CHAPTER FOUR

PROJECT APPRAISAL PROCESS: THE MODEL OF INDIAN DEVELOPMENT FINANCIAL INSTITUTIONS
This chapter attempts to study the project appraisal process in Indian development financial institutions (DFIs), viz. ICICI, IDBI, IFCI and HSIDC. The financial institutions carry out detailed technical, marketing, financial, economic and management analysis of a project. The financial and economic appraisal of projects by DFIs have been studied in detail. Financial appraisal has been presented in section 3.1 and economic appraisal in section 3.2.

DFIs are supposed to be catalytic agents in the establishment of industrial projects of socio-economic importance besides playing the conventional role of supplying term capital. As development agencies, these institutions perform such functions as setting up of industries away from the metropolitan areas, development of backward areas and diffusion of entrepreneurship. DFIs provide term loans and participate in the risk capital of industrial concerns.

All bankable projects are not necessarily economically desirable, nor is every economically desirable project necessarily bankable. A DFI will not achieve its development objective if it devotes its limited capital exclusively to bankable projects irrespective of their purpose. At the same time it can not afford to ignore the financial aspect of proposals and thereby run the risk of

The DFIs consider following factors while appraising a project:

(i) The industrial concern which have received licence under the Industries Development and Regulation Act, 1951 and have got a certificate of incorporation are eligible to seek financial assistance from DFIs;

(ii) whether the project is technically feasible and sound and production process is such that it will not cause pollution;

(iii) whether the project as visualized in technical analysis can be managed by the proposed organisation;

(iv) whether the project is in the non-traditional industrial sector, viz. engineering, petro-chemicals, machine-making. (A list of industries where assistance is not available is given in Annexure V);

(v) whether the marketing strategy is in consonance with the prevailing and expected competitive
environment;

(vi) whether the project is viable and its financing pattern within the established norms;

(vii) the economic and social aspects of the projects such as development of backward areas, employment potential, growth of ancillary industries, use of indigenously available technology or process know-how, and raw materials, and international competitiveness of project. Thus, project appraisal is based on a set of criteria laid down in relation to these objectives. The institutional experience has shown that in project appraisal nothing should be taken for granted. The appraisal, therefore, requires a systematic examination, not only of the intrinsic soundness of the project, but also of all the circumstances surrounding it. In practice, this involves appraisal of project from technical, financial, economic and managerial-cum-organisational angles. The study of these aspects may overlap, and a particular topic may be considered from several points of view. Therefore, it can be best done by an inter-disciplinary group, comprising engineers, financial analysts, economists and management experts.

Most of the data for appraising the project is included in the details submitted by the promoter in
accordance with prescribed application form. Further data may be gathered during the appraisal process.

Details of the reviews - financial and economic - made by DFIs are mentioned in the following sections.

4.1 FINANCIAL APPRAISAL

The financial appraisal of the project is primarily concerned with the assessment of viability, which in turn depends upon its profit potential and fund management. Traditionally, the objectives of financial appraisal of the project have been threefold:

i) To assess the liquidity and solvency of applicant concern if it is already in the business.

ii) To measure the margin of safety for determining as to how much debt the project would be able to bear from the viewpoint of servicing of loans and payment of interest.

iii) To assess the ability of the applicant concern for generating funds to meet its financial obligations without sacrificing growth, modernisation or stability.

Projections of production costs and working results for the first ten years of operation or for the period of loan, whichever is less, are asked for by the
financial institution. They are required to be supported by the following:

(i) Particulars of promoters;

(ii) Project particulars such as,

   a) estimate of time - schedule for capacity utilization;

   b) the technical process proposed to be adopted; Alternative processes available for manufacturing; Reasons for choosing the particular process; Comparison of project and production costs per unit under different processes;

   c) the technical arrangements made or proposed for the implementation of the project. Details of technical and financial collaboration, if any;

   d) the proposed arrangement for executive management of the project both during the construction period and for regular operations thereafter;

   e) locational advantage of land;

   f) arrangements made or proposed for construction of buildings;

   g) the basis for selection of equipment for the project. List of imported and indigenous
plant and machinery acquired/to be acquired for the project and a comment on balancing of equipments;

h) the requirement of raw materials, components, chemicals, and material balance in production. Arrangements made for obtaining raw-materials that are in short supply;

i) the sources of power and cost of power per annum at maximum capacity utilization. Arrangements made for supply of water, steam, compressed air and transport facilities;

j) the nature of atmospheric, soil and water pollution that are likely to be caused by the project and the measures proposed for pollution control;

k) the total requirement and availability of skilled, semi-skilled and unskilled labour, and the need for training programmes;

l) the proposed arrangements for housing the staff and workers;

m) the time-schedule of implementation of the project.

