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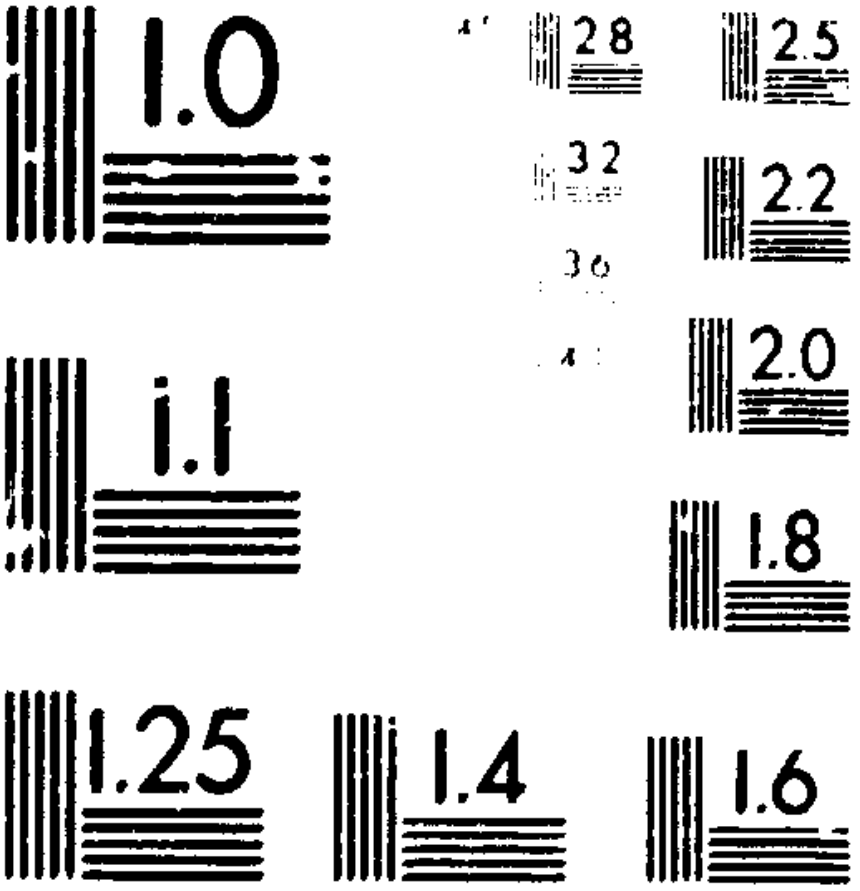
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org



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ASSISTANCE TO THE DEVELOPMENT OF SMALL INDUSTRY IN INDONESIA

(PROJECT DP/INS/78/078)

DEPARTEMEN PERINDUSTRIAN

DIREKTORAT JENDERAL INDUSTRI KECIL

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
(ASSISTANCE TO THE DEVELOPMENT OF SMALL INDUSTRIES)
DP/INS/78/013

ADDRESS ADDRESS:
DIRECTOR-GENERAL SMALL SCALE INDUSTRIES
JALAN JENDERAL GATOT SUBROTO NO. 31
JAKARTA PUSAT
TELEGRAPHIC ADDRESS

REPLY TO:
UNDP
POST BOX 2046
JAKARTA
TELEPHONE 51 [illegible]
CABLE ADDRESS UNDP JAKARTA
TELEX UNDP JKT [illegible]

REFERENCE
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Bjorn Midsvig:

Manual for Preparation of Feasibility Studies for Small Scale Industrial Projects in Indonesia.

Report No. 45
February 1984.

MANUAL FOR THE PREPARATION OF FEASIBILITY STUDIES
FOR SMALL SCALE INDUSTRIAL PROJECTS IN INDONESIA

C O N T E N T :

FORMS AND TABLES; ETC.:

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

(ASSISTANCE TO THE DEVELOPMENT OF SMALL INDUSTRIES)

DP/INS/79/078

PROJECT ADDRESS
DIRECTOR-INDUSTRIAL SMALL INDUSTRIES
JALAN [illegible] NO 35
JAKARTA PUSAT
TELEPHONE [illegible]

MAILING ADDRESS FOR
UNDP
POST BOX [illegible]
JAKARTA
TELEPHONE [illegible]
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Part I

PROJECT PREPARATION MANUAL

How to go about the tasks of working out the study.

GENERAL.

Use this manual during preparation of feasibility studies for Industrial projects.

For identification of projects, for screening and ranking of project opportunities before start, for guidelines on collection of information for project preparation, please see our workshop manual, report No. 31 of October 1983.

The aim of this manual is it to assist you in making better feasibility studies. The working sequence, the content, and the working time has been specified to detail.

The manual also contain a range of experience figures, rates and norm-figures that may be used during the preparations. These figures are valid when writing the manual, but will of course always be subject to changes in the futute. Please do not use them uncritically. When matters are particularly important, please make you own observations.

We hope this manual also will make the preparation work-easier for you. We expect it being most practical for you during the writing to follow the Feasibility study working plan as specified from page 23 to page 39.

Each of the points under the Workplan are however thoroughly commented on through the later sections of the manual, and you can seek support and guidance there as you go along.

The manual tries to cope with different problems for different project situations.
For one project certain points have high relevance, others are less important and others again have no relevance at all. For a different project the situation may be very different.
Accordingly please pay major attention to the major requirements of your project.
Work with what is important and difficult, not with what is easy and obvious.

Jakarta 6th March 1984.

UNIDO INS 78/C78,

Björn Eidsvig,
Industrial Engineer.

A. PRE - FEASIBILITY STUDY.

It is for our small projects normally not necessary to make any full pre feasibility study. But it is very important to get a good indication on whether the project will be viable before going too far. It therefore pays to take the following questions very seriously.

Before starting the preparation of a project, one should always first look into whether the project should be prepared and how. The answer is normally not obvious. It will always pay to take these following questions seriously and to find the answer to them in the order they are mentioned.

A.1 Is the project positive and within the DJIK frame of operations ?

- What is the aim or the result of the project ? Can it be expected that the products will improve the standard of living for the ordinary man, not only for those involved or employed in the project ?
  If the project does not give a better life to others than those involved directly, the project should not be made. A positive project should always make products which are of positive use for the population or export is also of value. Positive products should be obtainable cheaper, in better quality or in more adequate quantities than before.

- The project should involve industrial or crafts manufacturing, maintenance or repair of products or services. Agriculture transport businesses, education, immaterial service activities or trade should be referred to other institutions. Mining can in certain cases be considered.

- The project will normally involve financing. Financing of machinery and equipment necessary to carry out the manufacturing and the essential services connected with the manufacturing, will always be considered by the banks. Installation and forwarding expenses are are normally also considered, at least when they add sufficient value to the project.

Buildings may be included in the project when a new building is a must for the project and the project cannot easily be accomodated in an estate or other premises available for rent. Pre operational expenses should normally be financed by the equity capital and at times also the working capital.

The bank may consider financing up to a maximum of 80 % of the total investments. Find out wheather the potential entrepreneur has the necessary equity capital to enable the rest financing before proceading with preparation of the project for him.

- DJIK will normally not involve in projects when the new investment in machinery and equipment exceeds Rp. 70. millions.

- You should only consider preparing a project when bank financing will be considered and when priority will be given to the particular project.

- When several projects are due for preparation; you should give priority to projects of high importance, projects which have high likely dood of success and projects which require limited time to prepare.

A.2 Is there a sufficient market for the project ?

- Find out which approximate quantities are required in the reasonable surroundings of the project. Dependant on the strength of the competitors one will always expect to take only a limited share of the market

- Which other parties have plans of starting a similar projects ? How can these plans affect the market situation ?

- Can one expect any decrease in the demand for the product because of change to other products, decrease in the need of the services or because other cheaper or more advanced products can be expected on the market ?

- Is the product, as it is proposed, fit for the market and does it have the quality and price ? Should the product first be further developed so as to fit better to the demand or to get a more reasonable price ?

- One should normally concentrate on one, or at least only a few, relatively similar products. In order to reach good quality and low prices, a high degree of specialisation is normally required.

A.3 Are the required resources sufficiently available ?

- Are the required raw materials sufficiently available and of adequate quality ? Can supplies be rejected ? Is a license for the purchase obtainable if required ?

  Can it possibly happen that there exist better use for the resources that are expected to be tapped, than to be used for this project ? One should of course always try to create as much value as possible out of the resources.

- Can it be asumed that the materials will continue to be available at acceptable prices ? If others compete for getting the same materials, there might develop a shortage or an uncontrolled price increase.

A.4 Are sufficient technology and machinery within the reach ?

- Is the technology simple enough to be managed under the local circumstances ? Is the process sufficiently known and are offers for the equipment within reach ?

- It is necessary to know which processes and equipment can be used for a more or less labour or capital intensive project. It is also necessary to know the costing of the alternatives. Only then is it possible to do a suitable selection and to determine the suitable size of the project.

A.5 Find out the suitable size of the project and whether it will be sufficiently profitable.

- Do some initial quick calculations of the economy of the economy of the project based on selection of more and less costly equipment on different technological levels.

  The calculations should include:

  * Total estimated investment in machinery and building(s) etc.
  * Expectable total fixed annual costs for the project including depreciations, interest and cost of administration etc.
  * Approximately gross profit per unit by deducting variable costs as materials, wages and other consumptions from the exfactory sales price.
  * How many items must be sold before the fixed yearly expenses are covered ? (the break even point)

$$\text{Break even number of product units} = \frac{\text{Total expected fixed cost of the project, Rp./annum}}{\text{Gross profit per product unit Rp./each.}}$$

- One normally will select a technology which enables profit at a number of items very much lower than what one consider possible to sell. For a given number of items per year one will normally select the process which will give the totally lowest yearly cost.

- If the break even point is more than about 60 - 70 % of a reasonable market share for the project, one will in most cases consider the project having an insufficient market safety margin.

A.6 What is the best location for the Project ?

- To manage an industry is a difficult enough tasks even when it has its best possible location. Do not locate it anywhere else!.

- It must be checked that the project can be sufficiently served with what it requires of the following:

  * Raw materials at reasonable costs
  * Sufficiently near the market and sufficient contact with the customers
  * Sufficient availability of trained manpower.
  * Sufficient road or railway connection, electricity, water supply, service institutions, telephone, etc.
  * Are the effluent drainage possibilities acceptable to the industry and the environment ? Will the intended location disturbe the surroundings too much with smoke, noise, traffic or pollution ?

- Normally the best location will be where the annual cost of providing all the above requirements (including the market aspect) will be the lowest.

- The location must be acceptable to the building authorities. Be aware that some areas of the towns and markets are ear-marked for certain purposes as heavy industrial, light industrial, commercial, residental, etc. Please collect a written permission from the town planning department when required.

A.7 Is the client sufficiently qualified ?

- Has the client sufficient technical knowledge, sales and management experience, necessary initiative and understanding ?

- Is his background sufficiently well connected with the technology and the market of the product ?

- If not, how can the problem best be solved; by joining hands with others or by selecting a different client ?

A.8 Should this project be prepared by you ?

- Would it pay better to expand an already existing business or to start a new project afresh ? Which will give the better knowhow, the lowest costing the better sales situation ? What will create most development ?

- Find out whether any other branch of DJIK or any financial institutions has prepared any similar project.
That may mean either that you can make use of already available information, that the market possibilities are already exploited, or it may mean that somebody else could prepare this project.

- Also find out whether DJIK or any other industry promotion institution has available useful information on market or technology. Under all circumstances, discuss your project ideas and your approach to market investigations and machinery selection with senior DJIK officers before going too far with the preparations.

- Find also out whether you should prepare this project or whether it can be more easily done by others while your time can be released for other tasks.

B. SOME IMPORTANT POINTS TO CONSIDER SERIOUSLY FOR THE PROJECT PREPARATION.

B.1 Try to reach the real aims of the feasibility study.

- The aim of the project paper is not to convince the reader that the project is good, but to give a picture of the real situation. Do not explain anything more positive than what is really is.

- You should always try to give as correct a picture of the situation as possible. Never exagerate positive information. Put as much weight on negative factors as on positive. Do not try to cover over unknown factors. Inform about doubts and about what is not known and which consequences such factors can have on the implementation and the viability of the project.

- If you do not discover the negative factors that are there, or if you give a too bright picture of the opportunities in the explaination, or in the figures, you are much to blame and you take a heavy responsibility. The financiers may be misled to wrong desicion, but worse is it that you may mislead the client into too optimistic expectations. This can cause him to waste the capital he has struggled to build up during much suffering. Please do not mislead the client into bankerupcy through giving him a too bright picture of the situation.

- It is the aim of the feasibility study to give a correct picture of the situation in order to enable a wise decission when judging the project.

- The aim of the study is however not only to show the viability and to determine the necessary extent of financing. The project paper should also be the implementation plan, the budget and the working plan for the client in starting the operations of the project after implementation. It should show him the consequenses if he deviate from the plans.

The project paper must therefore specify the best way of utilizing the investment, it must specify the correct selection of equipment process and products and how to sell the products.

B.2 Do not write for the sake of it.

- Do not consider it being your task to write "something" under each paragraph. If you have nothing important to tell, then leave it out.

