

**Commissioner of Industries
Hyderabad
Andhra Pradesh**

Biofertiliser from Solid Municipal Waste

1. Introduction

The solid waste management deserves priority from point of view of environment protection and pollution control as the waste is one of major sources creating health hazards in every town/village. The conversion of the into a useful product like biofertiliser not only protects the environment avoiding health hazards, also gives a useful product for local use giving good returns to the returns to the manufacturer of fertiliser.

The biofertiliser with nitrogen fixer, azospirillum & phosphate solubalizer fixes 20-40 kgs of Nitrogen per hectare cutting down the requirement of chemical fertiliser by 35-40%, helps fast growth of the roots, increases plant absorption capacity of micronutrients and water by which the plant can easily withstand the condition of water scarcity for some time. Also it solubalises the available phosphorous in the soil and increases the growth of the Plant. The biofertiliser eco balance the soil fertility lost by using in the yield is assured with biofertiliser and continuous usage of biofertiliser makes the soil very fertile for good yield. The biofertiliser can be manufactured in solid form or in liquid form for spraying on the plants.

II. Market Status & Scope

There is good market potential for biofertilisers in the fields, nurseries, gardens, etc. The users are to be educated on benefits derived out of biofertiliser which condition the soil for fertility removing adverse effects effects of chemical fertilisers. There are a few famous brands in the market like Tata's Ralli Gold. The product also finds very good export potential.

Out of the total requirement of fertiliser in the country, about 10-15% can be estimated to be the demand for biofertiliser at present which can increase gradually with increase of awareness among the users. The users, once use the biofertiliser, will gradually switchover to biofertiliser discounting the usage of chemical fertilisers to protect the fertility of the soil.

III. Installed Capacity

The project suggested is with an installed capacity of 3000 tons annually on two shifts basis and 300 working days. The suggested production capacities are 80% in 1 year and 9% from II year onwards.

IV. Process

Solid municipal waste collected is segregated for organic matter which is degraded with micro bacterial culture using organic formulations for about 15-20 days. This degraded bacterial cultured waste mixed with now dung is used with verms to form Vermi compost. The Vermi compost is further added with special bacterial solutions/microbes and packed. Different bacterial solutions are used for different crops like paddy, sugar cane, wheat etc.

The technology is available from M/s Terra Firma Bio Technology Ltd., Bangalore which is supposed to be obtained by paying technology fee.

V. Land & Building

The project requires a land of 4 acres own or on lease and an open shed of about 40'x 150' and on RCC roofed building of about 10'x20'. The total costs towards shed, building and other civil works amount to Rs. 17.30 lakhs.

VI Plant & Machinery

The required machinery & equipment include handling equipment; laboratory equipment including air tight containers to store bacteria; analysing equipment for nitrogen, phosphate & potash; sensitive balance; sieving machine; weigh balance; motorised mixer, office equipment and furniture. The total machinery and equipment costs about Rs. 25.0 lakhs.

VII. Raw Materials

The required raw materials are waste, formulations and base materials to form bacterial solutions, cow dung and worms. The raw materials cost Rs.12.15 lakhs annually in II year of operation at 90% capacity.

VIII. Utilities

The project requires a connected power of 35.0 H.P and 15.0 kilolitres of water per day from canal, bore well or municipal supply. The total costs towards utilities in II year at 90% capacity utilisation amount to Rs.1.44 lakhs.

IX. Working Capital Requirement

The project requires two months stock of packing material, one months utilities, one month's salaries, two months for work in process, one month's finished stock and one month's bills receivable. The working capital requirement works out to Rs.16.24 lakhs in II year at 90% capacity.

X. Preliminary & Pro-operative Expenses

The total preliminary & pre-operative expenses amount to Rs.7.0 lakhs and these are the costs towards technology, project report preparation, travelling, salaries, interest, trial production, deposits & contingencies.

XI. Project Cost

Particulars	Rs. lakhs
1. Project Cost	
a) Land	Lease
b) Building	17.30
c) Tools & equipment	19.00
d) Miscellaneous fixed assets	6.00
e) Preliminary & preoperative expenses including deposits	7.00
Total fixed capital	49.30
f) Working capital margin (III year)	4.83
Total project cost	54.13

XII. Annual Operating Results (at 90 % capacity utilisation in II year)

Particulars	Rs. lakhs
A. Cost of Production	
a. Rent/lease	1.20
b. Raw material	12.15
c. Utilities	1.44
d. Salaries	10.80
e. Packing materials	1.60
f. Repairs, maintenance, insurance	0.38
g. Depreciation	1.67
h. Telephone & post	0.27
i. Selling expenses	0.27
j. Preliminary & preoperative expenses written off	1.20
k. Interest	8.10
l. Administrative overheads	
Total	39.08
B. Net sales	53.50
C. Profit before tax	14.42
D. Break even point (% of installed capacity)	33.0%
E. DSCR	1.50
F. Cumulative cash surplus (by the end of V yr.)	25.80
G. Rate of returns on promoters contribution before taxes	91.0%