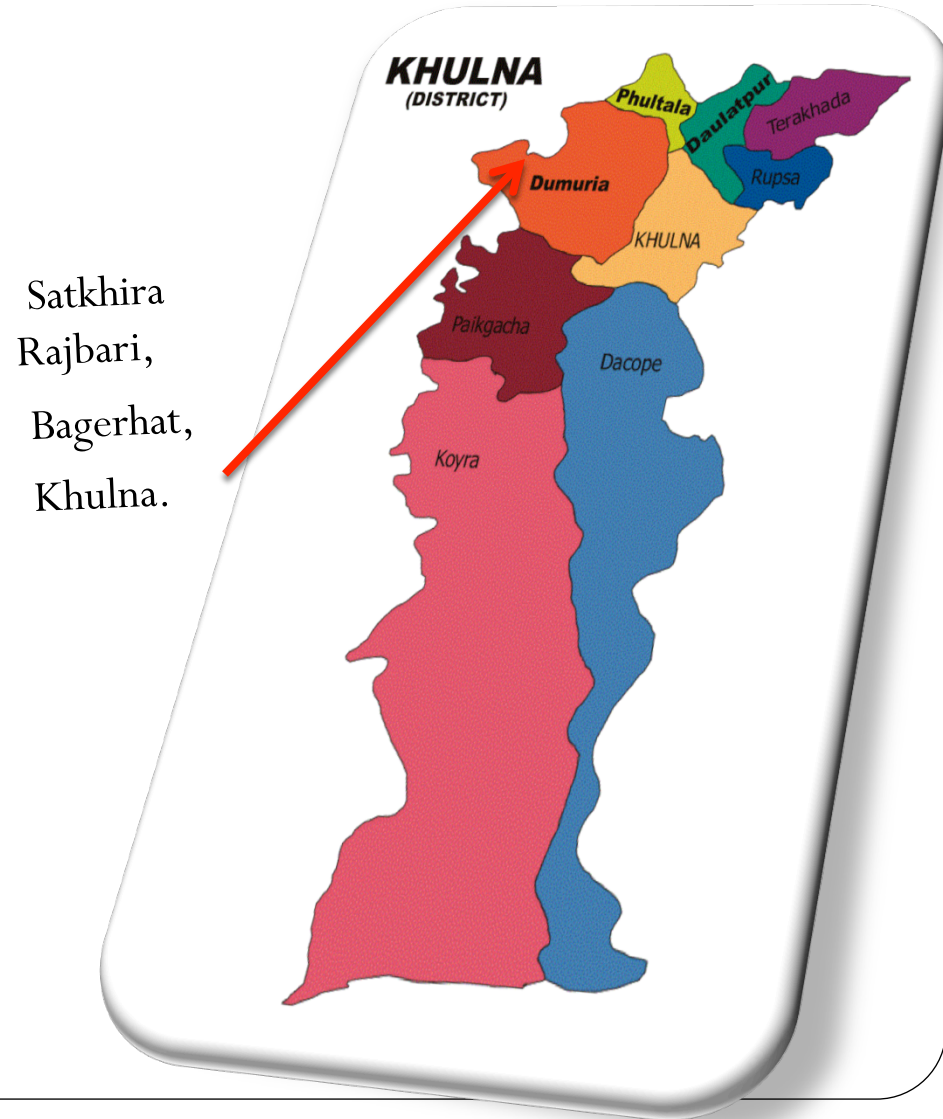
- **RUSTIC** currently conducts a Solid Waste Management Program in Khulna City Corporation.

PROJECT LOCATION:

- Its activities cover the area of Satkhira, Rajbandh, Batiaghata, Khulna.

Existing Production:

Garbage collectors collect approximately 9-12 MT of garbage from which 1200-1500 kgs of compost is produced daily



What we do:

