

# PROJECT PROFILE

## NPK FERTILIZERS

PREPARED BY



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## 1.1 INTRODUCTION

**Fertilizers** are soil amendments applied to promote plant growth, the main nutrients added in fertilizer are nitrogen, phosphorus, potassium, other nutrients are added in smaller amounts. Collectively, the main nutrients vital to plants by weight are called macronutrients, including: nitrogen (N), phosphorus (P), and potassium (K) (i.e. **N-P-K**). Ammonia is main source of nitrogen. Urea is the main product for making nitrogen available to plant. Phosphorous is made available in form of super phosphate, Ammonium phosphate. Muriate of Potas (Pottasium Chloride) is used for supply of potassium.

Synthetic macronutrient fertilizer can be referred to as *artificial* or *straight*, where the product predominantly contains the three main nutrients. **Compound fertilizers** are *N-P-K* fertilizers with other elements purposely intermixed. Fertilizers are classified according to the content of these three elements.

Labeling is according to relative amounts of each of the three elements by weight (i.e, *mass fraction*). *Nitrogen* percentage is reported directly, however *phosphorus* is reported as the mass fraction of phosphorus pentoxide and *potassium* is reported as the mass fraction of potassium oxide ( $K_2O$ ).

India is the 3rd largest fertilizer producer in the world. In India chemical fertilizers played a significant role which is well recognized and established for the success in agriculture sector, not only in terms of meeting total requirement of food grains but also generating exportable surpluses.

## 1.2 TECHNOLOGY AND PROCESS

The raw materials Urea, DAP, MoP is crushed to desired size and screened before being fed to feed hopper. The raw materials are fed to granulator through weigh feeder. A shower is fitted in the granulator section, which moisturizes the material, if necessary. This moisture of the moisturized material is minimized up to 1% in the dryer

section with the help of the flights fitted in there. After the successful granulation and drying process the semi-finished product is transferred to the cooling section of the drum. The cooler section of the drum sucks the cool air from outside which in turn cools as well as contracts the dried material.

The semi finished goods are screened and undersized and oversized material are sent back to crushing section using belt conveyors.

The finished material henceforth produced by the above manufacturing process is transferred to the “Finished goods Hopper” to the elevator. This finished material is packed in the empty HDPE bags in pre-decided weights (50 Kg) after thorough inspection that is finally stored in the “Finished Goods shed” manually.

### **1.3 MARKET**

According to fertilizers association of India during the Year 2008-09 the production of Fertilizers in India was 143 Lakhs Tons and India had to import over 100 Lakhs Tons to meet the domestic requirement. Of the imported products 23% or (23 Lakhs Tons) were NPK Grade Fertilizers. The demand Supply Gap in southern zone of India is estimated to be over 7 Lakhs Tons.

### **1.4 INVESTMENT**

The investment (Project Cost) requirement for setting up a NPK Fertilizers Granulation plant with 400 TPD installed capacity would be around Rs. 1700 Lakhs and the breakup of the cost of the project is tabulated below.

The land requirement for the project would be around Acres 6.00. The pre-operative expense includes Interest during construction of Rs. 52.50 Lakhs. All the equipments required for the project are available indigenously. The project will take around 9 months time for commissioning from the date of financial closure.

**Table 1: Project Cost**

(Rs. Lakhs)

Description	Amount
1. Land & Land Development	25.00
2. Buildings & Civil works	685.00
3. Plant & Machinery	568.00
4. Other Fixed Assets	90.00
5. Misc. Fixed Assets	103.00
7. Deposits	25.00
8. Preliminary & Pre-operative Expenses	94.00
9. Margin Money for Working capital	110.00
<b>Total</b>	<b>1700.00</b>

Suggested means of finance is tabulated below.

**Table 2: Means of finance**

(Rs. Lakhs)

Description	Amount
1. Equity from Promoters	600.00
2. Term Loan	1100.00
<b>Total</b>	<b>1700.00</b>

The debt equity is considered as 1.83:1 with 15% as interest on term loan.

The product mix and the sales prices are as follows

NPK Fertilizers Grade	Installed Capacity (TPA)	Sales Price (Rs. Per MT)
17:17:17	60000	8400
20:20:00	9000	7500
20:10:10	9000	7200
18:18:09	3000	7800
5:15:15	3000	5300
10:26:26	3000	8700
14:35:14	3000	9000
15:15:15	12000	7250
12:32:16	3000	8800
22:00:11	3000	5400

19:19:19	12000	8600
<b>TOTAL</b>	<b>120000</b>	<b>8400</b>

The unit can reach 80% of its installed capacity within 3 years of operations and can work for 300 days a year and needs around 45 direct manpower and 15 administrative manpower to operate.

## 1.5 RETURNS

The returns from the project are adequate enough to repay the term loan in 6 years time from the date of commercial operations. The key financial indicators of the project are tabulated below.

**Table 3: Key Financial Indicators**

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Total Income	5769.00	6249.75	6730.50	7211.25	7692.00	7692.00	7692.00	7692.00
Total Variable Costs	4917.94	5325.77	5734.03	6142.76	6552.01	6559.62	6567.84	6576.71
Total Fixed Costs	156.09	169.71	183.86	198.58	213.93	221.56	227.21	236.44
Total Expenditure	5074.03	5495.48	5917.89	6341.34	6765.94	6781.18	6795.05	6813.15
PBIDT	694.97	754.27	812.61	869.91	926.06	910.82	896.95	878.85
Profit Before Tax (PBT)	427.79	509.30	591.96	673.58	754.06	761.77	767.34	749.30
Profit After Tax (PAT)	322.98	368.66	416.18	463.94	511.75	512.22	511.88	496.47
<b>Cash Accruals</b>	<b>390.56</b>	<b>436.24</b>	<b>483.76</b>	<b>531.52</b>	<b>579.33</b>	<b>579.80</b>	<b>579.46</b>	<b>564.05</b>
Term Loan Repayment	160.00	188.00	188.00	188.00	188.00	188.00	0.00	0.00
Closing Balance	236.16	478.22	767.80	1105.15	1490.32	1884.99	2464.55	3028.74
BEP (Op Capacity)	46.82%	41.69%	37.17%	33.32%	30.04%	28.83%	27.75%	28.86%
Gross DSCR	1.75	1.80	2.04	2.34	2.71	2.90	-	-
Average Gross DSCR	2.19							
Net DSCR	2.46	2.34	2.59	2.84	3.10	3.10	-	-
Average Net DSCR	2.74							
IRR	33.14%							