- Only give information which is necessary in order to understand and to judge the situation as well as what is required for guidance in implementation and running of the project.

- It is nor an aim to write much. Write as short as possible; but give all the information which is really required.

- Leave out information which is obvious to everybody. Giving obvious information is easy but it has no value. It will only show that the writer has no understanding of what is expected of him.

- Doubtful or difficult points are often not considered seriously or they are left out all together. Even if it is difficult to find information or figures, it is usually these points which need to be highlighted.

- Do not repeat information. If necessary rather refer to other paragraphs where the information is available.

- The less obvious and the more important a conclusion is, the more thorough must the investigation be, and through the more different parallel ways should one try to reach a conclusion.

B.3 About Figures.

- Always try as much as possible to quantify your information. Do not use too accurate figures. Round off the figures so that they do not indicate an accuracy which do not exist. E.g. if you know the population in a town to be 84370 people and that it grows with 12 % p.a. the population the next 5 years should not be estimated at 94,494 - 105,834 - 118,534 - 132,758 and 148,688 but: 94,000 - 105,000 - 118,000 - 130,000 and 145,000.

12 % can even if correctly specified of course mean anything from 11.5 % to 12.5 %. Hence the last figure can be anything between 145,000 and 152,000 (That is if the percentage remains at 12)

- For investment calculations and in specification of yearly costs under the profitability calculation you should round off all figures to the nearest Rp. 10.000.

- When you calculate results in percent, do not give decimals of the percent except at times for figures under 10. Hence 87 = 17 % of 5178 (not 16,8 %). While 19 may be written as 9,7 % of 195 but never as 9,74 %.

  When data carry a high extent of inaccuracy it is better expressing a quantity as e.g.

  40 - 55 % or 42 - 48 % dependant on

  the accuracy of the information rather than "approximately 46 %"

- All costs and prices should be computed in Indonesian Rupias except where offers are in foreign currencies. These prices may be specified in the currencies specified in the offers, and thereafter converted into Rupias.

- Present costs and prices will be used in all calculations without any adjustment for expected inflation. (unless a specific price increase is already known). Under Investments should however at the end be added an percentage (normalling between 15 and 20 %) to cover possible price increase during the time before ordering of the machinery.

3.4. Make the project small scale.

- A good start in small scale has always the possibility of making the project growing into large scale as the experience and the strenght grows.

- Even if the prospects and the abilities look very bright, one should always expect that a project will meet many kinds of unexpected problems in the begining. Such problems may cause very high costs when the project is implemented in a large scale and can make the project to fail.
This is a disaster for the client, a retarding of the country, and a shame for the project officer. Do not expect that the project will not get problems. All projects do.

- For a small project to be forced to run on shifts and getting pressrure towards expansion is a lucky situation. Under-utilization of a plant, getting a headache to compete for the orders and carrying a heavy load of fixed unavoidable costs is a stress and a dangerous strain for the project.

- Do not select a "modern" technology for the sake of it, but use a technology which will give the lowest manufacturing cost for a reasonable production volume.

- Also do not stick to the present ways of doing things and to the regularly far to cumbersome methodes where essencial reasonable and rational tools and machines are missing. Your task is not to copy, but to improve. It is important to find employment for many people, but we must avoid to employ people for the sake of it. When it is more economical to invest more and employ less, than do so. If not, you will simply sooner or later experience that the project suffer, will not develop properly - and will no longer be able to give employment to anybody. You must also take into account that the technological development continues and that wages do increase. You should not establish a plant to day that will be uneconomical tomorrow.

3.5 Specialize the production.

- Some products are built up of several components that are of very different nature. E.g a radio might require:

  * Electronic assembly

* Manufacturing of printed circuits
* Wooden cabinets
* Manufacturing of knobs and electronic components, etc.

No industry can be specialist within so may fields. The electronic assembly and fitting together of the product requires very high efforts. If one at the same time made the components, the product and costing would suffer because of lack of specialization when involving within so many different fields. The development would be retarded.

Make use of subcontractors, cabinets can better be made by a furniture factory, metal parts by a mechanical workshops and components can be ordered from elsewhere while the factory can concentrate on development of its products and processes.

- Standardize the product range. Do not make many different products. Make as few as possible in as few possible sizes or variations. Production will be easier, the staff will be more trained, the stockholding will be less, the investment lower, the product better, and the output higher.

B.6 Make the project labour intensive.

- Production plants from Europe and other highly developed areas are normally not made for our conditions. They aim at labour minimizing as labour in the highly developed countries is in shortage and is extremely expensive. Labour in Europe is the most expensive production factor and up to 50 times more costly than here. Selection of equipment and methods thus need to be very different here. This is not because we "can do with less", but because the cost will be lower and the benefits higher when we use equipment and processes fit for our economical and technical situation. European and Japanese suppliers have difficulties in understanding this and they always will have the tendency of offering to us too sophisticated, complicated and expensive equipment.

- For most technologies a vide variety of machines and processes are available. If you have to called quotationsfrom abroad, try first of all to contact supplies in less advanced countries, likely to quote equipment fit for our situation.

- If you have to collect quotations from the more sophisticated markets abroad, supplier our situation. Their basic equipment may not be possible to change to fit with our requirements, but the arrount of mecanized control handling and transport is frequently optional and proposed different for different situations. These extra devices often represent a high part of the total plant costs. Try also to think yourself how their plant and the methods can be simplified in direction of lower investments, more labour force and lower total costs of the product.

- You should not make a project labour intensive just for the sake of it. (There is also a limit for how labour intensive a project should be)
The main point is to select the method which gives the totally lowest costs.

- Before selecting method, compare the methods economically. The best way is to calculate the total yearly cost for the alternatives and compare. Calculate like this in 1000 Rp. per year:

	Alter-native I	Alter-native II	Alternative III
Depreciation			
Interest			
Labour			
Maintenance			
Electricity			
Possible differences in cost of materials etc.			
Total yearly cost			

- If the methods give approximately the same yearly cost, one will normally prefere the alternative with the lowest investment. This gives the lowest break even point, and extra safety when the sales may turn out to be less than expected.

- Do not stick to any maximum investment per employee, but of course, the lower the better.

B.7 How to collect information.

Before writing the project paper, collect the information you need. Before collecting the information, try to list the information you require. Please make use of the check list in section one of the Project preparation training programme.
Find first out which information is available within the organization.

For more detailed information on the collection of data, please see also in section one the chapter, "Programme for Collecting. Information for preparation of the feasibility study". For what ever information is lacking, you can on general project information enquire also with any of the following sources:

- The Provincial Industrial Offices (Kanwil)

- Ministry of Industry, Jln. Gatot Subroto 52 - 53, Jakarta with the several Directorate Generals.

- Ministry of Trade, Jln. Abdul Muis 87, Jakarta, with the several Directorate Generals.

- Ministry of Finance, Jln. Lapangan Banteng 24, Jakarta with the several Directorate Generals, in particular the Directorate General for Customs.

- Coordination Board for Investments (BKPM), Jln. Gatot Subroto 6, Jakarta, with the Provincial Boards (normally a representative of the industrial Kanwil is a member of the Provincial Board).

- National Scientific Documentation Centre of the Indonesian Institute for Science, Jln. Gatot Subroto, Kompl. LIPI

- National Chamber of Commerce and Industry. Jln. Merdeka Timur 11, Jakarta, with the Provincial Chamber

- National Information Centre of the Ministry of Information, Jln. Merdeka Barat 9, Jakarta

- NAFED, National Agency for Export Development, Jln. Thamrin 11, Jakarta

- Bank Indonesia, Local branch or head office, Jakarta

- Bank Pembangunan Indonesia, Local branch or, Jln. Gondangdia Lama 2 - 4, Jakarta.

- UNIDO, United Nations Development Organization P.O. Box 300, A. 1400 Vienna, Austria (Will reply to specific questions on manufacturing technology, available suppliers of equipment etc.) They have also available printed information on a range of technologies.

A range of further specialized institutions can provide information and have libraries to your assistance. The following ones can be mentioned:

Some Libraries and Institutions with libraries:

(For more detailed information see UNIDO IS 78/078 Report No. 12: "A guide to information sources for small Industry development in Indonesia").

	No. of Books:
- Ambon Marine Science Centre Library, Ambon	600

	No. of Books:
- Banjarbaru Laboratory and Testing Institute for Industrial products, Banjarbaru	400
- Telecomunication Research and Development Centre, Bandung	4.300
- Bandung Institute of Technology	45.000
- Indonesian Institute of Standardization	140.000
- Ceramic Research Institute, Bandung	3.400
- Directorate of Building Research, Bandung	20.000
- Cellulose Institute Library, Bandung	2.300
- Research Institute for Tea and Chinchona, Bandung	3.000
- Mineral Technology development centre, Bandung	7.000
- Geological Research and development centre, Bandung	6.700
- National Electronics and Electrical Research Institute, Bandung	1.500
- Indonesian Institute of Sciences, Bandung	5.000
- Institute of textile technology, Bandung	3.500
- Forest Research Institute, Bogor	25.500
- Nutrition research and Development Centre, Bogor	5.300
- Nutrition Research and Development Centre, Bogor	1.500
- Research Institute for estate crops, Bogor	11.600

	No. of Books:
- Central research institute for animal Husbandry, Bogor	1.000
- Institute for research and development of Agrobased Industry, Bogor	4.000
- Bogor Agricultural University, Bogor	50.000
- National Library for Agricultural Sciences	75.000
- National Institute for Economical and Social research, Jakarta	17.000
- Bank Indonesia, Jakarta	30.000
- Agency for development and application of technology, Jakarta	8.000
- Ministry of Industry, Jakarta	13.000
- Jakarta Building Information Centre, Jakarta	4.000
- National agency for Export Development, Jakarta	1.800
- National Scientific Documentation Centre	45.000
- Electric Power Research Centre, Jakarta	10.000
- Central Bure an Of Statistics, Jakarta	25.000
- Semarang Laborators and Testing of Industrial products, Semarang	800
- Semarang Buildings Information centre, Semarang	1.500
- Surabaya Building Information Centre, Surabaya	2.700
- Surabaya Laboratory and Testing Institute for Industrial products	2.000

	No. of Books:
- Surabaya institute of technology	28.000
- Hasanuddin University, Faculty of Science and Engineering, Ujung Pandang	1.000
- Ujung Pandang Laboratory and Testing Unit for Industrial products, Ujung Pandang	500
- Gajah Mada University, Yogyakarta	18.000
- Institute for Batik and Handicraft research and Development, Yogyakarta	1.200
- Central Institute for Leather, Rubber and Plastic Industries, Yogyakarta	2.600

You may also check with you local University library, the Municipal library, the Library of the local Kanwil, or in Jakarta Ministry of Industry and the libraries of the different embassies, especially the American, the Dutch and the British.

For Statistical Information on local Conditions in general check with the latest edition of:

- Statistic Indonesia (from Biro Pusat, Jakarta)

For export and Import volumes and other export/import information check the last annual edition of :

- Imports. By commodity and country of origin (Vol I and II) (Biro Statistik Pusat)
- Exports. By Commodity Country of Destimation and Part of Export
- Directory of Indonesian Exporters (NAFED).

For Information about local Industries:

- Industries Directory, (List of Manufacturers, With specific Information (Public Relation Bureau).

- Statistic Industry 1980, Vol I and II. Contain statistical (Information on many trades about production volumes, employment, costing etc. (Biro Pusat Statistik).

- Small scale Industry Indonesia 1979. Contain similar information about the Cottage Industry sector (Biro Pusat Statistik).

- Cottage Industry Indonesian 1979. Contain similar information about the Cottage Industry sector (Biro Pusat Statistik).

- Kompas Indonesia 1982. List manufacturers and traders of very many commodities (P.T. Gramedia, Jakarta).

- Specification of items under the product Reservation Scheeme. Products reserved for small industries (BIPIK, Jakarta).

For any further Statistics, check on the availability in CBS List of Publications, Daftar Penerbitan, Biro Pusat Statistik.

For finding potentials suppliers of machinery and raw materials, check first of all.

- Yellow pages of the various telephone directories

For Information about foreign machinery and suppliers look into the trade directories from the respective countries. You may also contact their local commercial representations. Dependant on the requirements, you may find potential suppliers in any of the following or other countries.

The first mentioned ones are traditionally suppliers of low cost, simple, and labour intensive goods. The last mentioned ones supplies often high quality but generally too sophisticated, and extensively geared on labour saving. They are frequently also too expensive:

India, Taiwan, Brazil, Hong Kong, China, Singapore, South Korea, Italy, England, Japan, Holland, USA, Sweeden, Germany.

B.8 Use Decimal Classification.

The project paper should be written in accordance with decimal classification numbering system with main paragraps, sub, and sub-sub paragraphs. One should follow a fixed pattern of heading the paragraphs as follows:

1. MAIN PARAGRAPH.

The main paragraphs should be numbered in front of the fullstop and written in CAPITAL LETTERS, underlined.

Jump 5 line spaces from the end of the former paragraph to the heading and jump 1 line space from the heading to the next.

1.4 Sub - Paragraph

The sub-paragraph may be written with heading in small letters, underlined with 2 line spaces over and 1 line space under the heading. Numbered behind the fullstop.