(iii) The estimates of cost of project.

(iv) The details of financing.
(v) Reasonable market demand that is forecast for the project. Assessment of likely competition in the future and special project features which may enable it to meet the competition.

Following aspects are examined while carrying out financial appraisal by DFIs:

(i) Reasonableness of the estimated project cost.

(ii) Examination of the terms of financial collaboration, if any.

(iii) Interest of directors of the applicant concern in other concerns, if any. The financial involvement of promoters, if any, in other projects. The financial performance of other concerns under the same management.

(iv) Basis of remuneration payable to promoters, managing director, wholetime directors, etc.

(v) Financing plan with reference to capital structure, promoters' contribution to the total project cost, debt-equity ratio and the availability of resources.

(vi) Critical examination of applicant's existing investments, if any, in other concerns or of any
trading activities other than normal industrial activities.

(vii) Assessment of requirements of working capital.

(viii) Estimates/Projections of future profitability.

(ix) Projections of cash flow both during construction and operational periods of the project and based upon capacity to service debts and share capital.

(x) Break-even analysis of project.

(xi) Assessment of financial rate of return and financial ratios, i.e. debt to equity ratio, debt service coverage ratio and cost of capital.

With effect from July 1, 1986, the DFIs adopted the recommendations of Nadkarni Committee (1981), to effectively handle the incidence of project cost overrun. Nadkarni Committee stressed the need for providing the inflation factor in the cost estimates during the implementation period. In addition, a contingency provision at a flat rate of 10% of the fixed cost, excluding margin money for working capital is recommended.

4.1.1 **Norms for providing finance**

The national institutions—IDBI, ICICI, IFCI—have
adopted jointly common agreed norms for determining the finance to be provided.

4.1.1.1 Promoter's finance

Promoters are generally required to provide the following quantum of finance:

<table>
<thead>
<tr>
<th>TABLE 4.1 : PROMOTER'S FINANCE/NORMS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Type</strong></td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>(i) Backward areas</td>
</tr>
<tr>
<td>(ii) Technocrat entrepreneur</td>
</tr>
<tr>
<td>(iii) Projects located in</td>
</tr>
<tr>
<td>&quot;A&quot; category districts</td>
</tr>
<tr>
<td>&quot;B&quot; category districts</td>
</tr>
<tr>
<td>&quot;C&quot; category districts</td>
</tr>
<tr>
<td>(iv) Others</td>
</tr>
</tbody>
</table>

Norms followed by SIDC

Refinance schemes for small and medium industries

(i) Projects set up in,

a) "A" category backward districts/regions | 12.5% |

b) "B" category backward districts/regions | 17.5% |

c) "C" category backward districts/regions | 20.0% |

2. (a) Projects in SSI sector set up by women entrepreneurs | 12.5% |

contd...
Table 4.1 contd..

<table>
<thead>
<tr>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>(b) Projects in SSI sector other than in &quot;A&quot; category backward districts/regions</td>
<td>15.0%</td>
</tr>
<tr>
<td>3. Project promoted by technician entrepreneur</td>
<td>17.5%</td>
</tr>
<tr>
<td>4. Equipment Refinance Scheme</td>
<td>20.0%</td>
</tr>
<tr>
<td>5. SRTOs owning up to six vehicles</td>
<td>15.0%</td>
</tr>
<tr>
<td>6. Modernisation assistance</td>
<td>Flexible - No fixed norms.</td>
</tr>
<tr>
<td>7. Rehabilitation assistance</td>
<td></td>
</tr>
<tr>
<td>8. Loans to units for acquiring DG sets for captive use.</td>
<td>10.0%</td>
</tr>
<tr>
<td>9. Other than those indicated above.</td>
<td>22.5%</td>
</tr>
</tbody>
</table>

* Of the project cost after excluding expenditure, if any, on project-specific infrastructure development.

The promoter is required to provide money irrespective of whether the project is an existing company or a new venture. There are, however, cases where even the promoter's contribution is provided, particularly by institutions such as SFC/SIDC, whose main objective is to help promote small and medium enterprises. All projects
that are eligible for assistance from IDBI, (either directly or through refinance), are also eligible for assistance under the Seed Capital Scheme subject to the ceiling on the project cost of up to Rs.300 lakhs (including expansion/diversification schemes).

