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INDUSTRIAL INVESTMENT PROFILES

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Vienna, Dec. 1988.

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I. Review of existing profiles

Industrial investment profile v. 86-61863 was submitted to the author as being the latest version of the format used in the Industrial Investment Division.

It became apparent, however, that other formats are currently being used. Some projects are presented in the format v. 81-28152, presumably anterior to the one mentioned above. Another format, used for Ecuadorian projects in the summer of 1988 and looking quite different from the v. 86-61863, was also submitted for comments.

The profiles are in the form of questionnaires which have to be filled out as much as possible, by the promotors.

A. Industrial investment profile v. 86-61863

1. Internal organization of the questionnaire

The profile questionnaire consists of the following sections:

1. Project description
2. Plant capacity
3. Raw materials and intermediate products
4. Utilities and energy
5. Location and site
6. Management and labour
7. Local market
8. Export market
9. Project implementation
10. Investment cost and financing
11. National economic and social benefits
12. Foreign co-operation sought

These sections cover 10 pages, to which are added a title page, a one-page summary v. 83-59681 and one page for information on the sponsors.

Comments -

The sections on the local and export markets might be placed in front. This change would avoid question 8.6. " Is there additional staff needed for export marketing" coming after section 6 about personnel. The markets, moreover, are the main determinants of product specifications and the production programme.

The first section "Project description" should include: the original idea behind the project concept, a brief description of the products, and the planned output. It might be advisable to ask questions about the planned output or the intended production programme rather than about plant capacity because capacity has to be defined very precisely, semantic-wise, in order to be correctly interpreted.

A section providing a brief description of the industrial process or technology might be added. Questions 9.1. and 9.2 would then be shifted to that section and would not be any longer under "Implementation".

The sequence of the sections would thus become:

1. Project description
2. Domestic market
3. Export market(s)
4. Industrial process (technology)
5. Raw materials and intermediate products
6. Utilities and energy
7. Location and site
8. Management and labour
9. Project implementation
10. Financial estimates
11. Economic and social benefits
12. Foreign co-operation desired

2. Marketing aspects: domestic market

This section could be somewhat re-organized and extended to include the following questions, for each product coming out of the project:

1. Are you already selling this product on the domestic market ?
2. What share of the project production (of this product) is intended for sale on the domestic market ?

3. How is the domestic market currently supplied:
   - domestic producers (list them)
   - imports

4. Is the market expanding, and how fast ?

5. What are the current market prices of the
   - domestically produced products (wholesale)
   - imported product (c.i.f.)

6. What is the trend in prices ?

7. What distribution channels will be used ?
   - wholesalers
   - retailers
   - other (specify)

8. What selling prices are contemplated ?

9. Is the marketing organization already existing or do you have to build one up ? Specify size and qualifications of the personnel needed.

10. What marketing strategy is proposed to:
    - introduce the product, and/or
    - capture a share of the market
    - meet local competition
    - compete with imports ?

11. In particular, do you intend to:
    - request protection from imports
    - offer lower prices
    - offer better quality
    - offer better servicing
    - other (specify)

3. Marketing aspects: export market(s)

Basically the same questions as for the domestic market plus those related to conditions of access and the choice of target markets.

1. What are the (export) target markets ? How were they selected, was an inquiry made or a study ?

2. Have you got staff qualified for export marketing ? Then for each market:

   1. What products are to be exported to this market ?

(If the products are dissimilar, what follows may be repeated for each product, or the questionnaire may be shaped in the form of a table with as many columns as products)

1a. In what quantity ?

1b. At what selling price (c.i.f. or f.o.b.) ?

2. How is the market currently supplied ?

2a. Is the market expanding ?

2b. What are the current market prices ?

2c. What is the trend in prices ?

3. Market access:
   - quotas ?
   - Custom Duties ?
   - Trade agreements ?

4. Product requirements:
   - specifications and quality ?
   - is adaptation necessary ?
   - packaging requirements ?

5. What distribution channels will be used:
   - exporters in home country ?
   - importers in target market ?
   - wholesalers in target markets?
   - other (specify) ?

6. What marketing strategy is proposed :
   - to enter the market ?
   - to meet competition ?

7. In particular, do you intend to offer:
   - lower prices ?
   - better quality ?
   - better servicing ?
   - other (specify) ?

4. Financial estimates

The approach of the questionnaire v. 86-61863 is traditional, that is, investment is estimated and then financed. A few remarks can be made.