1.4.1 Sub-sub Paragraph

Sub-sub paragraphs are written with small letters not underlined, 1 open line space over and 1 line space under the heading. The number of the sub-sub paragraph to be determined by the second digit behind the full-stop.

Further Sub - Divisions. These are not numbered, the heading should be written in small letters and underlined in the beginning of the line of the paragraph. These sub-divisions can come under any of the above headlines.

Projects over 25 pages should have a sheet behind the title page with specification of content and appendixes.

B.9 What to write first and last.

The guidelines in the continuation are written according to the feasibility study working plan, in the same order. It does not mean that the study writing should be done in the same sequence. It is normally not practical to start the working with the introduction summary and entrepreneurial situation and thereafter continue with writing product and market information.

The writing sequence can also not be unniversally determined. What should be investigated and written first and last will have to wary from project to project according to the situation.

First one should however always do some limited prefeasibility study investigations to sort out the major situation and the scope for the project. After that, may it normally pay to continue further with the most difficult and doubtful points. It will also be natural to work on several points simultaniously.

The market demand is dependent on the product construction, and the product construction is determining the manufacturing process and the investments. It will in general not be possible to finish off one of these questions before investigating the next. It all hangs together in fact and must be approached accordingly.

A normal sequence with much room for variations may with these reservations be roughly as follows:

1. Chapter 3 : The Products and/or Services
2. " 4 : The Market Situation
3. " 6 : Selection of Technology
4. " 7 : Proposed Production
5. " 8 : Location
6. " 5 : Sales Programme and Market Strategy
7. " 9 : The Economy of the project
8. " 2 : The Entrepreneurial situation
9. " 10 : Implementation plan
10. " 11 : Conclusion and Recommendations
11. " 1 : Introduction and summary.

The material in different chapters can however not be finished, unless first clarifying some of the content of later ones. That may include the following matters:

Chapter 3: - Do not start to write anything unless first checking that the level of investments will be within reach and the profitability projections will turn out with a positive result.

- The selected varieties must fit with the market requirements and the selected technology.

" 6: - The selection of technology must fit with the local situation and the selection of entrepreneur.

" 8: - The location may depend on market strategy and entrepreneurial selection.

" 9: - The preoperation interests of the investments depends on the implementation plan.

- The working capital requirements depend on the profitability estimate.

FEASIBILITY STUDY
WORKING PLAN

C. FEASIBILITY STUDY WORKING PLAN.

Standard plan for the content for preparation of feasibility studies.

For more detailed guidelines on the different matters, see part 2: "Guidelines for preparing the individual sections of the feasibility study"

1. INTRODUCTION AND SUMMARY.

Short description of the proposed project and of products to be manufactured and/or services to be offered. This should high-light the following:

(a) Motive for the proposed project e.g. import substitution, export, unsatisfied local demand, subcontracting, resource upgrading, etc.

(b) Mention briefly important main situations for the project, as; sales methods and market coverage, selected technology, location and entrepreneur situation.

(c) Summary of important data like investment level, production volume and value, profitability, employment creation, protection requirements, etc.

2. ENTREPRENURIAL SITUATION.

A. For New Projects for a particular entrepreneur:

Where the sponsors or applicants will be owner/managers, state:

(a) Name(s), address and telephone

(b) Present Occupation

(c) Proposed Ownership structure;

(d) Skills and qualifications within the required technology.

(e) Present Bankers, credit-worthiness and ability to raise the required equity in time (owners own capital contribution)

(f) Evaluation of the applicants ability to run the project. Possible improvement measures to be taken as extra training or assistance within marketing or production supervision.

If the sponsors or entrepreneurs will not manage the project, an acceptable manager should be identified.

B. For New, Open Projects:

(a) Project capacity related to market demand

(b) Recommended location(s) for the project and indication about how many similar projects should be established.

(c) The need to start with pilot project(s) and recommended location for this (these)

(d) Requirements to the owners/managers regarding management and technology skills, capital contribution and building availability.

C. For Expansion or Improvement of existing industry:

(a) Nature of present business. Present products.

(b) Name, address, and telephone.

(c) Location of industry

(d) Change in employment (management and labour)

(e) Operational and financial record:

i Description of existing facilities

ii Trends in his development

iii Capacity utilization

vi Audited annual accounts and annual sales volume for principal product lines for the last 3 years. (as appendix)

v Bank reports and statements

(f) Evaluation of the applicant's fitness for the proposed expansion, and when required, proposed or conditional changes in the structure.

3. THE PRODUCTS AND/OR SERVICES.

The following should be highlighted:

(a) Product specification. The limitation of product variations. (With justification)

(b) Mention other products that can substitute or be substituted by the product (when applicable).

(c) Mention attributes and/or hazards of the product and its effects on the consumers or population.

4. THE MARKET SITUATION.

4.1 Existing Supplies . Local Manufacture.

(a) Total volume and value of the local production of the product. Distribution on relevant varieties.

(b) Production Volume within the province/Kabupaten and/or town/market as may be relevant. When it is relevant, production volume also in neighbouring areas.

(c) Specify as well as possible names of the manufacturers, their production volume, varieties and other matters as may be found relevant.

(d) The general situation within the manufacturing industries in this trade. Competition, Profitability, Capacity utilization, quality. Capability strenght and economy of the companies.

(e) Development situation within the trade. Change the production volume from year to year. Increase in number of enterprises. Existing plans for start of other significant manufacturing units.

4.2 Existing Supplies. Import.

(a) Import volume and value over the last few years

(b) Duties and restrictions on importation

(c) Comparison of price, quality and preference with local production.

(d) The general situation. Name and strenght of the importers. Expected future development.

4.3 Existing Supplies. Export. (If any and when relevant)

(a) Export volume and value over the last few years

(b) Restrictions, formalities and possible export duties on the product. Possible disadvantages in exporting the product.

(c) Possible specific demands to exportation and the possibility for this project to cope with the demands. Quality - prices - quantity - payment - exporting organizations - export incentives.

4.4 Trading of the Product.

(a) Specify the normal trading system and trading links from manufacturer to consumer. Specify the profit margins and expenses that are not included on the different links and show how the price build up from ex factory to retail price. Include freight, transportation, sales tax and other charges. Conclude ex factory price.

(b) When significant, specify also other trading systems that are in use for the product and compare suitabilities.

4.5 The Existing Demand Situation (When different from existing known supplies)

(a) Estimate the volume of the demand, Especially if different from the supply. When important, preferably use as much as 3 different methods to calculate the demand, show and explain the calculations in the study, compare and explain the differences you arrive at. The methods you use may include some of the following:

- Traders assesments, based on shortage of supply
- Delivery time, excess pricing, differences in market prices,

- Direct contact with a number of consumers
- Pro capita requirement calculations
- Comparison with the consumption of related products.
- Comparison with figures from other geographical areas/countries.
- Consumption statistics
- Test sales.

(b) Price and Quality elasticity. When relevant, show how and to which extent sales volume may be dependant on prices and qualities.

(c) Geographical differences. Pay special attention to own market area.

4.6 Seasonality in Supply and demand

(a) Clarify whether production and/or consumption is affected by seasonal variations.

(b) If so, specify the monthly variations

(c) If prices change over the seasons, specify this as well as possible, possibly with records for the last 3 years.

4.7 Specific constraints and Protective measures (If any)

Product reservation, market reservation, deletion programme or specific government policies.

4.8 Expected future developments.

(a) Expected required changes in design and varieties

(b) Expected changes in price (other than due to inflation)

(c) Expected changes in the demand volume. Increase or decrease. Change from or to other products. Quantity and explain.

(d) Expected growth rate for existing manufacturers and expected production from other new industries to come.

4.9 Conclusion of Demand.

(a) Conclude the above sales volumes and the market possibilities that are open to this project. You may when it is practical use a table specifying sales volumes for a 5 - year period; as shown on page 84.

(b) If the figures of the table above will be too uncertain, you may operate with optimistic and pessimistic alternatives.

(c) Indicate to which extent it may be necessary to divert into manufacturing of other products. Indicate what development constraints that may involve, and what prospect the additional products may get.

5. SALES PROGRAMME AND MARKET STRATEGY.

(a) [illegible] sales volume considering a sufficiently modest utilization of the open market specified above, maximum net utilization of production capacity (complete para 6 and 7 first), working capital limitation, seasonality and possibly other constraints.

(b) Judge strenghts and weaknesses in the market for the project, compared with other suppliers.

(c) Specify expected sales volume and market share within nearby markets, more distant areas, possibly within the whole of Indonesia, and when applicable also for export. You may expect the utilized production capacity to increase e.g. from 50 % to 100 %. You may possibly use a table as outlined on page 87

(d) If the sales is expected to be seasonal, specify expected sales divided on the 12 months of the year.

(e) Specify how it will be possible to reach these targets. Trading system, number of own agents or sales representatives, specially required sales promotion activities.

(f) Specify especially (if different from what is specified for the trade in general) how price is built up with cost and profits on the different links from an ex factory to a retail price. If relevant specify export price and possible other special prices for special markets.

(g) Estimate for the 3 years, costing of building up the sales organization.

6. TECHNOLOGY SELECTION.

(a) Specify which technologies can be used in the production and give a short description of them

(b) Compare the annual costs for available technologies. A table as outlined on page 90 may be used.

(c) Select technology for the project. Normally one will select the technology that creates the lowest annual costs. An alternative with a slightly higher cost may at times be justified, provided the investments are low and the employment rate is high. Explain the situation.

A diagram as show on page 90 may be of assistance to clarify the situation.

(d) If the selection of specific machines is an open question after selection of an appropriate technology, a similar comparison can be done of different individual machines.

7. PROPOSED PRODUCTION.

7.1 Production Process.

(a) Specify step by step the different processes of the production, and when necessary make a flow chart.

(b) When different methodes can be used and when the methodes are not generally well known, describe the individual processes and the equipment that goes with it.

7.2 Production Programme.

(a) Specify which is the technical limiting factor of the production volume.

(b) Specify number of shifts and hours per year to be worked.

(c) Calculate maximum expected annual production. The theoritical machine capacity may be reduced to something practically possible through multiphying with reduction factors for the following:

- A lower speed in the practice than in the theory
- Lack of continuity because of absence, disturbances, delay in supply and sales, technical failures, etc.
- Repeats, correction of mistakes, wreck production
- Seasonal limitations

(Normally 30 - 70 % of theoritical capacity)

(d) Specify production programme for the 3 first years, starting may be with 50 % and ending with 100 % of expected annual production. Specify dividing of the production on the different product varieties.

7.3 Raw materials.

(a) Mention type of raw materials to be used and how to procure them. How will they be transported ?

(b) If not making separate product cost calculations, (para 9.4) specify the consumption of the individual components, raw materials and consumeables per item and per annum. Specify prices and calculate the annual costs. Add freight and expenses that are not included.

(c) Confirm problems in obtaining particular materials and specify how such problems will be solved.

(d) For seasonal products, specify how the purchase will be influenced, specify price variations over the year and determine necessary stocks and average prices to be paid.

(e) Specify payment conditions for raw materials and determine necessary stocks. Calculate working capital demand for raw materials.

7.4 Manpower Requirements.

(a) Specify no of operators and assistants on the different processes. Specify wages and level of social costs and calculate total variable cost of wages.

(b) Specify no of additional workers and helpers for office and managerial staff, specify wages and salaries and calculate total fixed costs of salaries and wages.

(c) Indicate skills requirement for the different jobs. Specify to which extent such skills are already secured, and to which extent they may be found available in the market.

(d) If specific training is required, specify how it will be provided and the costs of such training for the project.

(e) Specify if any seasonal manpower will be required and how the problems of continuity in skills, will be maintained.

(f) If assistance from the outside is required for plant erection, commissioning, and initial supervision, specify mode and costs.

8. LOCATION.

(a) What is required in the province, the kabupaten or the town to be a fit location for the project ?

(b) How does the selected location fit with these requirements? Distance to the market area for the products and to sources of raw material.

(c) When applicable, compare the costs of establishing the industry in different areas and state the reasons for the location selection.

(d) About duplication of the project within other areas .

(e) Which requirements are there from the project to the plot, building size, electricity supply, road connection, water and sewer connections, telephone, etc. and how are these matters settled at the selected site.

(f) Description of the site and building situation.

9. THE ECONOMY OF THE PROJECT.

9.1 Investments. (Specify which costs are already undertaken)

Land and Building.

(a) Specify costs of the project for land, building, road, fencing, sewer and water installation and connection, electricity connection or electric generating, partitioning, air conditioners or cooling fans, possible prefessional fees, etc.

(b) If leased, state contract period, condition of lease, amount, and payment conditions.

Machinery and Equipment

(a) Specify costs of all machines and tools and add necessary packaging, freight, insurance, import duty, sales tax, handling, bank expenses, clearing and forwarding.

(b) Specify installation costs for machinery fundations, electricity, power connection, water, fuel

(c) Add contingencies, possibilities for price increases, and currency fluctuations

(d) Confirm if secondhand equipment.

Other Assets Required:

Furniture, transport means, fire extinguishing, office equipment, telephone, sundry deposits and prepayments.

