

COST ESTIMATION

Fixed capital investment for cost index of 300 = Rs 3.6×10^8

Cost index for 2002 = 402

Therefore present fixed capital investment = $3.7253 \times 10^7 \times (402/300)$
=Rs 482 400 000

Estimation of total investment cost:

1) Direct cost:

a) Purchased equipment cost:(15 – 40% of FCI)

Assume 30% of FCI

=Rs 144 720 000

Installation cost:(35 – 45% of PEC)

Assume 35%

=Rs 50 652 000

c) Instrument and control installed:(6 –30% of PEC)

Assume 25% of PEC

=Rs 36 180 000

d) Piping installation cost:(10 –80% of PEC)

Assume 60%

=Rs.86 832 000

e) Electrical installation cost:(10 – 40% of PEC)

Assume 35% of PEC

=Rs 50 652 000

f) Building process and auxilliary:(10-70% of PEC)

Assume 60%

=Rs 86 832 000

g) Service facilities:(30-80% Of PEC)

Assume 50%

=Rs 72 360 000

h) Yard improvement:(10-15% of PEC)

Assume 10%

=Rs 14 472 000

i) Land:(4-8% of PEC)

Assume 6%

=Rs 8 683 200

Therefore direct cost =538 358 400

Indirect cost:

Expenses which are not directly involved with material and labour of actual installation or complete facility

a) Engineering and supervision:(5-30% of DC)

Assume 25%

=Rs 134 589 600

b)Construction expenses:(10% of DC)

=Rs 53 835 840

c)Contractors fee:(2-7% of DC)

Assume 6%

=Rs 32 301 504

d)Contingency:(8-20% of DC)

Assume 12%

=Rs 64 603 008

Therefore total indirect cost =Rs 285 329 952

Fixed capital investment:

Fixed capital investment(FCI) = DC+IC

= Rs 823 688 352

Working capital investment:

10 –20% of FCI

Assume 16%

=Rs 107 079 486

2) Total capital investment:

= FCI + WC

=Rs 930 767 838

Estimation of total product cost(TPC):

Fixed charges:

a) Depreciation:(10% of FCI for machinery)

=Rs 82 368 835

b) Local taxes:(3-4% of TPC)

Assume 3%

=Rs 42 625 872

c) Insurances:(0.4-1% of FCI)

Assume 0.7%

=Rs 5 765 818

d)Rent:(8-12% of FCI)

Assume 10%

=Rs 82 368 835

Therefore total fixed charges = 213 129 360

But, Fixed charges = (10-20% of TPC)

Assume 15%

Therefore Total product cost = 1 420 862 400

Direct production:

a) Raw material:(10-50% of TPC)

Assume 40%

=Rs 568 344 960

b)Operating labour(OL):(10-20% of TPC)

Assume 15%

=Rs 213 129 360

c)Direct supervisory and electric labour:(10-25% of OL)

Assume 20%

=Rs 42 625 872

b) Utilities:(10-20% of TPC)

Assume 15%

=Rs 213 129 360

c) Maintenance:(2-10% of FCI)

Assume 8%

= Rs 65 895 068

d) Operating supplies (OS):(10-20% of maintenance)

Assume 15%

=Rs 9 884 260

e) Laboratory charges:(10-20% of OL)

Assume 12%

=Rs 7 907 408

f) Patent and royalties:(2-6% of TPC)

Assume 4%

=Rs 56 834 496

Plant overhead cost:

50-70% of (OL+OS+M)

Assume 65%

=Rs 187 790 647

General expenses:

a) Administration cost:(40-60% of OL)

Assume 50%

=Rs 106 564 680

b) Distribution and selling price:(2-30% of TPC)

Assume 20%

=Rs 284 172 480

c) Research and development cost:(3% of TPC)

=Rs 42 625 872

Therefore general expenses(GE) =Rs 433 363 032

Therefore manufacturing cost(MC)= Product cost+fixed chages+Plant overhead expenses

=Rs1 821 782 407

Total production cost:

Total production cost =MC + GE

=Rs 2 255 145 439

Gross earnings and rate of return:

The plant is working for say 320 days a year

Selling price =Rs. 35 /kg

Total income = $1500 \times 320 \times 1000 \times 35 = \text{Rs}1.68 \times 10^{10}$

Gross income =Total income – total product cost

=Rs 1.5379×10^{10}

Tax =50%

Net profit =Rs7 689 568 800

Rate of return =net profit/total capital investment

=82.615 %