Concerning sub-section 10.1 on investment:

i. If working capital is added to total fixed investment, the sum is "total investment" and not "total initial investment" as mentioned in the existing questionnaire. Total initial investment is the sum of total fixed investment and initial working capital. Furthermore, it can be assumed that the caption "working capital" actually means "net working capital".

ii. In order to estimate net working capital, it is necessary to know about operating expenses and the values (and conditions) of sales. Total sales, and their breakdown, were presumably mentioned in the sections on project description, domestic market and export market(s). Most of the operating expenses already appeared in the sections on raw materials and intermediate products, utilities and energy, and management and labour. Various overhead expenses and marketing expenses should appear here if they have not been estimated earlier in the questionnaire.

Concerning sub-section 10.2 on financing:

Financing in most cases can only be hypothetic except if the project has reached the stage of feasibility study. Before thinking about finance, it is appropriate to have some assurance that the project will be viable and will generate sufficient profit to interest both lenders and shareholders. To establish this point, it is necessary to have a full financial picture of the project even though the estimates may be rough at the beginning (at the opportunity or pre-feasibility stage). This section of the questionnaire should therefore reflect this requirement, hence the change in title (from "investment cost and financing " to "financial estimates") and contents.

B. Profile format used for Ecuadorian projects in July 1988.

1. Brief description of this format

This format looks quite different from the v.86-61863 reviewed above. Its internal structure is as follows:

1. Project summary

1. Brief promotional description
2. Summary data on the projects

II. Technical aspects

1. Production (products and their specifications)
1a. Agricultural part (for agro-industrial projects)
2. Maximum capacity and operation plan

   2.1. Maximum capacity after implementation
   2.2. Current production
   2.3. Production programme of the new project
   2.4. Data for estimating production capacity
   2.5. Process description

III. Market and marketing systems

1. Sales and their destinations
   (for a "typical" year in full production)
2. Marketing channels for the domestic market
3. Marketing channels for export markets
4. Projected sales in domestic market (year by year)
5. Projected sales in export markets
6. General comments

IV. Project costs

1. Personnel

   1.1. Manning table
   1.2. Training needs
   1.3. Foreign personnel required

2. Raw materials and intermediate products
3. Services (utilities, communications, transport)
   3.1. Availability and costs
   3.2. Location and site

4. Equipment and machinery
   (list and costs)

V. Implementation
   (main activities and duration)

VI. Investments
   (list and costs)

VII. Financing

VIII. Expected profitability

1. Elements (calculation of net profit)
2. Ratio of net profit to total investment
3. Ratio of net profit to equity

IX. Promotor's profile and foreign co-operation required.

Annexes:

- Data on ecuadorian conditions and incentives related to this project (labour costs, exchange rate, material inputs, financing facilities, specific incentives)
- Promotion strategy (previous promotion to date, and recommended promotion strategy for the future).

2. General Comments

This format contains some improvements in comparison with the V.86-61863:

- The exchange rate and date are specified in the first section(summary).
- Some costs are better detailed.
- The presentation is more atractive.
- More questions are asked (but of course the profile is longer - 20 pages).

The shortcomings are to a large extent similar to those of format v.86-61863:

- The section on the market(s) should rather come before the technical aspects.
- The space allotted to the description of the process (point 2.5) is much too small.
- The questions about maximum capacity may not be answered properly because of the difficulty in defining capacity.
- Some important operating expenses are left unexplained.

3. Comments on the Market Section

Sub-section 2 about marketing channels for domestic sales might be reworded as follows:

- What distribution channels will be used ?
  - wholesalers
  - retailers
  - other (specify)

Sub-section 3 about marketing channels for export sales would follow the same pattern:

- What distribution channels will be used ?
  - exporters in home country
  - importers in target market
  - wholesalers in target market
  - other(specify)

Moreover, for export, the same should be asked as for the domestic market concerning strategy and competitivity, such as:

- Do you intend to offer
  - Lower prices
  - better quality
  - better servicing
  - other (specify)

And, of course, what strategy will be proposed to enter the market in the first place if this is the case. The question as to whether a foreign partner is to be responsible for export sales and to what extent, is a good one whenever the project is a joint venture. It is implicitly covered by "other (specify)" under distribution channels for export.

4. Comments on the financial aspects

The financial aspects are dealt with in the sections on project costs, investments, financing and expected profitability.