Safety factors:

Add contingencies, and allowances for price increases, and fluctuation of foreign currencies as may be required.

Pre-operational Expenses

(a) Feasibility study fee, engineering fees, and legal fees.

(b) Company formation expenses and local establishment expenses

(c) Training expenses.

(d) Interest before start of regular operations

(e) Salaries, power consumption and sundry expenses before start of operations.

(f) Inputs for faulty trial products during trial production.

Working Capital Requirements:

(a) Cash (wages, salaries, and other cash expenses)

(b) Stock of raw materials

(c) Prepayment/precommitment for purchases in order, and under dispatchment

(d) Work in progress

(e) Stock of finished products

(f) Debtors less Creditors

9.2 Financing of project in 000 Rp.

(a) Specify the financial sources for the different investment requirements.

	Total	Bank loan	Entre-preneur	Other Specified sources.
Land and building				
Building Improvements				
Machinery and equipment				
Installations				
Other assests				
Pre-operational expenses				
Working capital requirement .				
TOTAL				

(b) Specify which grace period, loan repayment period and interest percentage has been anticipated or indicated by the bank.

(c) Refer to the cash flow and comment on to which extent the project will be able to repay the loan.

(d) Specify which securities are available and how this is considered sufficient to cover the requirements of the finance institution.

9.3 Profitability Estimate

	Yearly costs in 1000 Rp.		
	1st year	2nd year	3rd year
Production quantity in % of nominal production			
Production quantity in no of units			
Sales Receipts:			
- Gross sales Receipts			
- Less sales tax, product transport, discounts, commissions			
Net Sales receipts			
Production Costs			
Variable Costs			
Wages (variable part)			
Raw materials and consumables			
Electricity, water, fuel			
Raw material transport			
Others			
Sub - total			
Gross Profit			
Fixed Costs.			
Salaries and wages (fixed part)			
Rent			
Maintenance and Repair			
Stationery, Postage and telephone			
Sales expenses			
Transport and vehicle expenses			
Travelling			
Insurance			
Audit and licenses, Bank charges			
Depreciation			
Interests			
Sundries			
Sub - total			
Total Production Costs			
Net Profit			
Corporate Tax			
Net profit after tax			
Return on investment (or internal rate of return)			
Return on equity			
Value added			
Employment (no of persons)			
Break-even point (% of expected sales)			
Investment/worker			

9.4 PRODUCT COST CALCULATION.

(a) When required make cost calculation for each of the individual products to be made, specifying:

- direct raw materials and components
- add indirect variable costs related to material consumption
- direct labour
- add indirect variable costs related to labour costs
- sales price
- gross profit
- fixed costs added
- net profit.

Please see diagram page 179.

(b) **Summarize** the material costs **ad** the direct labour costs to tally with the profitability estimate.

(c) Comment on possible varying profit margins from the one product to the **other.**

9.5 CASH FLOW

	YR.0	YR.1	YR. 2	YR. 3
Sources of Fund				
Profit before tax				
Depreciation				
Loan utilization				
Equity				
Total Sources				
Uses of Fund				
Fixed Assests				
Working Capital Increase				
Tax payment				
Loan repayments				
Total Uses				
Cash Surplus (deficit)				
Accumulated Cash				

Mention whether there is likelyness of any liquidity problems, and how these in case may be solved.

When the project is highly seasonal or when the liquidity is critical, a monthly breakdown for one or two years may be required.

10. IMPLEMENTATION PLAN.

(a) Make a time chart specifying the different activities from project approval to regular production, including financing, sundry formalities settlement, building preparation, machinery purchase and installation, utilities installation, employment and training, raw material purchase, sales channel preparations, plant commissioning, and trial production.

Split the different activities into separate operations to the extent that it will improve the picture and make the timing sufficiently relyable.

(b) When necessary for the provision of capital and calculation of pre-operational interests, draw also a time chart for the employing of the capital.

(c) Highlight uncertainties in the implementation plan, points that require special attention, and matters that must be prepared in due time to make the time schedule possible.

11. CONCLUSION AND RECOMMENDATIONS.

(a) Discuss the viability of the project

(b) State which measures to be taken to safeguard the viability.

(c) Give recommendations about the sponsors or applicants of the project.

(d) Request for approval and financing of the project.

PART II

GUIDELINES FOR PREPARING THE INDIVIDUAL SECTIONS

Part 2.

GUIDE - LINES FOR PREPARING THE INDIVIDUAL SECTIONS OF THE FEASIBILITY STUDY.

The comments in the following refer to the "Feasibility study working plan" Chapter C, part I (page 23 - 39). The comments are given in order of the chapters of the work plan, not necessarily in the order of recommended working sequence. (See chapter B 9 above)

Not all questions or subjects in the continuation must be answered, only that what is significant for the project, and when it is important to give a real and meaningful picture of the situation. Important questions must not be omitted.
Some of the subchapters may be omitted when they have no relevance to the project. I.e: Do not talk about the export market if it has no relevance to the project!

The different chapters must also be given dimensions according to their importance in the situation. If the market situation is obvious; make a brief and shallow market study. If it is more doubtful, look deeper into the matter!

You may also in certain cases need to investigate matters that have not been mentioned here at all.

1. INTRODUCTION.

Make the introduction as short as possible. Do not give general information that is obvious and known to everybody. Give only information which is not generally known. Do not generalise, but give information about the specific project. Divide the introduction into separate subjects as follows:

Product:

Tell what to be made and in which scale. One sentence may be enough.

Motive of the Project:

Why is the project required ? I.e. how can the project improve the market situation ? It may be in order to substitute import, achieve export, improve limited availability, improve the cost or quality situation for the products, or to utilize special locally available raw materials, etc. Mention the relations of the project to the market and the community, not to the entrepreneur or the employees.

General situation of the Project.

Which market does the project aim to cover and to what extent ? Will it sell its products within the town, the district, the province, or countrywise ?
Will it export ?

Will it sell to any particular sector of the market ? (regarding quality or price level, type of customers, etc.) Will it manufacture on order basis ? How is the market in general, and how is the competition situation ? Are the sales methodes those normally applied within this trade ?

What technology is selected ? What is the reason for the selection ? Is it different from what normally is applied ?

Where and how is the location, and the building ?
What is the entrepreneurial and the management situation ?
Which doubts are there about his abilities and his financing ? What scopes are there for establishing further similar projects with the same and other regions ?

Summary of some main data;

What is the intended production or sales volume ? How does it compare with the break even point and the potential of the market ?
What is the investment level ? Could it have been lower ? Why is it made so high ?
How will the project be financed ? What are the major financial conditions ?

How many jobs will be created ? What will be the investment per employee ? Would it be more or less economical to employ more people ?
What profits are expected ? Break even point; Market share. Utilization of the production capacity. Return on investment.

Background for the Project.

Who took the initiative to the project and why ?
Is the project new or is it an expansion ? If it is an expansion, why can it not be financed from the company profits ? Why is the expansion required ?

Judgement of the situation.

Give very briefly information about the main situation of the project with data, positive aspects, doubts and difficulties.

Judge the utility of the project. Which doubts are present about the viability of the project ? How can these doubts be limited ?

Assumptions which have been made which contain uncertainties. What may involve:

- Market information correctness,

- Offer validities,
- Possibilities and influence of price increases before and after implementation,
- Capacity or labour requirements,
- Licenses or import protection availability,
- Entrepreneurship reliability. Obtainability of equity capital,
- Plot or building availability,
- Availability of key staff, etc.

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2. ENTREPRENEURIAL SITUATION.

- The project paper should be written after selecting the client. The project cannot be approved without in connection with an already judged client.

- If the client is not yet available, a temporary project paper can be written, indicating the demands to the client.
The chapter should normally contain the following information, where you should emphasise on what is essential in the situation:

A. Information required for all projects:

(If there is more than one main leader or participant in the project, give similar information for all of them or in common for them. If the management is different from the owners, give also vital information for the key management.)

Name, address, telephone, age, family situation, homeplace, and place of living.

Present occupation; Type of job, employer (since when), present salary and relationship to his occupation. Possible other relevant engagements.

Intentions. What are his plans for the project? Will he continue in his existing occupation ? By whom and how will in that case the management be taken care of ?

Will he resign (when), and will he do the management himself ? Which further plans does he have for his future ? Will he also engage in other enterprises ? Which plans does he possibly have for further development of the project ? Do you consider that he will devote sufficient time to management of the project ?

Qualifications. Which relevant education and experience does he have ? Which knowledge does he have within industrial management and within the required technology ? (More important than his paper qualifications and number of years of experience, is it to judge the wisdom and skill he is performing in conduction himself and his affairs).

Human Qualities: Is he sufficiently hard working ? Is he able to see problems and opportunities ? Has he the necessary initiative and energy to solve the problems and to utilize the opportunities ? Has he the ability of sorting minor problems from the major ones and to embark on what is esential ? Is he honest ? Does he keep his promises and appointments ? Has he been very useful during the preparation of the project ? Has he sound behaviours and habits ? Is he well accepted within the community ?

How does he conduct his private economy ?

Economical background. Which readily available capital can he invest in the project ? Which further capital will he be able to obtain from lending ? On bases of which securities ? Which possibilities does he have of obtaining equity from possible other sources ? How is his general economical strength ? How successful is he in controlling his economical affairs ? (Please specify amounts in Rp.)

Foreign Party. If any foreign participation or assistance is required, please confirm and specify address, managerial and technical qualifications, type of collaboration, and participation capital.
Specify the commitments to the project of both the parties, and enclose a copy of the collaboration agreement.

Judgement: How do you conclude the above observations related to the proposed business ?

How able will he be in conducting the business ? Which short-comings do you foresee ; and which precautions would you consider being useful in order to safeguard the control of the project ?
Is the client really fit for the project and is he the best possible candidate ?

The firm: Is there registered a company ? Is it a proprietorship, a private company, a co-operative or a limited Company ?

What is the name, the business address, the registered and the paid up capital of the company ? How is the capital, the commitments and the tasks divided among the participants ?

B. Expansion Projects.

If the project is for expansion of an existing company, give the following information:

The Nature of the Business: What is the business making and what is it trading ? How is it operating and how is it selling ?

Data for the business: Distribution of existing share capital, names of partners or directors, no of employees, existing investment, location of the business, existing turnover and profit, development in turnover and profit during the recent years. No of shifts, utilization of production capacity.

Problems of the Business. Which are the main problems in running the business ? How are the results of the business affected by these problems ? What will he do to solve these problems ?

Accounts of the business. Enclose the balance sheet and the profit and loss account of the project, preferably for the 3 last years. Analyse the accounts and draw conclusion from the analyse. Find out which products the project sell with loss, and which give profit. Specify the binding time for the working capital divided on;

- Materials in order
- Materials stock
- Work in progress
- Product stock, thereof current stock
- Debtors, thereof doubtful debts
- (Creditors, thereof long term credits)

Specify how the working capital can be redisposed, and what kind of improvement that can do to the existing project **without** any loan.

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3. THE PRODUCTS AND/OR SERVICES.

3.1 Rational Product Selection. To make the production economical and rational it is necessary to limit the production to as few products as possible.

If one can fill the whole production with only one product in one execution; fewer machines and tools are required, raw materials will be less, time will be better utilized, the skill will be higher and more specialized, the product better, and the production costs lower.

Only if it is necessary in order to achieve enough sales, or to get a sufficiently stable situation, more products should be made, or the product should be made in more than one execution. In all cases, try to limit the range of products as much as possible.

3.2 The product should be properly constructed,

- in order to suit its purpose
- to limit consumption of materials and time
- to simplify the manufacturing process
- and to limit the no of machines and tools required.

It is necessary to examine the product properly and if possible improve it before finalizing the project. Most products can be improved with limited efforts. Please do not take it for granted that the product is good enough already.

3.3 The execution and the quality of the product should be adequate for the demand. This will not always mean that the highest quality is the best-if that means increased costs. The execution should not necessarily be the same as what the market is accustomed to. Improvements should be made to the extent that one can expect the changes to be accepted within reasonable time.

The following should be specified in the project paper:

1. Product Specification. Type, size and capacity of the product. Materials and components. Product quality. Specify the product classification number and the C.C.C. duty tariff classification number.

2. Product Variations. Specify varieties of the product if any, and justify the variations. Indicate the differences in sales volume between the different executions. Why has this number of varieties been selected ?
Consider that a higher number may mean increased sales and easier sales. Also consider that it means more tools, further raw materials, larger stocks and increased demand for working capital. How can it be ascertained that the selected varieties are the most needed ones ?

3. Compare the product with other similar products in the market. Which are the differences in positive and negative direction comparing the different characteristics of the product ? Which of these characteristics are more important ? How do you conclude the general preferability ?

4. Product acceptability. If there are any National or international standard for the product, how does it comply ? Certain products require approval from the authorities or from main customers.

Such institutions include among others the following:

- Ministry of Public Works
- PLN (Electrical goods)
- PERUMNAS (Building products)
- Dir.Gen. for Control on Food and Medicine

Is the product approved ?

5. Product Importance. How important is the product for the population of Indonesia ? Will it improve our living standards ? What are the positive effects, and which disadvantages or hazards may it involve ?