4.1.1.2 Debt equity ratio

The norms adopted are as under:

TABLE 4.2 : DEBT EQUITY NORMS

<table>
<thead>
<tr>
<th>Category</th>
<th>Norm</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Small scale units</td>
<td>3:1</td>
</tr>
<tr>
<td>b) Medium scale units</td>
<td>2:1</td>
</tr>
<tr>
<td>c) Modernisation assistance (all units)</td>
<td>Reasonable equity base to be decided on case-to-case basis.</td>
</tr>
<tr>
<td>d) Rehabilitation assistance</td>
<td>Flexible</td>
</tr>
<tr>
<td>e) General</td>
<td>2:1</td>
</tr>
<tr>
<td>f) Seed capital assistance</td>
<td>2:1</td>
</tr>
</tbody>
</table>

4.1.1.3 Debt coverage

The debt coverage required by institutions, in new and existing projects, is approximately 1.5 times the debt. However, the norm also depends upon debt-equity ratio and debt-service ratio (DSCR).

4.1.1.4 Debt service coverage and repayment

i) Debt service coverage norm is considered vital in
determining the financial worth of a project. The norm is between 1.5 to 2; i.e. project cash flow should be such that the profits after tax and before depreciation and interest on term loans should be 1.5 to 2 times the sum of interest on term loans and the capital repayment instalment.

ii) The repayment period of loan is generally between 8 to 10 years including a two-year moratorium from the commencement of the project. However, in determining the repayment schedule, the project's cash generating capacity over 10 years is studied and debt service coverage considered.

iii) If the profit generated by the project is high, the repayment schedule is shortened so that institutions recover their loans faster.

4.1.1.5 Break even capacity utilization

Break even capacity utilization percentage is calculated for the optimum year of operation of project life. It is then compared with the industry average. It should be lower than the overall capacity utilization ratio of the project to make it viable.

4.1.1.6 Cost of capital

Cost of capital can be defined as the minimum rate of return required on the investment projects to keep the
market value per share unchanged. The market value per share will remain unaffected by debt or preference issue if the project earns, a rate of return equal to cost of raising the funds.

The costs for different sources of funds are to be taken as per development bank's guidelines which are as follows:

(a) Equity share capital : 15%
(b) Cash accruals/retained earnings : 15%
(c) Preference share capital : Preference dividend
(d) Subsidy/incentive loans : To be treated free of cost.

4.1.1.7 Internal rate of return

The internal rate of return (IRR) method is a discounted cash flow technique which takes account of the magnitude and timing of cash flows. IRR can be defined as the rate which equates the present value of cash inflows with the present value of cash outflows of an investment.

The cut-off IRR for IFCI, IDBI and ICICI financed project is 15%. Their guidelines further indicate that in case the implementation period of project exceeds one year, the first year of implementation is to be treated as a zero year, second as first year and so on. The first year of operation may, therefore, become the third or fourth year.
depending on the implementation schedule. The project life, for calculating IRR is taken as 12 years. However, in certain industries such as chemicals, petro-chemicals, and electronics, where the rate of technological obsolescence is faster, the project life can be less than 12 years.

4.1.1.8 **Analysis of working results**

Besides examination of above indicators, the DFIs satisfy themselves on other important ratios which enable them to evaluate the financial and operational soundness of the project. These ratios are,

(i) Capital output ratio

(ii) Gross profit/sales (%)

(iii) Raw materials and chemicals/value of output (%)

(iv) Salaries and wages/sales (%)

(v) Interest/output (%)

(vi) Return on capital employed

(vii) Operating profit/sales (%)

(viii) Investment per worker

(ix) Productivity per worker

(x) Average return on capital employed (%)

HSIDC is not making use of IRR and cost of capital as tool for project evaluation.

4.2 **Economic appraisal**

A major portion of DFIs lending has been in the
form of foreign currency loans, mainly spread over large and medium scale enterprises in the private sector. DFIs have principally assisted non-traditional and modern industries in the economy.

To ascertain economic cost and benefits of DFI-financed projects and their international competitiveness, ICICI undertook a study jointly with the World Bank in 1972-73. The detailed economic cost-benefit calculations were made for a sample of 42 projects from ICICI's portfolio. The economic rate of return for these projects was computed on the basis of Little-Mirrlees Manual (1968). This was pioneering effort in that Little-Mirrless methodology or cost-benefit analysis was not a part of ICICI's tool of project appraisal until then.