The personnel costs are well covered, together with training needs and the need for foreign personnel (IV.1). What is missing is a table showing the operating expenses other than personnel and material expenses. They are mentioned in the table of section VIII under the captions: "other indirect costs" which are probably production overheads, and "management, marketing, insurance, sales costs and overheads" which relate to administration and marketing.

In the table of section VI on investment, what is called "working capital" should be more accurately labelled "initial net working capital", so that the total at the bottom of the table would be "total initial investment". How is working capital to be calculated is not shown in the format (through in the example in hand, initial working capital is worth more than three times the personnel costs which were shown in much detail).

II. Analysis of the marketing and financial aspects

A. Marketing aspects (export)

The part of the project profile (or study) dealing with export markets should normally contain information on:

1. The selection of target (export) markets: how was the selection done, justification of the choice.
2. Access to the market(s): Access is an element in the selection process, but, once a market has been selected, the conditions of access should be described (or recalled) in order to:

   - devise the proper way of entering the market
   - ascertain the associated costs (duties, fees,..)

3. Demand, supply (domestic suppliers and imports), and prices, both current and forecast.
4. Marketing conditions and practices
5. Marketing strategy: Once the market characteristics are known, a strategy can and should be developed not only for entering the market but also to maintain a position in that market. Here come considerations about product choice, product positioning, etc., and the associated selling prices and marketing expenses.
6. Finally, on the basis of the market characteristics and the marketing strategy chosen, it is possible to make some sales forecasts, rather rough at the level of the opportunity or pre-feasibility study, then more elaborate at the level of the feasibility study.

The forecasts should be expressed both in physical quantities and in values. Gross sales receipts should be corrected by deducting marketing expenses external to the company managing the project, in order to arrive at net receipts, usually net receipts at factory gate.

B. Financial aspects

The financial part of most profile formats presents the information in the following sequence:

- Fixed investment, and working capital,
- Sources of finance

The shorter formats stop here, the longer ones continue with:

- Net income statement (to show net profit)
- Projected balance sheets

This presentation suffers from several shortcomings, which are:

i. It is not possible to calculate working capital requirements without referring to operation receipts and expenses, and also to marketing conditions (such as periodicity and regularity of transport, normal credit terms to customers, etc.);

2. Financing should come after cash flow estimates because it is premature to consider the financing of an investment before knowing whether it will yield a return and how much;

3. Financing should be tailored to the needs of the project as a whole and not simply matched against investment (fixed investment and working capital). In some cases, the first years(s) of operation may show an operating deficit which has also to be financed;

4. Conversely, matching the sources of finance against fixed investment plus working capital would in most cases lead to overfinancing. Moreover, the distribution which is made in the questionnaires between long or medium-term and short-term finance, conveys the traditional idea that working capital requirements can (or should) be financed by short term credits, in spite of the fact that working capital is a permanent fixture in the project and is released only at liquidation;

5. Net profit is not a meaningful concept for project appraisal; net cash flow is a more useful concept, e.g. for calculating the payback period;

6. Finally, balance sheets contain no useful information for project appraisal.

A simpler approach which would avoid the above mentioned shortcomings, would be to:

1. Collate investment expenses (initial expenses and renewals) , and operating expenses and receipts(at full production level and at intermediate levels);

2. Calculate

   - Working capital on the basis of operating expenses and receipts and market conditions;

- Corporate income tax on the basis of taxable income and tax conditions. This table will look like a net income statement but will only calculate tax. This tax calculation may also be postponed until after the financing plan, or if it comes here, a tax correction may be made later to take into account the additional expenses entailed by interest payments;

3. Group all the above cash flows in a table which will yield the project net cash flow.

4. On the basis of the net cash flow,

   - Appraise the project, especially by calculating the pay-back period and the internal rate of return; and
   - Make the financial plan;