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4. THE MARKET SITUATION

The objectives.

The analysis of the market is not only a question about finding out whether the demand for the products or services is sufficient enough to start the project. More important is it to find the total picture of the market situation, so that the project can be established in the right relation of the products, with right sales approaches, and finances.

A range of questions must be clarified. These are some of the most important ones:

- How big is the demand, and what share can be taken by the project ?
- What will be the suitable price and quality ?
- How can the marketing best be established ?
- Which changes can one expect in demand and supply ?

The market analysis must be carried out to give the required information with satisfactory reliability.

It is normally more difficult and important to reach figures one can reasonably rely on, rather than getting accurate figures with many decimals. It is therefore important during all market investigations to cross check the information by different methodes of reaching the same information.

How thorough the analysis should be, dependens on:

- The safety margins of the obtained information
- The difference between planned production volume and market size.
- To which extent the situation on the market can have an influence on the establishment,
- The size of the project.

It is normal, not take the tasks seriously enough. One takes too many matters as obvious, one do wrong judgements, and one trust wrong information. One do not contact the most vital people already existent in the market. These are major sources of failure for many projects.

Ways of collecting information.

Collecting information during the market analysis is an important and often time consuming task, requiring contact often with many people. The collection of information may be done in 3 ways:

- By requesting in writing. Only very responsible organizations and those getting benefits from the project can be expected to reply. The method is simple and the obtained information is relyable, but very few people will bother to reply, and the information takes long time to arrive. Most important; one will miss out very important information that has not been asked for.

- By Telephone. More information can be obtained this way and very quickly. Unless when very important and comprehensive information is required, the telephone should be used largely.

- By your personal visit. Applicable for the most important connections. Prepare a complete list of questions in advance, but be flexible during the discussions. Important information might be available which is not covered by your planned questions. Be sure that you encourage the mentioning of such information. Try to get the information quantified by figures. Try to prevent putting any answer into anybody's mouth by indicating answers. He will normally tend to agree with you even if your suggestions might be very wrong. That is easy and polite.

  Do not take "no " for an answer, but put the question in a different way, so that you get at least the main information you require.
  Be aware of that people tend to exaggerate the information in the direction which suits themselves.

Judge and cross check the information you get. Discuss with him immediately the information you get, and let him politely understand when you can see that his information is wrong. When you show experience, that you know quite a bit of the situation, he will also be more careful about giving you correct information.

If you want frank and open information, it is necessary that you are frank and open yourself. When your connection sees that he get information through giving information, he will be much more open to you; confidence creates confidence. It is therefore important that you put yourself sufficiently into the picture before approaching competitors and others, by first doing a bit of the required desk research.

Sources of Market Information.

It is rarely possible from any source to give fully correct and relyable information covering the most important of what one require to know. Even it is difficult to know what one require to know before one has discussed with people in the trade and roughly got to know how the general situation is.

To have contact with several people within the trade is absolutely necessary. Studying of statistics and written information alone can never give any complete and relyable picture as required.

The information one get from different sources can often vary widely and contradict each other extensively, and it is necessary to contact different sources and compare the figures. The more the information varies, the more sources may it become necessary to contact. Such comparison and reasoning should be specified within the feasibility study itself. The more the figures differ, and the more difficult it is to conclude, the more sources one should approach.

However good theoritical and statistical information one have, one can never omit to get personal information. Sources may include other operating manufacturers, traders, and consumers of the product. One should generally never make use of less than 3 different types of sources or methods to arrive at the demands on the project.

The different chapters will also require contact with different information sources. We have in the table as follows indicated to which extent, different sources may be useful for different kinds of required information:

The use of different sources of Information in the Market Situation Analysis:

Source of Information:	Source priority for the different aspects of the required Market Information:										
	Existing local manufacture		Expected future local manufacture	Existing import	Existing Export	Trading Situation & Price Structure	Consumers demand and Competition	Expected consumer's future demand	Price and quality elasticity	Seasonality	Competitive and protective measures
	Larger Scale	Small Scale									
- Manufacturers, larger	1	1	1	2	1	1	2	1	1	1	1
- " - smaller	2	1	3	3	-	1	3	3	2	2	1
- Manufacturer's associations	1	1	1	1	1	1	2	1	1	1	1
- Importers	1	2	2	1	3	1	2	2	1	1	3
- Factory representatives and exporters	1	2	3	2	1	1	2	2	2	1	-
- Whole-sellers	2	2	2	1	-	1	2	3	1	1	-
- Retailers	3	2	-	2	-	1	1	3	1	1	-
- Shops and Supermarkets	3	3	-	2	-	1	1	-	1	1	-
- Trader's associations	2	2	2	1	1	1	1	2	1	1	-
- Private Consumers	3	3	-	-	-	3	1	1	1	-	-
- Industrial Consumers	3	3	-	2	-	3	1	1	1	-	-
- Government Consumers	3	3	-	2	-	3	1	1	1	-	-
- Test Sales	-	-	2	-	-	-	2	2	2	-	-
- Raw Material Suppliers	2	2	3	-	3	-	-	-	-	3	-
- Machinery Suppliers	2	2	1	3	3	-	-	-	-	-	-
- Engineers, Consultants, and salesmen in the trade	3	3	2	3	3	2	3	3	3	3	-
- Manufacturing statistics	1	1	2	-	-	-	-	-	-	1	-
- Import/Export statistics	-	-	-	1	1	2	-	-	-	1	-
- Consumption statistics	2	3	-	-	-	2	1	1	3	3	-
- Foreign Statistics and other foreign country information	-	-	2	-	-	-	1	1	3	3	-
- Other Literature, Magazines, Libraries	3	3	2	3	-	-	2	2	-	3	-
- Kanwil and Ministries	2	1	1	3	2	-	3	-	3	3	-
- Research and Development Institutes and organizations	2	2	1	2	3	-	2	2	2	2	-
- Development Banks and Bank of Indonesia	3	3	2	3	2	3	3	3	3	3	-
- Manufacturers of slightly different products	-	-	2	-	-	2	2	2	3	-	-

For the different chapters or types of information that is required, has been indicated how useful the different sources of information may be. The classification has been done as follows:

1 = Normally the most important sources

2 = If you do not get sufficient information from the above ones, try these sources.

3 = Try to see if you can get any information from this source as well, when you anyway are in contact.

– = Normally not relevant source.

As can be seen of the table, the opportunities of getting crossing information from very different sources will always be there, and a number of sources must be used.

The most important sources are first of all the manufacturers that already exist in the trade. However good information one get from elsewhere, contact with a number of existing manufacturers should always be considered a must.

As one can also see from the table, most sources provide market information within a range of different fields. It is hence important that once one has the opportunity to be in contact, that one pumps out as much information as possible within the different areas. A check list for the questions should be prepared in advance. One will also when possible, try to get the information when one for one or another reason is in contact, being it an accidental meeting or contact mainly for a different purpose. E.g., when approaching machinery or raw material suppliers to get quotations for the project; try to get answer to the market questions as well.

<u>Some Further About the different Market Information Sources.</u>

1. Manufacturers of similar products.

Do not avoid them. They are the most important source, and they have the majority of the required information.

Sometimes they may be reluctant to give you information, or they may some times exaggerate the problems to scare you off. Be sure that you have some information for them, it is a matter of give and take. Wait with approaching manufacturers until you already know from other sources.

When you get wrong information, correct them or show them tactfully that it can not be correct. Have your list of questions ready, but do not shaw it openly. Do not take a "no" for an answer, but repeat your question in a different manner.

There are very many questions you can get answered from them, but get first of all to know about:

- Their own production volume, others production volume, total production volume, volume development over the last few years, seasonality.

- The general situation in the trade. Constraints and developments.

- Expected changes in product, production volume, market demand, and other matters.

- Marketing channels, trading system, prices and resellers profits.

You will normally find that the larger manufacturers know more than the small ones, but the situation and the information is different, so contact both sectors. Contact a number of them; you can than easily cross-check the information and get a more correct picture. You may not be able to get very accurate information but that is not either very important. Get to know what the general <u>situation</u> is.

If you do not reach the goal well enough, talk also to manufacturers of slightly different products. They are using the same raw materials, approaching the same market, using the same process, and/or being located together. That makes them to know, and they are less afraid of releasing any information.

2. Manufacturers Associations.

If the manufacturers have an association, than contact them. It may save you a lot of work running around to different industries, you may find much of the manufacturers information collected on one hand, and they may be more open about giving out figures etc. They may most likely also know more about the general situation, developments, and the relations with the government.

3. Importers/Exporters and Factory representatives

The importers will know not only about importation, but as much about local trading and distribution, systems, volumes, geographical distribution, trading links, prices and qualities, qualities preferences, etc.

The Factory representatives will have much of the same knowledge, but from a different angle.
The Exporters, if they are different people, might be specially interesting to contact if the project will have a export potential. One will however generally find that the exporters have good information about general developments in the trade, both nationally and internationally. They may have valid veiws about the future prospects of the trade. One may also find them, as much as the free traders, to be interested in discussing concrete business with a view on collaboration with the new project.

4. Wholesellers, Retailers, shops and supermarkets.

Not all products are traded through those channels, and when they are, the pattern of trade, as much as the payment conditions and profits, varies extensively from product to product. It is important to get this picture from these channels. Through them one should also find out what is the most suitable trading system for the new project.

It may also be very useful to discuss concrete business with these channels.

Are they interested in trading the products of the project ? To which extent can they commit themselves? What can they offer or indicate in terms of sales volume, price, payment conditions, etc. Which specific demands do they have to quality, delivery, packaging, etc. ?

5. Trader's Associations.

The association of the traders can inform further about the trade and the traders. Who are they ? What is their general situation. How is the supply situation for this product ?

What is the total traded volume of this product through their members ? Or what is their total trade volume, and what share can this product take ? Who of the traders may it be better to approach ? What is the supplier's and customer's situation ? How has the development changed ? What should one expect in the future ? What is the situation for imported products contra local manufacture ? Small scale contra larger scale ? How is the export ?

6. Consumers.

Dependant on the product, the consumers may be private, industrial, institutional, and/or governmental. You may approach consumers as is relevant for the product. For new products and for products that are not channeled through the above mentioned trade links, the contact with the consumers becomes the more important.

The consumers can inform about their likelyness of selecting the proposed product or brand, dependant on quality and price. They can give more detailed information about the requirements in volume, quality price, no of variations, etc.

Through the consumers one can also get a picture of the change in demand in the future, even if they may not know what may become available of competetive different products. The more people one get information from, the more relyable will the information be. But one can talk to a limited number of people and get a reasonable picture of the situation.

How many consumers one in the practise need to talk to, depends first of all on to which extent the consumption is even from the one to the other of them.

One may use a questionaire to enable an equal questioning to everybody. The consumption will always wary with economical ability and other situations. To enable any conclusion of demand, 2 - 3 or more categories of people may be questioned, the situation must be concluded for each group, and one must get an idea of the number of people within the individual group. As little as 10 - 20 people within each group may if the consumption is fairly even give a reasonable picture of the requirements.

7. Test Sales.

It may for entirely new products often be difficult to get a realistic picture of the demand after talking to traders and consumers. It may hence at times be useful to do some real test sales, to see the situation in the practise. One can than to quite some degree eliminate the differences between what people say that they "would have done if --", and what they really do.

The method is of course quite cumbersame and costly. It also require availability of a sufficient number of samples. But when the matter is important, and relyable information is difficult to obtain otherwise, it may still pay.

8. Raw material Suppliers

There may be few or many raw material suppliers, and the use of the material may be distributed on few or many different products. Hence the information about consumption volumes may give a more or less direct picture of the local manufacturing volume of the product. The suppliers can often tell about the consumption of particular customers or category of customers. Getting information from a few of the suppliers, one may be fairly well able to determine the total production volume with some approximation.

The raw material suppliers may also be supprisingly well informed about the situation of the end products and the manufacturers. He knows. The tasks is to make him telling you what he knows.

You have a very good position for getting information when you discuss with him about supplying to the new project.

9. The Machinery Suppliers.

Likewise, the machinery suppliers must be contacted to get quotations for the required equipment. Utilize the opportunity to get market information as well. Whether he has or has not supplied machinery to the other manufacturers in the trade, he has negotiated with them and he has a picture of their situation.

10. People in the trade.

Engineers, salesmen, consultants etc. working within the trade will often know quite a bit about the situation, at least generally. Find out who among your friends, colleagues or friends of your friends are in these positions, and can give you additional information.

Do not trust these sources two much, compare with the further information you have got. At least they can often help you to put you on the right track during the investigations.

11. Statistics.

The most important statistics are;

- Manufacturing statistics
- Import and export statistics
- Consumption statistics

But a range of different statistics are available in Indonesia from the Central Bureau of Statistics and they have available a list of available statistics.

The statistics will often give you quite detailed information with precise figures, but of course not always specifically for the exact product which you investigate. Still the information may be of good value, and you may get from other sources also a good clue on how the situation varies within the product group in the statistics.

12. Information from other countries.

Especially for new products where one so far have no practical market experience, may it be very useful to see the development in other countries. It may be countries that within the area are in a relatively similar situation but slightly ahead in the development. Their statistics are easily available and can tell about the change in sales volume and pattern of consumption. If taking contact with people or companies within the trade, one may of course get more comprehensive information about the development.