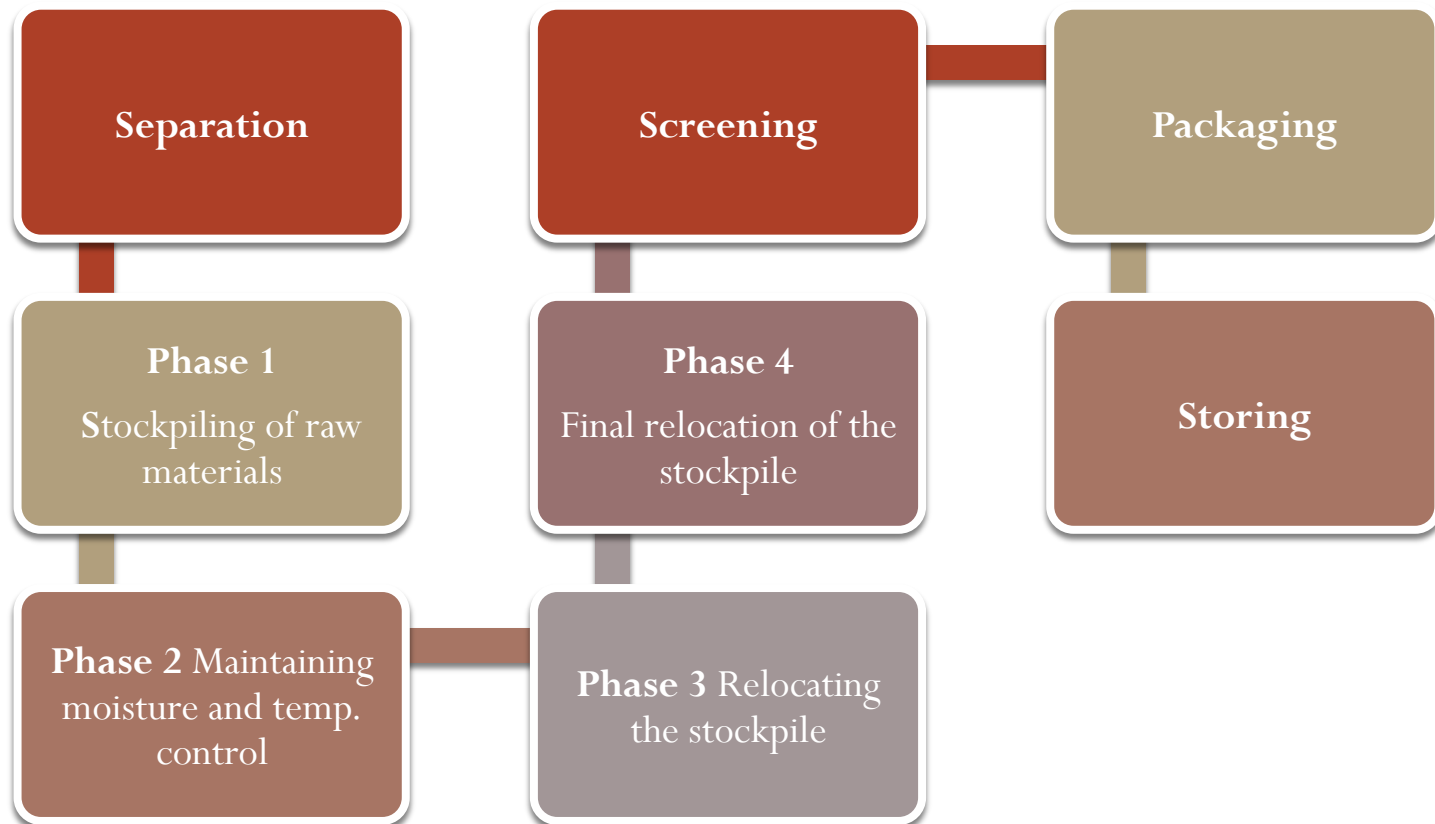
THE Program has two major components

a) House to House Waste Collection

- **A team of 32 staff members run 16 pedal vans to collect waste materials from household to household.**
- **Each garbage collector serves approximately 300 households collecting a total of 9-12 MT of garbage daily.**
- **Recyclable materials are separated from the non-recyclable items after collection.**
- **The recyclable wastes are transferred to a composting site. Non-recyclable wastes are transported to a final dumping ground.**
- **Each slum household pays TK 5 and city homes pay TK 30 for the waste collection service.**


b) Composting

- Organic wastes are transferred to RUSTIC's composting plant. The composting plant has 2 composting sheds, 1 separation shed, and 3 store rooms. The Composting Process involves:




Transforming Waste into Organic Compost


Phase I: Stockpiling of raw materials: Process uses a triangle ventilation base to stockpile the organic waste in a 20:1 ratio. It is 240 square feet size.



Phase II: Maintaining moisture and control of temperature, includes spraying water over the stockpile and recording the temperature until it reaches 50C. This continues for 10-12 days.



Phase III: Relocating the stockpile. This involves shifting the pile to a new base so that the materials on the top reach the bottom and vice versa. The temperature is maintained at 50C for 14-15 days.



Phase IV: Final relocation of the stockpile: This is when the stockpile is shifted again to a new base and the materials mature to compost. The final product is screened manually and takes 12-15 days.