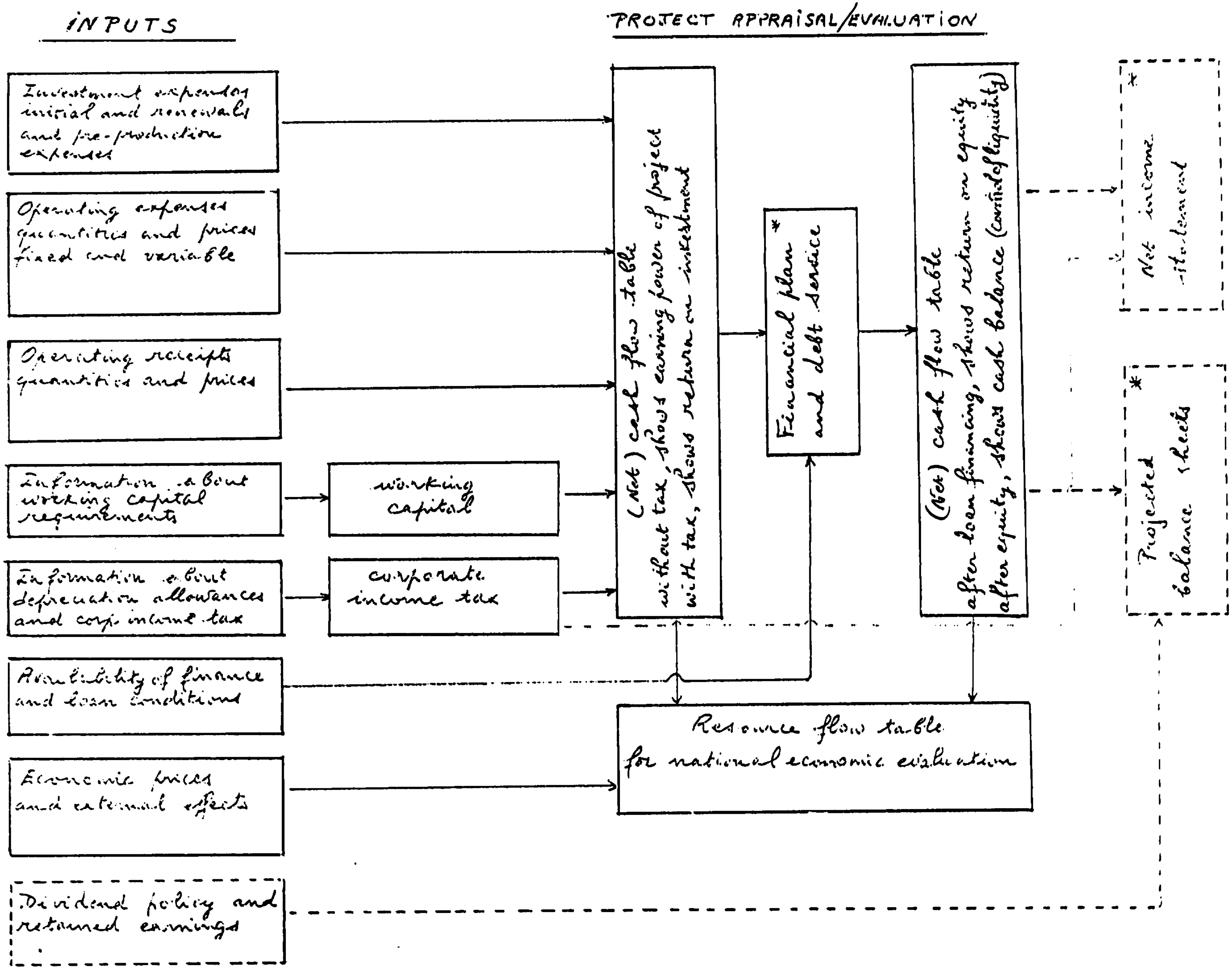
5. Note that the financial plan can be set up in two steps,
   - First, a loan/credit account containing the normal three flows: loans received (+), repayments of principal (minus) and interest payments (minus), plus a correction for corporate income tax (usually a reduction of tax, therefore a plus item). What is left is the net cash flow for equity, on which it is possible to calculate the pay-back period for equity and the return on equity;
   - Second, equity finance being provided, what is left is the (annual) cash balance;

6. Check the liquidity of the project on the cumulative cash balance which should always be positive.

The logical approach outlined above is more straightforward than the traditional one and immediately answers the 2 basic and crucial questions: Is the project liquid ? and how much can it yield? It is suggested that the PROSPIN system be reframed along these lines to produce a net cash flow table. This table will be the basis for sensitivity analysis. The system could then produce net income statement (from the table for the calculation of corporate income tax) and projected balance sheets (from the cash flow table) for those institutions that like to have them - even though these tables are not appropriate for project appraisal.

The logical framework for financial appraisal and national economic evaluation is summarized on the attached diagram.