13. Litterature.

Books will normally give more information about plant and processes than about market developments. Journals and magazines will regularly contain more information on the market side, both internationally and specifically for Indonesia. You may not know that there exist one, but contact your library and you will be surprised to see the long list of magazines that exist, particularly within very specific trades, probably also one particularly within the field of the project you investigate. Go through a few volumes and see what it contains of interst.

14. Government Institutions

The list of Institutions specified above may lead you to the most important governmental source.

Any industry of any size must be registered and approved by the government, and a range of information is available. Much of it is confidential, but on a collective bases there are no restrictions.

It is also these institutions that impose and can discuss situation and prospects for protective measures and controlling regulations. Especially BIPIK and the KANWIL offices have available project profiles for a long range of products. Pilot projects and regularly operating projects have been initiated by these institutions, and you may find that complete feasibility studies and plans as well as production reports may be available. You may also be able to identify those who specifically have been dealing with the various projects.

15. Banks.

Existing, planned, and earlier projects and industries have in general all been financed by banks. The banks must keep themselves well informed about the development, and will know well the situation of their customers. They can give a good picture of the general situation for the trades. Bank Pembangunan Indonesia (BAPINDO), Development Bank of Indonesia, and others also prepare feasibility studies and other project materials.

You should contact them at an early stage any way to discuss financing of the project. Please do not miss the opportunity to get an overview of the situation and the projects within the particular trade.

4.1 EXISTING SUPPLIES, LOCAL MANUFACTURE.

A. Total Volume and Value. Distribution on varieties.

Do not only specify volumes and values without also explaining how you have concluded the quantities, based on information from which particular sources.

You may use a table as follows, and/or you may outline the situation in the text:

Type of Source	Total local production Value		Name of the particular sources	Explanation or calculation of the figures.
	Minimum assessment	Maximum assessment		
-Manufacturers information: - Trader's information: - Raw material supplier's information: - Machine supplier's information: - Statistical information: - Governmental information:				
Concluded present Local production:				

The specification of the manufacturing on different varieties is sometimes very important.
It is specially important when the product can not make all varieties and when provision of extra tools has to be considered. Each variety may have their own market, and the project may possibly not be able to make all of them. Distribution on varieties may from product to product involve matters as e.g.:

- Size varieties
- Colour varieties
- Capacity varieties

- Quality varieties (related to price)
- Basic material varieties
- Fasions.

Find out which type of varieties applies to the project, and specify according to the information how the production is distributed. (At times may it be more useful to specify the varieties under chapter for trading or demand).

At times the annual production volume may need to be distributed in a table, e.g. as follows:

Type	Quality or Price level	Production Volume		
		Size I	Size II	Size III
Fashion A	High			
	Low			
Fashion B	High			
	Low			
Fashion C	High			
	Low			

B. Geographical distribution of Production Volume.

The existing production within own province, district or market area for the project is generally especially important. How to divide the areas, depend on the nature and the distribution radius of the project. One may e.g. distringuish between:

- the intended market place for the project
- the town of the project
- the Kabupaten of the project
- a determined Km radius of the project
- the province of the project
- the island of the project.

C. Specify the local Manufacturers.

Make as well as possible a list of the manufacturers, especially the big ones and the nearby ones.

Specify their production volume, and when relevant, also about the product varieties they make.

You may possibly use a table as follows:

Name and address of Manufacturer	Annual production Volume	Present Annual growth %	Main Product Type	General situation

D. The General Situation within the Manufacturing Industries.

This information is very important for the viability of the new project, and there is no better way of getting it than from the industries themselves. You may be surprised to find out when you contact them with a honest question, how eager they are to inform you. These are some of the most important questions to look into:

- Their type of technology and capacity
- The degree of utilization of their capacity
- Their profitability and possible room for reducing the prices
- Marketing efforts and advertising
- Economical strenght
- Competibility in the market.

E. Development Situation within the Trade.

The project will be for the future and not for todays situation. It is important to relate the project to the future situation of the existing industries.

The present development situation and the past development within the existing industries can give some indication also about their future. The following factors use to give good indications:

- Change in the production volume from year to year
- Building activities and plant improvements. Purchase of new machinery.
- Emphasizing on Research and Development
- Increase in the number of entreprises or concentrating smaller enterprises into larger units.
- Existing plans for start of other new significant manufacturing units.

4.2 EXISTING SUPPLIES. IMPORT.

A. Import Volume and Value over the last few years.

If the statistic specifies the importation of exactly the commodity one investigates, one may say that the matter becomes relatively simple. Figures for the last 3 - 5 years can easily be found both for volume and value, which can also give reasonable information about the price development.

The statistics also specifies quantities and volumes from the different countries, which may again give an indication of the trend in prices and volumes for various qualities of the product.

One must always consider the possibility of mistakes in the statistics, especially concerning the invoiced prices as well as the possibility of illegal importation of certain commodities.

Not always will the particular product be specified in the statistics, but be included among other commodities.

According to information from consumption statistics, traders information, etc. one can judge the percentage of the group falling on the particular product. Such calculation may carry sense for major commodities, but should be avoided for products having only a very minor share within the product group.

Import volume information may also be available both from several government sources, from trade associations, and from the importers themselves. Import information from these sources may also give a good idea about the geographical distribution of the import.

Getting import information from Importers will it normally be necessary to contact a few of them and compare their information since their information even if honest, may be far from accurate.

B. Duties and Restrictions on Importation

The current duty rates are available in the tariff book from the Department of Customs and can be found there if not available from elsewhere.
The existing import restrictions are expressed partly in the duty tariff book and partly in various government decrees.

Discussing the matter with the Customs and the Ministry of Trade, one can also get a clue on the possibility of improving further import restrictions in the future.

C. Compare the Imports with the Local Production.

One may find major differences between imported and local products. Such differences may refere to:

- Quality and durability
- Fashion and look
- No of varieties
- Packaging and consumer information

- Brand, trademark, and the buyer's confidence in the name.

Not all the product selection factors are very rational, but so is not either always the pattern of brand selection among the consumers. Simply knowing or beliving that a product is imported give confidance, and it can regularly be seen that imported products are prefered in spite of disfavourable prices and qualities.

Do not underrate these factors in comparing the potentials for the project.

D. General Trend in Importation.

What will be the future situation is more important than knowing the imports today. Knowing the trend, the importers, the government policies, and the intentions; one may get a reasonable impression of the development to be expected. Who are the importers ? How strong are they ? Which policies do they have ? How do they look at the future ?

You may very well make a list or a table of the importers, specifying some of these parameters.

4.3 EXISTING SUPPLIES. EXPORT.

When the export situation has relevance to the project, either because the project intend to export its products, or because it is significant for the market situation for the project, then include this chapter.
If not, you may as well leave the whole chapter out.

A. Existing and past export volume.

The export figures are available in the annual export statistics for Indonesia from Bureau Pusat Statistic. The export is specified on the individual export harbour. That gives a good clue on who is exporting how much at which prices.

Getting the statistics for a few of the recent years, one can see the development in the export and the local annual variations.

If the particular commodity is not specified in the statistics, one can, again as for import, try to sort it out from the group of commodities if belongs to. One will in that case probably find that the exporters or the manufacturers can give better information.

There is also an opportunity to get further information from the Customs or Bureau Pusat Statistik, that is not printed. They have a range of information that is not being published.

B. Restrictions, formalities and duties on export.

Export is in general important for Indonesia. It brings foreign currency and provides the means required for importation. However, not all products should be exported, because the disadvantages may be greater than the advantages. Such products first of all include:

- Essential products in short supply (including many food crops).

- Raw materials or semifinished products that should be further worked, to receive increased value added before export.

A project should generally not include export of such commodities. In order to control and limit such activities the government has established certain formalities and restrictions. For some commodities are therefore established an export duty or a "cess". The cess may be imposed with an decreasing percentage for an increasing refining of the product. It may also involve the authorization of a limited number of licensed exporters.

Clarify and outline the situation for the product in question. Do not describe any generalities. Do not mention anything about the general benefits of export. That is already known to the reader.

C. Demands to exportation.

Which specific demands exist to this particular product to enable export ? Be specific and quantify, put figures on the demands that are relevant to the particular case, and do not mention generalities that are known and valid for any export product.
The demands will in most cases involve the following matters:

- Quality. Dependant on the product and the importing country, one will in general find that export products must have a higher standard of quality. The quality may be required to be more uniform with less individual variations.

  Often will also different specifications be required when the products will be used under different conditions. For composite products, spare parts and service facilities may be required.

  When seriously considering exportation, it is not enough to know that these demands may be there, but to investigate particularly and to specify the degree and the content of the demands.

- Price. The price one will get for export, will normally be different, independant from, and lower than the local ex factory prices. In order to compete or compare with the market prices in the receiving country, the final price for the importer must compare favourably, with the local ex factory prices there, and/or prices from other countries.

  The price the Indonesian manufacturer gets, will however be different from the gross price the foreign importers pay. Some or all of the following costs may apply in the individual cases on the Indonesian side, in addition to the net ex factory price:

  - Extra costs for seaworthy packing
  - Inland freight in Indonesia
  - Ship's loading costs and clearing charges.
  - Sea freight and transport insurance (FOB or CIF) paid by the one or the other. Ware - house charges.

- Possible export duty in Indonesia and custom clearance fees
- Bank charges
- Interests, especially if delayed payment must be accepted
- Specific sales cost, commissions to brokers, travelling costs, communication and travelling costs for the contact with the foreign parties.
- Less possible export incentive from the government, channeled through the customs.

For the foreign importer further costs apply to reach his "landed cost":

- Unloading and clearing costs, warehouse charges in harbour
- Import duty
- Interests on prepayments or capital binding
- Import license fee, inspections, and other charges
- Communication and possibly travelling costs

If one can not refer to an established export price for the commodity, these various costs must be taken into account when comparing with market prices in Indonesia or in the importing country.

Specify the export price and how it is arrived at.

- Export Incentives. The export incentive is a government measure to encourage export. It is basically meant to reimburse the duty that has been paid for imported raw materials. It does however not tally with the duty rates. Incentives are generally higher when raw materials of local origins have been used.

  The incentive generally varies from 2 % to over 20 %, dependant on the commodity. It is dependant on an export certificate and the disbursement may be received 1 - 6 months after the exportation date. The detail regulations are yet to be worked out for all commodities.

For other commodities will duties paid on raw materials be refunded after export, but the procedures before disbursement may take up to 12 months. These payment delays must be taken care of in the calculation of working capital.

Specify the incentive that may be available.

- Quantity. Importers in other countries will often require high quantities. The work and expenses of their importation is fairly high, and they do not find the business worthwhile unless importing a considerable volume. They may also need to prepare the domestic sales which again can not be economical unless they receive a sufficient quantity.

  The actual quantities wary from country to country and from product to product. The order volumes one however often so high that it is difficult for small scale manufacturers to cope with them.

  If the project intend to export, one must find out what is acceptable order quantities and make sure that sufficient working capital is available. Specify acceptable order quantities.

- Payment. If payment will not be received before the products have reached the overseas customer and been accepted, the capital binding will be high and may cause a too serious binding of working capital.

  Regularly, however, can the letter of credit be discounted in the bank so that part of the payment can be released at dispatchment and sometimes even long before to enable financing of raw material purchases. That can however not be trusted unless getting the possibilities specifically confirmed from the bank. Specify the payment conditions that will be accepted.

- Exporting Organization. In some trades it is normal to sell the product to an exporter who is responsible for the total export business. If the project intend to do that, all questions related to exportation can be refered to the exporter.

In that event, you can refer to prices, quantities, qualities and payment conditions as he can offer.

The export organization may be a cooperative, a licensed private exporter, a governmental enterprise, or a foreign purchase body in Indonesia.

4.4 TRADING OF THE PRODUCT.

A. The Normal Trading System and Price Calculation.

Different types of goods have traditionally unlike distribution channels and differences exist between different manufacturers within the same trade.

Few links in the distribution means low distribution costs. A better built out distribution system however, means that a particular brand of product can be sold in greater numbers and a higher degree of specialization is possible. This will normally result in better and cheaper products, and is often a condition for the development of an industry. The most normal trading systems are the following:

1. Sales direct from the manufacturer to the consumers. The system is fit for small workshops where it is natural for the customers to have direct contact with the manufacturer. The system thus mainly applies for manufacture on order from the consumer, for subcontracting, and for service and repair work.

   Central location with good signboards is important.

   2 % sales cost may be calculated for possible advertisements, folders, price lists, etc. The staff and the manager will normally use considereably time in discussion with customers. This time must be provided for.

2. Sales direct to the consumer via an agent. The agent is not trading the product, only collecting orders for the industry.

Travelling agents, or agents in several towns, may be appointed on full time or on spare time basis. The system fits best for sales of capital goods, but one can not expect to reach any big share of the market.

The agent will not get any salary but a commission between 5 % and 15 %, payable partly after delivery. Costing of sales material must be provided for.

3. Sales via own shop(s) in the town. One or more shops can be established for sales of the products. This fits when the project makes a sufficiently wide range of products to cater for the expenses of the shop(s).