The IFCI introduced in 1976 the concept of domestic resource cost, which they refer to as internal exchange rate, as a tool for economic appraisal of industrial projects (See IFCI Operational Circular 15/76). IFCI started making economic appraisal of industrial projects in 1979 by following partial Little-Mirrless methodology. (See IFCI operational Circular 47/79). ICICI, IDBI and IFCI use conversion factors, derived in ICICI (1975) study. The method of economic appraisal is called as "Partial Little-Mirrless".
4.2.1 **Economic rate of return (ERR)**

The economic appraisal of industrial project is carried out by DFIs if capital cost exceeds Rs. 5 crores.

Here the capital cost of the project, working capital requirements and operating costs are analysed into tradeable, non-tradeable and labour components. These are revalued using inter-national prices, conversion factors and shadow wage rates respectively.

If the use or production of a good is likely to affect its exports then the relevant border prices to be used is the f.o.b. price and if it affects imports, then it is the c.i.f. price. Both are measured in rupee equivalent of the corresponding price in foreign exchange at the official exchange rate.

In case the supply of a non-tradeable input item gets expanded due to project's demand, its accounting price will be taken at the marginal social cost of production. The latter is estimated by breaking up the physical components of marginal inputs into tradeable and labour components and revaluing the former at their respective 'border prices', and latter at its accounting price.

In case the use of the non-tradeable input item does not result in its increased supply; and, the project's demand is met only by drawing the said input item from its
alternative use, then the relevant accounting price will be taken at the value of its marginal social product and evaluated at relative border prices. A similar approach is adopted in case where the project output itself is non-tradeable.

In order to arrive at marginal social costs/values of non-tradeable items in terms of border rupees, conversion factors discussed in the study "Economic Rate of Return : ICICI Projects" are used. These are,

**TABLE 4.3 : CONVERSION FACTORS FOR REVALUING NON-TRADEABLES**

<table>
<thead>
<tr>
<th>Category</th>
<th>Conversion Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>Tradeable = 65%, labour = 25%, residual = 10%</td>
</tr>
<tr>
<td>Building &amp; construction</td>
<td>Tradeable = 50%, labour = 25%, residual = 25%</td>
</tr>
<tr>
<td>Local engineering and other fees</td>
<td>Tradeable value is actual price</td>
</tr>
<tr>
<td>Banking charges</td>
<td>Tradeable value is 2% of actual interest.</td>
</tr>
<tr>
<td>Pre-operative expense</td>
<td>Tradeable value is 100% of actual expense</td>
</tr>
<tr>
<td>Land</td>
<td>Tradeable value = Actual Price/1.5</td>
</tr>
<tr>
<td>Stock of finished:</td>
<td>Tradeable value is:</td>
</tr>
<tr>
<td>goods, work-in process, receivable</td>
<td>0 Domestic Price of final product - Actuals = World Price of Final Product/1.5</td>
</tr>
</tbody>
</table>

contd....
Table 4.3 contd...

<table>
<thead>
<tr>
<th>Description</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw materials and stores</td>
<td>Tradeable value is actual amount divided by the weighted average difference between the C.I.F. price of raw materials and actual price paid by the project.</td>
</tr>
<tr>
<td>Working expense</td>
<td>50% is tradeable and 50% is labour</td>
</tr>
<tr>
<td>Electricity</td>
<td>Divide &quot;actual&quot; by 1.5; tradeable is 71% of this, labour is 13% and residual is 16%</td>
</tr>
<tr>
<td>Administrative salaries</td>
<td>Tradeable value is actual minus 20%</td>
</tr>
<tr>
<td>Repairs and maintenance</td>
<td>Tradeable value = Actual/1.5</td>
</tr>
<tr>
<td>Other overheads</td>
<td>Tradeable value = Actual/1.5</td>
</tr>
<tr>
<td>Selling expenses</td>
<td>Divide &quot;actual&quot; (upto a maximum of 3% of sales) by 1.5. Tradeable value is 22% of this, labour is 49% and residual is 29%</td>
</tr>
<tr>
<td>Indigenous equipment</td>
<td>= SCF = 0.70</td>
</tr>
<tr>
<td>Labour</td>
<td>= SCF = 0.50</td>
</tr>
</tbody>
</table>

Source: "Economic Rate of Return - ICICI Projects" ICICI, May 1975.