LOGICAL FRAMEWORK FOR PROJECT APPRAISAL/EVALUATION



* Financial statements to the banks

III. Standard profile (Proposal)

It is doubtful whether there can be one standard profile equally applicable to all cases. The case primarily considered here is that of a project (or at least a project idea) already formulated by a sponsor in a developing country, who is looking for co-operation from a partner in an industrialized country.

A. General contents

It is suggested that the profile contents should be organized in two parts, viz. a short promotional presentation and a project outline, as follows:

Promotional presentation

- Project summary
- Information on project sponsor
- Information on host country and project area

Project outline

- Market
  - domestic market
  - export market(s)
- Technical aspects
  - the plant
  - operation
- Economics of the project
  - financial estimates
  - proposed financing
  - national economic (and social) benef

As the project matures, the promotional presentation will become more and more precise, and the project outline more and more detailed until it becomes a condensed version of the full-fledged project study.

If the project is agro-industrial, the technical part may be split into an agricultural sub-project and an industrial sub-project, with the following outline:

- Agricultural sub-project
  - the estate
    (location and site, preparation of the land, cultivation techniques, equipment, initial supplies)

- Operation

  (Supplies, services, personnel, environmental effects, production)

- Industrial sub-project
  - The plant

    (location and site, civil engineering, buildings, technology, equipment, construction)
  - operation

    (production programme, material inputs, services, personnel, environmental effects)

If the project outline is to be used separately from the promotional presentation, the 3 main parts may be completed with:

- an introduction which would contain (i) a history of the project, (ii) the context, i.e. the political and economic environment, the incentives applicable to the project, and eventually the linkages with other projects.
- A conclusion covering (i) the current status of the project, (ii) its evaluation and (iii) the co-operation desired for advancing, completing, and implementing the project.

B. Promotional presentation

The promotional presentation would consist of: a project summary (one or two pages), information on the project sponsor (also one or two pages), and background information on the host country and the project area (as condensed as possible). The contents are detailed hereafter.

Project Summary

Country

Project number (for UNIDO internal use)

ISIC (id.)

Date of submission (and of latest revision)

Project title

Nature of project (new project, expansion, modernization or rehabilitation)

Scope of project (manufacturing only, agro-industrial, or other to specify)

Products to be manufactured

Size (or value) of output

Market: local %, export %, main foreign destinations

Number of personnel

Location - and site (purchased?)

Contemplated starting date

Estimated capital cost (initial investment)

Proposed capital structure : equity total,local %, foreign %

Type of foreign co-operation desired

Rationale/justification of the project (origin of project idea)

Stage of development of project (project idea, technical description, or pre-feasibility study, or feasibility study)

Brief description of the project

Foot note: Exchange rate used in the profile and corresponding date.

Information on the project sponsor

Name of project sponsor

Postal address

Street address

Telephone, telex and fax numbers

Name of chief executive

Name and title of contact person

Current line of business (and since when)

Annual turnover

Number of personnel

Capital structure

Affiliated companies (if any)

Bank connections

Experience/contribution offered by sponsor (specified in some detail)

Foreign co-operation desired (why, and in what form ?)

Background information on host country and project area

Factor costs

Manpower

Wage/salary scale

Social charges

Utilities

Fixed costs, and rates for electric power, water, telecommunications, etc.

Infrastructure

Civil engineering

Buildings (cost per square meter)

Availability and cost of land

Financial costs

Corporate income tax

Normal rates and conditions

Local loans

Normal interest rates, terms and availability

Incentives (applicable to the project)

Incentives for foreign capital

Incentives for export-oriented industries

Incentives for the area

(e.g. availability of industrial estates or export processing zone).

Authorizations and procedures

Authorizations: needed ? Obtained ?

Procedures: steps, duration, who responsible ?

C. Project outline

The project outline will be hereafter detailed regarding the domestic market, the export market(s), and the economics of the project.

Domestic Market

Preliminary: Definition of the products contemplated for sales in the domestic market. What share of production is intended for domestic sales ?

Demand, supply, prices (for each product)

- Consumption/demand: current size and trend
- Any unsatisfied demand ? Is market expanding ?
- Supply: how is the market currently supplied
  - imports (quantities, origins)
  - domestic suppliers

- Current prices and trend
  - for products of domestic origin
  - for imported products

Marketing conditions and practices

- Distribution channels
- Margins and marketing costs
- Protection against imports
  quotas, custom duties (how much?)
  has protection been requested ?