The system can be considered when the costs of running the shop will be less than the commission to other traders. The number of shops should be determined by the capacity of the production. One will only reach a very small percentage of the market. The running cost of the shop(s) must be calculated and included as sales expenses.

4. Sales to retailers. Sales to local retailers can be done by the manager through visiting the shops. The retailers commission may vary between 10 % and 40 % dependant on the commodity. The lower percentage refer to regular consumeables. Sales cash on delivery also involving risks for the reatailer requires the higher percentages.

For sales over a wide geographical area, a travelling salesman, possibly carrying the commodities in a van, will be required. The expenses of the salesman with vehicle and accomodation can be quite high and should be compared with the cost of selling through wholesellers and/or a distributor.

5. Sales via wholesellers to retailers. This system applies first of all for products with limited sales but demanded by many over a wide geographical area. Normally the commodities will have to be brought or sent to a few selected wholesellers in the bigger towns. The commission rates to the wholeseller alone normally ranges between 8 % and 30 %.

6. **Sales via Distributor.** Instead of selling to wholesellers, especially when a very wide sales of a very limited product is required, the sales can be left with a sigle distributor who is responsible for the total sales from the project.
He will normally require up to 15 % commission and buys generally C.OD. (Cash on delivery.)

One should normally be careful with mixing up of different sales systems. One should prevent coming in miscredit by competing with ones own customers. Even so, it will in some projects be possible to sell both to wholesellers, retails and consumers, but to different prices.

Specify what is the dominant trading system for the product and how it works. How is the market covered ? Are the sales expenses reasonable ?

Specify how the product cost is built up from respectively Import C & F price, and ex local factory price, to consumer price.

As for alternative 6 above "Sales via Distributors", the following costs may apply from the local ex factory price:

(The figures are quoted as an example only).

	Addition:	Total (on ex-factory price)
- Ex factory price		100 %
- MPO tax	5 %	= 105 %
- PPN Sales tax	2,5 %	= 107,6%
- Freight and costs up to Distributors Warehouse	X Rp/m^3	= 110 %
- Distributors profit to include costs of sales, interests, storage, breakage, insurance etc.	15 %	= 126,5%
- Freight to wholesellers warehouse	X Rp/m^3	= 130 %
- Wholesellers profit to include packaging, cost of sales, interest, storage, distribution, etc.	25 %	= 162,5%
- Retailers profit to include all expenses	40 %	= 227,5%
Price to Consumers		= 228 % of ex-factory price

B. Deviations in Price and Trading System.

If the trading system for the product in the market is only one and there are no variations in price, that may be confirmed to be so.

It is however regular that different suppliers have different ex factory prices, The trading systems are different and so are the expenses and the profits. The differences may be due to difference in production volume, quality, location, etc. Prices may also vary over the seasons.

Specify which deviations from the normal or average situation exist in the market. Also indicate the rationale for the deviations, dependant on the situation of the different brands on the market.

4.5 THE EXISTING DEMAND.

A. Estimate of the total volume of the Demand.

The supplies to the market can be investigated as outlined above. One will very often find that the supplies fully cover the demands. There is than practically no excess demand to be covered by additional production, and the existing manufacturers are generally not fully utilizing their production capacities.

If the project intends to make similar qualities at similar prices, there will then be no unsettled demand to serve and the project will be forced to fight for a share of the market. That means that the existing manufacturers will make less, cost in general will increase, and the benefits to the community of starting the project may become questionable.

It must seriously be considered whether the project preparation should continue or not.

One factor that may still favour the project may be the local situation within the province or the village, especially when the supply there is unsufficient and supply from the outside becomes to expencive or provides deteriorated qualities.

If the demand is equal with the supply, it makes no real sence to estimate the demand separately. In the opposite case, it may become important, in order to determine the need for, and the size of the project.

Dependant on the product and the situation, there are a number of methodes that may apply to determine the size of the demand. No such method can give any exact measure of the demand and the misestimation margin may often be considerable. Dependant on the situation, 2, 3, or more methodes may therefore be used for the estimation, and the results may thereafter be compared.

These are some of the methodes that may apply:

1. Trader's Assessments. If the traders request for supply at the same time as the manufacturers are unable to deliver, one may concluded that there is an unstatisfied demand. The trader may be able to asess the size of the unsettlement.

Please however, be aware of that he most of the time will over estimate the needs, because a limited difference can be experienced as a big outcry. When he at times may have abundant stocks, he may also experience sales that are much higher than the regular requirements. People tend to buy when they can get it, and this may also be valid for extensively perishable products. Use the method, but be careful!

2. Long delivery time, Overpricing. Varying market Prices.

All these factors are strong indicators of a demand in excess of the supplies. As for trader's assessment, they may be difficult to quantify. The longer the delivery time, the bigger the stortage yes, but the quantification is not easy. The major question will be; how long in advance are people willing or able to place their orders ? Any general formula for the calculation can not be given.

To which extent people accept overpricing is naturally a question about price elasticity which of course can be measured through elaborate consumer interviewing. That however will take the matter too far, and the results will have huge margins of doubt. Varying market prices may have different reasons. They may be caused by abundant demand, but quick conclusions may often bewrong.

3. Pre Capita Requirements. This is an easy way to calculate when one can find a measure for peoples different situations and can find the number of consumers in the different income brackets. The main difficully is to determine the requirement volume for the individuals. Some of the following ways can be used to determine the individual needs.

4. Consumption Statistics. Especially for products and services required by private households are some quite detailed statistics available showing the consumption pattern of food and other items. The expenditure or consumption is broken down on different destimations and incomes. The total consume is included, so if the particular product in question is not specified, an estimation or questioning of some consumers within the group is quite possible. A summary of the consumption statistics for Indonesia is specified in appendix 1.

5. Direct Customer Contact. Questioning of consumers in different situations and income brackets may on a statistical basis give a good picture of the demand distribution. One will however in most cases arrive at an over estimation, simply because people tend to appear more positive than what they really are. It is of course important to place the questions in a so neutral way as possible.

6. Comparison with other Geographical areas or Nations. In other areas where the product is abundantly available, or in other nations where the product has been available for some time, one may get a clue of what the local demand may amount to. Situations, habits and cultures are of course different, and one must be careful not to take such comparisons too far.

7. Statistics of Manufacturing, Agriculture, Trade, Health, etc. Products required by any of those sectors are often easier to estimate than products for private consume. The consumers are generally fewer and their requirements are easier to determine. Talking with some of them can give a good picture and the available statistics can be of good help. Even if the product in question is not especially mentioned in the statistics, reasonable parallels can be drawn, and the major group consumption figures can normally be specified.

Specify how the demand has been calculated, and give the calculation results for the different methods.

A table e.g. as follows may very well be used:

Methode of estimation	Basic data as investigated.	Calculation of demand	Expected demand		
			Mean	Minimum	Maximum
Conclusion					

Explain data calculations and conclusion as may be required.

B. Price and Quality Elasticity.

The elasticity question is generally only of interest if the project intend to sell a different quality and/or at a price different from the regular prices in the market.

Products of exceptionally high quality may very well fetch a higher price, but the question is how many people will prefere it.
Lowering the price of the product may for certain products increase the sales. The question is how much. The increased sales must probably be shared with the others, as they most likely will decrease their price when required.

One can if it become necessary, try to find out the elasticity factors. It can be done either through comparison with other comparable products where prices have already been lowered or through interviews. (How much can the sales increase if the price is lowered to this or that level ?).

When it is vital, specify differences in price and quality from other products and the result of elasticity investigations.

C. Geographical Differences.

If the market situation within the area of the project is different from what has been specified above, than specify the differences and try to conclude in figures how it will influence the demands on the project. Pay attention to what may be relevant of the following:

- Freshness of the products
- Differences in final price or costs for the consumers
- Attitude towards products from the local area
- Differences in service.

4.6 SEASONALITY IN SUPPLY AND/OR DEMAND.

A. General Situation.

Is there any seasonality in production and/or consumption ? What causes it ? Does it need to be so ? How can raw materials be made available throughout, or can other materials be used ? Can the consumption pattern change or can other products be joined into the programme ? Can off-season prices represent any practical and economical alternative ?

B. Monthly variations.

Specify the variations from month to month as may be relevant. The specifications may involve;

- raw material production or availability volume
- raw material prices
- product consumption
- expected possible production volume
- expected possible sales volume.

C. Differences from year to year.

If prices, available quantities, and the lenght of the season varies extensively from year to year, one may risk some years to be worse off than the normal situations. If necessary, show the differences from year to year.

4.7 SPECIFIC CONSTRAINTS AND PROTECTIVE MEASURES.

- If the product is among the 129 products earmarked for the small scale industry, mention this and indicate how this may ease the sales from the project.

- The government has established a market reservation programme, reserving a range of products and services of the governments own requirements for the small scale industry. Specify if this can include supplies from this project, and which influence it can have on sales and prices.

- The government deletion programme specifies, with a time plan, to which extent existing assembly industry must substitute imported components with locally made ones. If that gives extra market potential for this project, than explain the situation.

- If there exist any restriction on use of any of the raw materials, than explain.

- If any license is required to operate, to sell or to export the products than explain.

4.8 EXPECTED FUTURE DEVELOPMENT

A. Product Changes.

Most products change with the development, and the project may be forced to undergo the same changes to enable sales also in the future.

To which extent must one expect to change the products in the near future, and how prepared will the project be to adapt itself to the changes ? To which extent will exchange of tools and machines be required in the lifetime of the project ? Is it necessary to plan for the covering of such costs ?

B. Price Changes.

Do not consider price changes due to inflation. Is it likely that other price changes will take place ? That may be price reductions due to increased competition or product development, or it may be price increases due to the raw material situation, etc. If necessary, indicate such expected changes and calculate with them in the profitability estimate for the respective years the future.

C. Demand Volume.

The demand for a product will rarely remain contant. Some staple food products change only very slowly, while the demand for some technical products may change drastically from year to year in positive or negative direction. The factors determining decrease are mainly:

a) The product becomes too expensive compared with other alternatives

b) The market for the product becomes saturated. The potential consumers have already bought their unit, and only few extra pieces are needed for exchange, etc.

c) The products become outdated, and the consumption change to new and more modern products.

The following factors tend to increase the consumption:

a) The increase in the population and the real increase in wages and purchase power.

b) Increased need for the product, changed habits and increased experience for usefulnes of more modern products.

c) Positive (or negative) development of the export markets.

Mention factors that are of importance, and conclude an expected annual rate of change.

The locking into changes in the past, and changes for comparable products, may give good indications.

D. Changes in Manufacturing Volume.

Do not expect that a possible increase in the demand, will necessarily all be available as a potential market for the new project. Existing manufacturers may have idle capacity which they are eager to utilize, they may possibly also have plans of increasing their capacity. There may possibly also already exist plans from others to establish new production within the same field.

It is important to know these matters. It may also be important to judge the strenght of the different suppliers. How easily may they give up a portion of the new or old market to the benefit of the new project ?
Try to conclude the annual changes in the local manufacture.

4.9 CONCLUSION OF DEMAND AND SUPPLY.

A. The Figures.

Conclude the demand for the 3 - 5 first years of the project.

The conclusion must be based on the conclusion you have already made for the chapters 4.1 - 4.8.

You may when you find it useful, use a table as follows:

	Sales forecasts:				
	1st Year	2nd Year	3rd Year	4th Year	5th Year
Demand estimation for the needs					
- Presently existing manufacture:					
- Existing manufacturers' utilization of present spare capacity:					
- Additional new manufacture according to investment plans:					
Total estimated manufacture (This project not included):					
Importation:					
Excess demand (Total demand less estimated local manufacture):					

B. <u>The Likelyness</u>.

- The figures will always to a lower on higher degree remain uncertain. You may therefore, when you find it useful, operate with two or three sets of figures, for a most likely, a most pessimistic, and a most optimistic development.

- Alternatively you may for the most uncertain figures, only give a lower and a higher judged figure. and conclude an excess demand likewise.

- If you do not see these considerations as important at all, just confirm to which extent the figures are safe, and how they relate to the requirements of the project.

C. The Need to embark on other Products.

If the market situation for the intended products is too uncertain to trust that the planned production programme can be fulfilled in the practise, than clarify which measures will be taken if the market develop un-favourably. How can the project stand a lower production or which steps will be taken ? Which other product may be embarked on ? Will that require any extra planning, extra skill, extra equipment, or extra capital ? How will these requirements be settled ?

