

11.0 Economic Analysis

This chapter presents the Economic Analysis of the project. The objective of Economic Analysis is to look at the project from the macro economic point of view. The Economic Analysis has been concluded in accordance with the practice as laid down World Bank Technical paper no. 33 “Guidelines for calculating Financial and Economic Rates of Return for DFC Projects” by J. Christian Duvigneau and Ranga N Prasad.

11.1 Calculation of Standard Conversion Factor

The Standard Conversion Factor (SFC) is the factor, by applying which, financial costs and non-tradable are converted to economic costs. It is defined as follows:-

$$SFC = \frac{M + X}{(M + T_m) + (X - T_x)}$$

Where,
M = CIF value of all imports into Bhutan , X = FOB value of all exports from Bhutan
T_m = Total import duty collected by Bhutan, T_x = Total export duty collected by Bhutan

Substituting these values, the SFC for Bhutan works out to 0.993. Details of this calculation are given in table 11.1.

Year	2004	2005
Import (CIF)	18639.49	17035.07
Export (FOB)	8271.15	11386.17
Import Duties	230.77	157.18
Export Duties	0.34	0.87
SCF	0.992	0.995
Average SCF	0.993	

Table 11.1: Standard Conversion Factor

11.2 Calculation of Shadow Cost

The bases of calculating shadow costs are given in table 11.2 and table 11.3.

S. No.	Item	Treatment Given
1	Land & Site Development	Land is to be acquired on lease basis. So it has not been converted.
2	Building & Civil Structure	These have been converted at the SCF.
3	Plant & Machinery	Import duty/ excise duty components have been removed as these are transfer payments.
4	Pre-operative Investment	Interest has been ignored as it is a transfer payment.
5	All Other Items of Capital Costs	Reckoned at the financial cost.

Table 11.2: Shadow Costs –Capital Cost

S. No.	Item	Treatment Given
1	Sale price of Packaged Natural Mineral Water	These items have been reckoned at the financial cost.
2	Raw Material	Reckoned at the financial cost.
3	Utilities	Converted at the SCF.
4	Salaries & Wages	Converted at a factor of 0.5 considering the unemployment levels.
5	Overheads	Reckoned at the financial cost.
6	Interest	Not considered since this is a transfer payment.
7	Corporate Tax	Not considered since this is a transfer payment.

Table 11.3: Shadow Costs: Revenue Costs

11.3 Discounted Cash Flow

The discounted cash flow statement, which details regarding total cash inflow, total cash outflow and net cash flow has given in the following table and calculated for the construction period and next 10 years. Financial expenses and taxation have not been taken as these are considered as transfer payments.

Discounted Cash Flow Statement

(Nu. in Lacs)

S. No.	Particulars	Years	Construction Period										
				1	2	3	4	5	6	7	8	9	10
1	Inflows												
1.1	Net Profit after taxation		0.00	117.27	149.32	185.91	184.51	183.48	182.29	187.91	200.34	198.58	195.42
1.2	Depreciation		0.00	33.59	33.59	33.59	33.59	33.59	33.59	23.59	3.59	3.59	3.59
1.3	Preliminary exp. w/off		0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
1.4	Pre operative exp. write off		0.00	0.00	5.01	5.01	5.01	5.01	5.01	5.01	5.01	5.01	5.01
1.5	Net Cash Accrual before Dividends		0.00	150.96	188.02	224.61	223.21	222.19	220.99	216.61	209.04	207.28	204.13
1.6	Add : Financial Expenses		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.7	Less: Increase in Working Capital		0.00	72.42	12.07	12.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.8	Cash Flow from Operations		0.00	78.54	175.95	212.54	223.21	222.19	220.99	216.61	209.04	207.28	204.13
1.9	Salvage Value		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.10	Total Inflow		0.00	78.54	175.95	212.54	223.21	222.19	220.99	216.61	209.04	207.28	204.13
2	Outflows												
2.1	Investment (Excl. Margin Money)		319.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.2	Loan for Working Capital		44.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.3	Total Outflows		363.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Net Cash Flow		-363.99	78.54	175.95	212.54	223.21	222.19	220.99	216.61	209.04	207.28	204.13

Table 11.4: Discounted Cash Flow Statement

The project has been designed to manufacture four categories of bottles 200ml, 500 ml, 1000ml and 2000 ml .The product mix will depend on the market needs in the upper range mineral / premium mineral water segment, comprising the airlines, star category hotels, top corporate clients and higher end tourists coming to India and Bhutan.

- Economic Internal Rate of Return (IRR) 44.00%
- Net Present Value (NPV) Nu. 699.91 Lacs
- Weighted Average Cost of Capital (WACC) 12%

The Economic Rate of Return (EIRR) is 44.00%, which is higher than the WACC of 12%. Hence the project is economically viable.