Marketing strategy

- Distribution channels to be used
  (wholesalers, retailers, or other, to specify and justify)
- Product positioning and pricing (for each product)
  to meet competition and/or increase demand, in particular, is it intended to offer lower prices, or better quality, or better servicing, or other to specify ?
- Associated marketing expenses
  margins, fees, advertising expenses, etc. qualified marketing personnel, credit terms

Sales forecasts for the domestic market
(quantities, prices, values, per products)

Export Market(s)

Preliminary: (i) Definition of the products contemplated for export; (ii) share of production intended for export; (iii) home country regulations concerning exports, and incentives for exports; (iv) possible use of exporters in home country.

Target (export) markets

- what are the target markets
- how they were selected (statistics, inquiry, study, already exporting to them ?)

Market characteristics (may be repeated for each export market)

- Access to the market

  constraints: quotas, custom duties, etc.

  facilities: trade agreement, monetary area, etc.
- Product requirements (for each product)

  specifications and quality (is adaptation necessary ?)

  packaging requirements

- Demand, supply, prices

  consumption/demand (current size and trend, is there any unsatisfied demand, is the market expanding ?)

  supply (domestic suppliers, quantities and origins of imports)

  current prices and trends
- Marketing conditions and practices

  distribution channels (importers, wholesalers, etc.)

  margins and marketing costs

Marketing strategy (may be repeated for each export market)

- Distribution channels to be used (exporters in home country; importers in target market, wholesalers, or other specify)
- Marketing approach proposed to enter the market and meet competition; in particular, is it intended to offer lower prices, better quality, better servicing, a combination of those, or other to specify).

- Associated marketing expenses

  (margins, fees, advertising, packaging, qualified personnel at headquarters or outposts, credit terms).

Sales forecasts

- Sales by markets and products
- Gross and net receipts
- Foreign exchange conversions
- Consolidated sales forecasts

Economics of the project

Financial estimates

- Investment expenses (initial fixed investment and renewals)
- Pre-production expenses
- Operating expenses (at full production and at intermediate levels, fixed and variable expenses)
- Sales receipts
- Working capital requirements
- Corporate income tax
- Cash flow table showing all expenses and receipts by periods (years), from which
  - pay-back period for the recovery of total investment, and
  - internal rate of return,

  measuring the earning power of the project.

Proposed financing

- Financial plan
- Debt service
- Cash flow table form the view point of equity
  - pay-back period for recovering equity
  - return on equity
  - cash balance and control of liquidity
- Break-even point of the project
- For banks, also: net income statement, and projected balance sheets

National economic (and social) benefits

- Foreign exchange affects
- Net value added
- Employment created
- External (dis)economies
- Resource flow table and economic rate of return

IV. Guidelines for the preparation of profiles

These guidelines follow the pattern of the standard profile proposed above.

A. The promotional presentation

The promotional presentation consists of a project summary, information on the project sponsor, and background information on the host country (and the project area).

The project summary must contain a brief description of the project (or project idea), highlight its main characteristics, and indicate the type of co-operation desired. Five basic sets of questions must be answered, concerning:

i. The product
-. Definition, normal uses, and clients
- Consumption products, or intermediate (industrial) products.

The marketing approach will differ according to the type of products.

ii.The nature of the project
New p... ct, or
Expans of existing facilities
Modernization of existing facilities
Rehabilitation of existing facilities

iii.The scope of the project
Manufacturing only or Agro-industrial, meaning either (to specify)

- using agricultural produce as raw materials, or
- the agricultural production is part of the project.

The same distinction should be made for a mining-manufacturing project.

iv.The destination of the output
Domestic market
Export market(s)

With an indication of the share o' production intended for each market. The market/marketing aspects will be very different according to the target markets, and in general much more difficult to handle for export projects or at least for the export component of industrial projects.

iv. The stage of development reached by the project

Project idea

Technical description

Opportunity or pre-feasibility study

Feasibility study

If it is still only a project idea, the project sponsor will attempt to put in the project outline as much information as is available so that prospective foreign partners may complete it with their own inputs. If only a technical description is available, it will be summarized in the project outline, but there also an attempt should be made to complete other aspects (marketing and financial) as much as possible. If there is a pre-feasibility or feasibility study, the project outline will summarize the contents of that study.