The above mentioned procedure is adopted for the major non-tradeable items. In case of minor items, where the said procedure is not practicable, a "Standard Conversion Factor" (SCF), reflecting the broad magnitude of international and domestic price differentials is used. This SCF, reckoned at 1 to 1.5, is applied to the market value of the said non-tradeable item to arrive at its tradable value. In the case of land too, SCF may be used.
In the case of labour, the accounting price termed as 'shadow wage rate' (SWR), must consider increased commitment to provide consumption goods to the employed at expense of raising aggregate savings. This reduces the resources available for investment for future growth. In case of labour, SWR reckoned at 0.5 time the actual wage rate, is recommended. In the case of administrative and other personnel, the corresponding rate shall be taken at 0.8 time the actual expenditure. The actual salaries/wages for this purpose shall include bonus, provident fund contributions, etc.

At this stage, ERR is calculated in a manner similar to IRR assuming cash-flows as recalculated. The cut-off rate to be used is basically a 'prior' information depending upon the various national parameters. A cut-off economic rate of return is generally taken as 15%.

4.2.2 Domestic Resource Cost (DRC)

DRC is used by DFIs for appraisal of projects. It seeks to measure comparative advantage in a trading world; thus, helps to identify industries/sectors for which policies of import substitution/export promotion are desirable. DRC evaluates projects according to their ability to generate net foreign exchange available to the economy. The lower the DRC, higher is the net foreign exchange earning capability of the project.
Variants of DRC are crude DRC (C-DRC) and Refined DRC (R-DRC). In C-DRC, tradeable raw materials procured locally, are included in DRC whereas in R-DRC, their foreign exchange implication is considered (by treating these as part of potential foreign exchange loss). Symbolically, they are defined as,

\[
C-DRC = \frac{X + Y + T + L + N}{P - (U + V + I)} \quad - (4.1)
\]

\[
R-DRC = \frac{X + Y + L + N}{P - (U + V + I + M)} \quad - (4.2)
\]

Where

- **X** = Charge on domestic capital
- **Y** = Depreciation on domestic capital
- **T** = Value of locally procured traded/tradeable inputs at domestic market prices
- **L** = Value of Labour
- **N** = Value of non-traded goods (excluding labour) at domestic market prices.
- **U** = Charge on imported capital
- **V** = Depreciation on imported capital
- **I** = Value of actually imported inputs at international prices
- **M** = Value of locally procured traded/tradeable inputs at international prices
- **P** = Value of output at international price
- **O** = Value of output at domestic price.
The cut-off rate for DRC is the official exchange rate plus 30%.

4.2.3 Effective Rate of Protection (ERP) Criterion

ERP measures the extent to which the structure of domestic prices allow a project to generate income (compensation to factors of production) in excess of (or short of) the level that would be possible at the international prices. Thus, it is an index of protection against international prices. A positive ERP indicates that income generated (for domestic factors) by the project exceeds the income which would have been generated at international prices. In other words, projects with high positive ERP have low international competitiveness at given domestic prices (which are higher than international prices because of protection). On the other hand, a negative ERP indicates better competitive strength of a project as its viability does not depend on domestic prices which are higher than international prices.

ERP may be expressed as the percentage by which value added at domestic prices exceeds value added at world prices. Depending upon the differences in treatment of the non-traded inputs, two variants of ERP criterion have been suggested by Balassa and Corden. They are employed as a tool of economic appraisal by DFIs.

ERP (Balassa) [ERP-B]
\[
\begin{align*}
\text{ERP (Corden)} \\
\text{[ERP-C]} \\
&= \frac{O - (I + T)}{P - (I + M)} - 1 \quad \ldots(4.4) \\
&= \frac{O - (I + T + N) - N}{P - (I + M + N) - N} - 1
\end{align*}
\]

Domestic value added + value of non-traded inputs

World value added + value of non-traded inputs.

IDBI (Operational Circular 88:93/100, 1989) studied a sample of 40 projects assisted by ICICI, IFCI and IDBI in terms of cut-off DRC and ERP criteria. It classified the projects on the basis of assumed DRC cut-off value of Rs. 14/\$ and an assumed ERP cut-off rate of 30\%. It observed that 29 out of 40 projects were acceptable on the basis of C-DRC criterion. Of the 29 projects, 27 were acceptable on ERP-C criterion and 20 on ERP-B criterion.

4.2.4 Economic review of projects by HSIDC

The HSIDC does not make use of ERR, DRC and ERP as tools for economic analysis. The HSIDC Manual for project appraisal mentions that the economic benefits of a project
to the country, in general, and the region in particular, be accounted for; and the project contribution to the establishment of ancillary industries in the region be measured.

In practice though the economic review of projects by HSIDC is confined to qualitative statements, e.g. number of persons given employment, whether a project is set-up in a backward area or not, and whether the project is import substituting or export promoting.