Our Target Customer and Selling Price:

i) Who is our Customer:

ACI (Local Bangladeshi company), NGOs, local farmers'

ii) Selling Price:

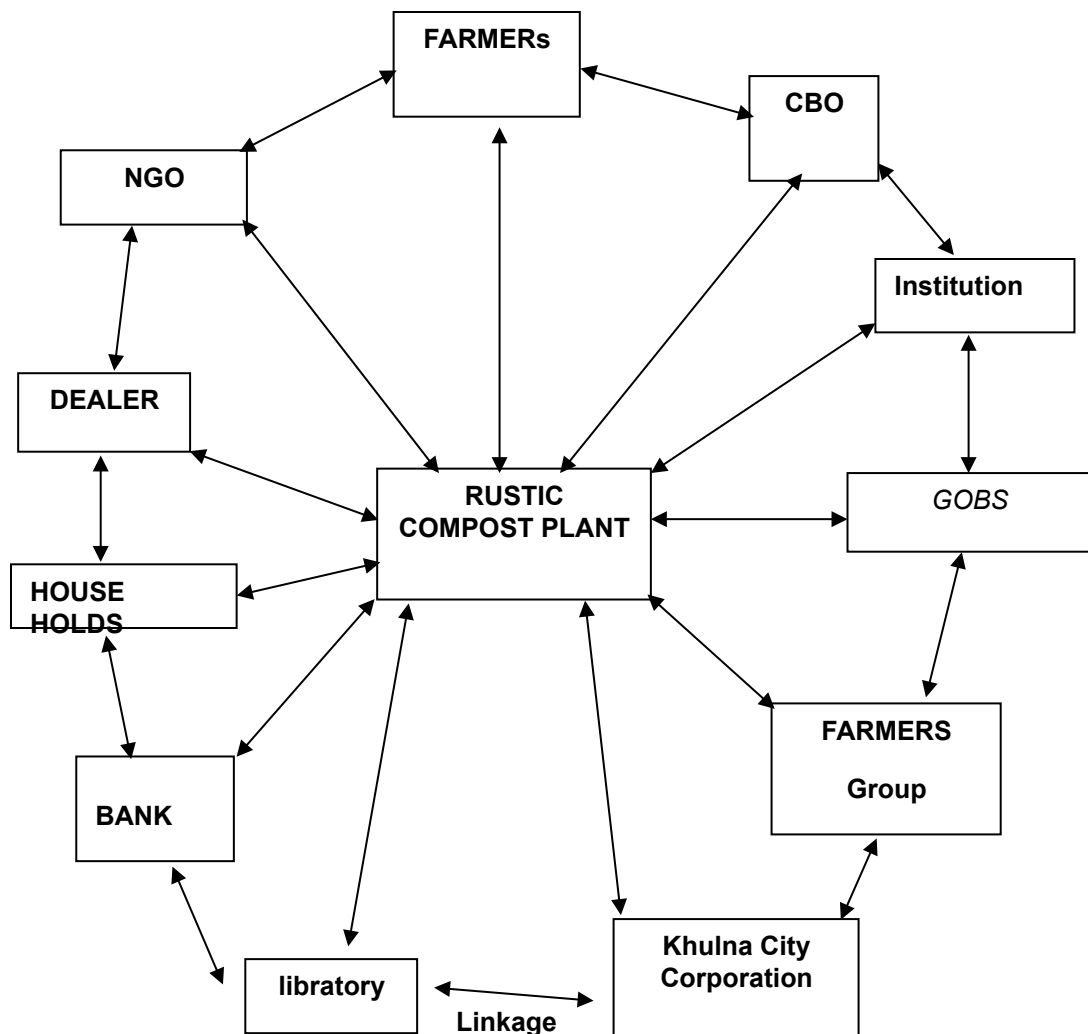
ACI , P/Kg: 8 Tk.

NGO's P/Kg :TK 12.

Local Farmers : P/Kg TK 10.



Marketing and Distribution:



The compost is presently being supplied to farmers in the south-west region of Bangladesh

RUSTIC has made an agreement with ACI Company Ltd. to supply 1500MT of RUSTIC-Compost Joibashar over a period of 2 years

A local NGO purchases 7 tonnes pf compost monthly

Existing Project Cost:

□ Existing Investment Cost: Tk. 1, 09, 95,500/=

□ Land (47 DCM)

- Compos shad (60ft x30 ft semi paka, 3
- Separation Shad = 40 ft x 30 ft (semi paka, 1)
- Store = 15 ft x 10ft , Semi paka, 3)
- Water pump
- Waste water reserve tunky

Equipment:

- i) Forma (made by bamboo, no : 55)
- ii) Balcha
- iii) Achla
- iv) First AID box
- v) Gunbood/Mask/Glove /Basket etc



Financials

Year	Sale (Tk)	Expenditure (Tk)	Income (Tk)	Remarks
2012-2013	20,16,000.00	13,49,000.00	6,67,000.00	
2011-2012	14,07,000.00	11,27,000.00	2,80,000.00	
2010-2011	9,63,000.00	6,82,000.00	2,81,000.00	

Social Impact

- Better utilization planning of raw materials (compost, solid waste, gas and energy).
- Recovery of valuable by-products (paper, plastic, metal others)
- Less pollution of environment (air, water etc.)
- Lower cost for waste disposal
- Improved public image in favor of compost against chemical fertilizer.
- Improved occupational health and safety.
- Reduction of Carbon and protection of Biodiversity.