The information sheet on the project sponsor should fully identify the sponsor, describe his current business, state his experience relevant to the project and the contribution (technical, financial, managerial or other) which he can bring to the project, and finally explain what foreign co-operation is desired, why and in what form. All this information is important to the prospective foreign partner who wants to be sure that the local partner is reliable and capable of correctly managing the project with the foreign input required. If a foreign industrialist is interested by the project summary, the next thing he will ask is information about the local sponsor. And if he is still interested, he may want to do some calculations himself, and to do so he will need some background information about the country and the project area.

The background information should be brief and to the point, entirely related to the project at hand. It should cover the relevant costs of the factors of production and local finance, the incentives applicable to the project, and the authorizations and procedures relative to the project with an indication of the time and expenses involved.

The co-operation desired will be explained in some detail at the end of the sheet providing information on the sponsor, but on the project summary it will be indicated very briefly, using the following categories:

- Equity participation
- Loans
- Supplier's credit
- Joint venture
- Sub-contracting
- Licensing
- Sale of technology
- Co-production
- Turnkey project
- Equipment supply
- Access to foreign markets
- Compensation trade
- Raw material supply
- Expertise in management or training or marketing or technical aspects

B. The development of investment projects

Before coming to the project outline,it is appropriate to recall the stages of the development of investment projects in the following diagram:

Identification of a marketable (or exportable) product, i.e. a product which can be produced, and which can be sold in the domestic and foreign markets.

↓

Hence, a project idea which can be presented, and submitted for promotion, in a project (idea) profile. However, it may not have enough consistency to interest a foreign partner, and some more elaboration would then be required.

↓

Formulation ofa project concept, in which the various aspects (market, technical, financial) are put together into an integrated project. The study presenting the project concept is called an opportunity or pre-feasibility study. Rough calculations show whether the project is viable and promises to be profitable. If so it can be submitted for promotion in the form of a project profile which will condense what is in the study. Sometimes, only the technical part is developed, but themarket and the economics of the project are left vague or open, to be completed later on by or with the future foreign partner.

↓

Elaboration of the project in more detail. Normally, at the level of the opportunity or pre-feasibility study, several options can be considered concerning the technical and market aspects, but one appeared better than the others. The feasibility study will examine that option in more detail. If the project is submitted for promotion at this stage, the project profile will contain condensed information taken from the feasibility study. The feasibility study may consider several variants (i.e. narrow options), of which one will appear better than the others. The final choice will be influenced by the foreign partner.

↓

The final report contains a final formulation of the project with updated estimates concerning investments (supported by pro-forma invoices), operation expenses and receipts, and also an implementation programme and a financial plan. The final report is jointly completed by all the parties concerned which are the local sponsor, the foreign partner, and the financial institution involved.

The above sequence is typical of a new project. Expansion, modernization and rehabilitation would follow about the same pattern except in as much as they are projects developed on a pre-determined base which shou'd be therefore well described: existing equipment, current operation and trained personnel.

C. The project outline

In the introd/uction, the history of the project will be recalled: how the exportable product (or line of products) was identified, how the project idea developed into a project concept, what studies were made ard what were the results. The project outline is not designed to be a project sudy but should contain condensed information from the study.

Also in the introduction, the context of the project will be recalled, especially the economic environment; the strengths of the country, the sector and the sponsor; the incentives applicable to the project; and eventually the linkages with other projects.

The main body of the project outline will follow the pattern indicated in Chapter 111 above. This is true also for the economic part, but a few additional explanations may be useful in this connection.

The sequence is as follows:

1. List and estimate all expenses

   Draw up the tables for investment expenses and operating expenses. Add pre-production expenses which are incurred for the preparation (training, marketing) and the start of production.

2. Estimate the expected sales receipts (by currencies), using retrograde pricing (see example on table below), and consolidate by using appropriate exchange rates.

3. Visualize the scenario of construction and operation of the plant, and spread the expenses and receipts over the life of the project, thus drawing up a cash-flow table.

   - If the product is a consumption project, the life should be short, i.e. 5 to 10 years of operation (modish products being at the shorter end).

- If the product is an industrial product,the life may be longer, i.e. 10-15 years of operation in "light" industries, over 15 years for basic intermediates (such as bricks, cement, steel).

4. Calculate working capital requirements.

See UNIDO Manual, op. cit. page 195, on how to proceed, and enter into the cash flow table.

The net cash flow thus obtained measures the earning power of the project, earnings which will have to be shared between the owners of the project and the government (tax). If the project is to be financed only by equity, the corporate income tax can be calculated here according to the rules and rates applicable to the project, and what remains will be the net cash flow for equity

5. If the project is to be financed by loans, a loan/credit account is to be added with its 3 typical lines viz. disbursements, repayments and interest payments. The corporate income tax is then calculated and entered into the cash flow table. Equity must finance the remaining deficits at the beginning and will reap the positive yearly (net) cash flows coming later. A typical cash flow table is shown hereafter. Project preparation, seen from the financial angle, consists in filling out the cash flow table with meaningful figures based on carefully developed estimates of quantities and prices.

6. Verify the liquidity of the project on the last line which is the cumulative cash balance. It must always be positive (or nil at the limit), if not the financing plan would have to be revised accordingly.

7. The profitability of the project, from the standpoint of equity, will be measured by:
   - The pay-back period, i.e. the number of production years necessary for the owners to recover all the expenses (either for investment or operation) incurred in connection with the project. The pay-back peiod is a mixed criterion of profitability and risk.
   - The rate of return on equity, which is the discount rate at which the discounted value of the net cash flow for equity becomes nil, which means that all expenses (either for investment or production) can be recovered at the liquidation of the project while receiving a return equal to that discount rate.

8. At this juncture, the break-even point can be calculated from the formula:

$$\frac{\text{Fixed operating expenses + depreciation}}{\text{sales receipts - variable operating expenses}} = \text{o.x.}$$

o.x. or x% indicates the minimum rate at which the project should operate (at unchanged prices) in order to break even, i.e. to be able to pay for current operating expenses and recover the original investment expenses. Depreciation should be technical depreciation but in most cases fiscal depreciation is used as a proxy. Sales receipts and variable operating expenses in the denominator are those corresponding to full production level.

The break-even point is a mixed criterion of risk and profitability. The lower it is, the better.

9. Project sponsors are not expected to carry out a national economic evaluation of their project. Such evaluation uses (i) special techniques based on cost-benefit analysis, and (ii) data pertaining to the national (and international) economy which are best provided either by a "national economic studies institute" or a "central planning office" as the case may be. The project sponsors can, however, indicate the main economic and social benefits to be expected from the project so as to qualify for the incentives related to export orientation and foreign investment. These benefits may be in terms of employment, rural development through agro-industries, use of local materials and value added.

10. The main benefit to be expected from an export-oriented project is foreign exchange; the balance in foreign exchange should be positive:

    Receipts in forex from export sales
    minus Expenses in forex for equipment and operation
    minus Import content of expenses in domestic currency
    equal Net receipts of forex.

If such a project is also substituting imports with domestic production, the savings in forex may be added to the receipts in forex. Finally, the net in forex may be compared with the (net) domestic resources used to produce these gains, and see how many units of domestic resources the project will be using to produce one unit of foreign exchange, e.g. one dollar.

Example of retrograde pricing

Shipments from a West Indian island to Germany and Japan

	Germany	Japan
1000 garments		
c.i.f. price per garment	20 DM	1,430 Y
c.i.f. price of shipment	20,000 DM	1,430,000 Y
Handling charges on arrival	200 DM	15,600 Y
Airfreight	1000 DM	97,500 Y
Insurance	200 DM	14,300 Y
F.O.B. price of shipment	18,600 DM	1,302,600 Y
equivalent to	37,200 R	40,080 R
Export duty	80 R	80 R
Documentation	200 R	200 R
Handling charges on departure	200 R	200 R
Transport to airport	200 R	200 R
Loading at plant	120 R	120 R
Export packing and marking	80 R	80 R
Price of factory gate	36,320 R	39,200 R

Rates of exchange used for the conversions:

1$ = 2 DM = 4 R = 130 Y

1R = 0.25 $ = 0.50 DM = 32.5 Y

$ = US dollar

DM = Deutshe Mark

Y = Japanese Yen

R = West Indian Rupee

Typical (

Currency unit: Rate of exchange:	Year 12 Liquidation		
Production programme	Local	Forex	Total
Fixed investment			
Land			
Site preparation			
Civil engin-ering			
Buildings			
Equipment/machinery			
Technology/engineering			
Pre-production expenses			
Working capital			
Operating expenses			
Raw materials			
Other material inputs			
Services (utilities, etc.)			
Personnel			
Other (rent, etc)			
Sales receipts			
Net cash flow (for Project			
Loan/credit account			
Disbursements			
Repayments			
Interest payments			
Corporate income tax			
Net cash flow (for Equity)			
Equity			
Cash balance			
Cumulative cash balance (must be always positive)			

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