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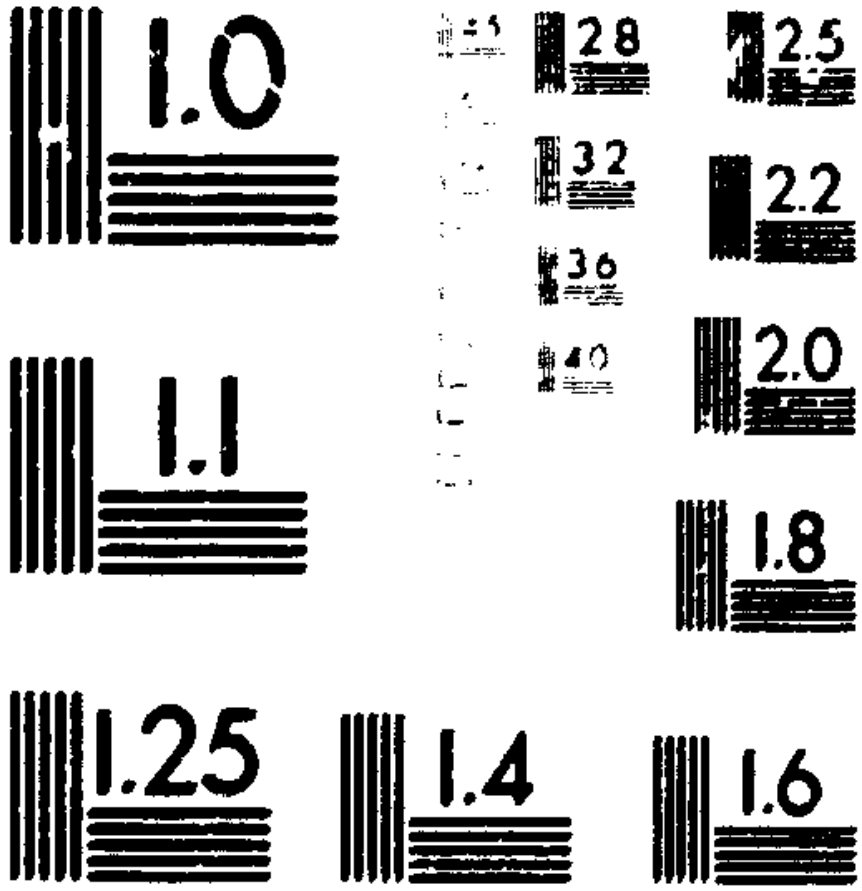
5. SALES PROGRAMME AND MARKET STRATEGY.

A. Sales Volume.

Specify the sales volume. The regular annual sales volume is first of all limited by the sales possibilities and the production capacity. (It may therefore not be adviseable to write this chapter before having specified the production programme and written chapter 6 and 7).

Limitation in Working Capital, seasonality, and raw material availability, are certainly factors that may influence the sales volume.



B. The Problems of Selling Enough.

Explain why it will be possible to sell as much as specified. Relate it to the size of the total market, and compare strengths and weaknesses with other suppliers in the market.

C. Specify the sales programme.

Specify how the sales volume will be built up from year to year. It is not normal to reach full production the first or second year, and sometimes not the 3rd year either.
The reasons may be related both to sales and to production. The organization, and routine of sales, may have problems in the beginning. People may be sceptical to the new products, the traders have already secured their stocks, etc. The manufacturing may be slow before some training has been achieved, mistakes will be done, and the supply of inputs may be inadequate. If all is well trimmed, one may expect such increase in the sales:

- 1st year : 50 % of regular production
- 2nd year : 80 % of " "
- 3rd year : 100 % of " "

Normally it will also be very useful to specify the sales divided on the different geographical zones which the project will sell to. This will show which share of the market one must take in the area. It will be a guide to the building out of the sales organization.

One will normally be able to get a quite reasonable share of the sales within ones own village, and the longer out one goes, the lower will be the share and the higher the sales costs. One should therefore as much as possible concentrate the sales to the nearby markets.

A table as follow may be useful in specifying the sales :

Market area	Sales Volume			Market share (3rd year) % of total demand in the area	Comments
	1st year	2nd year	3rd year		
Own market or town					
Rest of Kabupaten					
Rest of own Province					
Neighbouring Provinces					
Rest of Indonesia					
Export					

D. Seasonality in Sales.

If the sales is expected to be seasonal, specify expected sales over the 12 months of the year. Seasonal sales may be dependant on seasonality in the demand.

If may however also be dependant on seasonality in the availability of raw materials.
If raw materials are available on a seasonal basis, one may think that stocks can be kept of raw materials or products. That may be possible to a certain extent, but the demand for working capital will than regularly be too high, and risks, interests, and space requirements will increase.

E. Selection of Trading System.

If the production will be traded differently from what is normal for this product, than specify the building up of the system.

If own agents or sales representatives are required, than specify the number of them and the costs involved, on the one side in building up the sales organization, and on the other, the regular sales costs that will occur for the project.

Specify also, if any, which special sales promotion activities will be undertaken by the project and which costs that will be involved. Especially during the initial stages may such activities be required. It may involve sales letters, pamphlets, signboards, introductory discounts, and others.

F. Ex factory prices.

If the ex factory prices will be different from what is specified above for the trade in general, than specify the prices and how they are arrived at. Different location, different trading system, difference in product or packaging are factors that require recalcultation of the ex factory price so that price to consumers can compare with the regular market price. Price build up is specified under para 4,4 above.

Special attention must be given to prices for export products (See para 4,3 above).

When introducing a new brand or supplier on the market, it may at times also be necessary to deviate from the regular trading prices. The normal is a reduced price, but under special circumstances may it also be possible to ask a slightly higher price.

6. TECHNOLOGY SELECTION.

A. Specify available Technologies.

As long as the product and the quality remain the same, and there will be no change in material consumption, the selection may be limited to a question about which technology, process, or machine type gives the lowest manufacturing costs. It is than mainly a question about which alternative creates the lowest annual costs. To determine that, the following are the parameters that must be known:

- Net process capacity
- Investment amount for the process
- Required no of operators
- Differences in consumptions (normally limited to electricity, fuel, and maintenance).

In cases where there will be significant differences in consumption of materials, product quality, wreckage, space requirement and/or training needs, the differences must be determined in terms of investment and annual cost for these factors as well.

The required data will normally be available in the machinery quotations, and/or from discussions with the machine suppliers or experienced engineers in the trade.

Mention which alternative machines or technologies can be considered, give a short description of them, and refer the required data.

B. Compare annual costs.

Compare the annual costs in a table as follows:

Cost Comparison of technologies (or machines)		Alternatives A =	B =	C =
Net Capacity per machine,	items/year			
Expected Sales,	items/year			
Required number of parallel machines,	No.			
Total costs of the plant	000 Rp.			
Fixed costs, (depreciation + Interests) = ____ %	000 Rp/Year			
Variable costs:				
Operators No. ____ X ____	Rp./Year = 000Rp/year			
Electricity, fuel, etc	= 000Rp/year			
Maintenance, etc.	= 000Rp/year			
Total Variable cost				
TOTAL ANNUAL COST FOR THE PROCESS AT FULL PRODUCTION	000 Rp/year			

Compare as many alternatives as require to be considered, being it two or more.

The machines or technologies must be composed to cover the same purpose if the comparison shal have any value. If the alternatives have different capacity, the capacities must be specified to determine the required number of machines to match with the required sales.

Determine the total cost of the plant for the different alternatives. It is primarily the differences in investment that are important. Include the costs of installations etc, if the costs will be different for the different alternatives. If the costs remain the same for different alternatives, you can as well leave them out.

Calculate the fixed annual costs for the alternatives including depreciation and interests. The depreciation can be taken as 8 - 15 % of the investment, dependant on the life time of the equipment. The interests can be calculated at 10 - 15 %, dependant on the cost of the capital.

Calculate the annual variable cost, composed of operator costs, electricity and maintenance. (If there will be difference in the consumption of raw materials, sundry consumeables, fuel, etc., these costs must also be included).

The cost of operators can be taken as no of operators multipliedwith average annual cost per operator including social costs, administration, etc. The electricity costs can be taken as hourly consumption of electricity in KW, multiplied with price per Kwh, (= 0.97 Rp/Kwh) multiplied with Machine working hours per year.

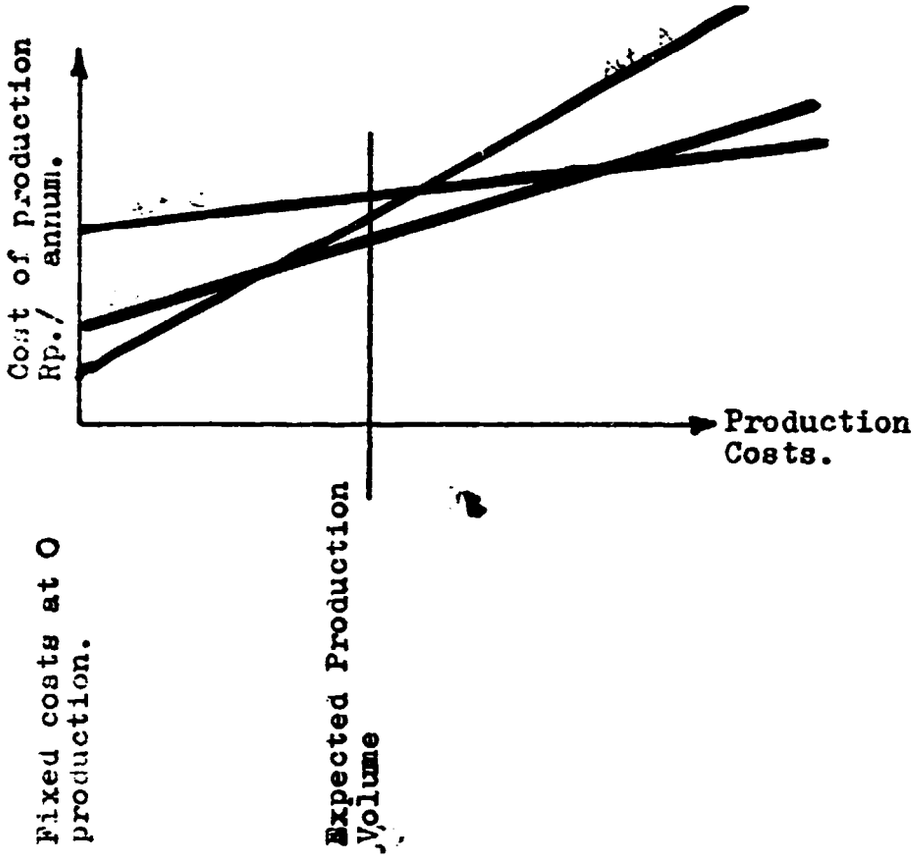
C. Select technology.

Normally one will select the technology that creates the lowest annual costs. The fixed costs and the investment are already included.

An alternative with a slightly higher costs may at times be justified, provided the investments are low and the employment rate is high. Provided the sales will be less than expected, the alternative will than be more economical and the risks that are involved will be reduced.

On the other side, if one expect increased production volume and increase in wages, an alternative that becomes most economical at a slightly higher production may be justified.

Draw to scale a diagram as follows to illustrate the situation. Draw in a line for the cost of each of the alternatives. It clearly shows at which production volumes the different alternatives become the most economical.



It is generally better to start new projects in a small scale and rather enlarge them after gaining experience, even if unit manufacturing costs will be slightly higher. If machines with special high capacity are selected, or more than one of similar machines are used, than justify the selection.

D. Selection of Individual Machines.

After first selecting an overall type of technology, one may at times later be left with the choise between individual machines. A similar comparison between the machine alternatives can than be made. Again one will give preference to the alternative with the lowest annual cost.

7. PROPOSED PRODUCTION.

7.1 PRODUCTION PROCESS.

A. Steps of the Process.

The steps of the production should in all cases be listed and reference be made to the machinery which is selected. It should be made certain that the equipment is adequate for the process and that it will have the required capacity.
If the processes are not well known, a description of what the processes consist in may be required.
A flow chart may be made, that may show better how the different processes are interlinked.

It is often also useful to list operations in a table, one by one from raw material to packing, specifying the manpower requirement and the machine loading. The table should conclude with the total number of working hours which are required for the inidividual production equipment and the manpower, and hence the no of machines and operators which will be required.

The table may look as follows:

(The table may, if voluminous, be refered to the appendixes)

Operation description.	Machine Specification	No. of Operators	Machine time	Operators' time
Net sum processing time for operators and for the individual machines				
Additional inoperative time + ____ %				
Gross time required for the operators and the individual machinies required				
Number of operators and number of the individual machines required.				

The table may include both machine processes and more manual operations, specifying the requirements for tools and equipment.

For labour one may calculate with 45 hours per week x 48,1 full working weeks = 2165 working hours per year.

The working hours are gross, and it is fair to deduct 5 % personal time and 20 - 60 % inoperative time as specified under C. Page 97 - 99.

Regular net operative working hours may hence dependant on the process amount to anything between 400 and 1645 hours per year.

B. Secondary Services required in the Production.

Normally the production cannot run without the presence of sundry additional service equipment and installations. Check which of the following services are required and determine the necessary capacity for each of them:

- Internal and external transport, mechanical lifting
- Electricity. Possible spare power plant
- Other means of mechanical energy (engine)
- Heat and fuel, steam, hot water, hot air.
- Compressed air
- Water and effluent. Water and/or effluent treatment, water storage if supplies are uneven.
- Evacuation of smoke, vapor, harmful gases, dust etc.
- Waste disposal and effluent disposal
- Storage, storage facilities, curing storage in the production
- Refrigeration, freezing, ventilation or air conditioning
- Drying installations, soaking or climatisation of materials
- Fire protection installations
- Customers expendition, shop or product display
- Other special requirements.

7.2 PRODUCTION PROGRAMME.

A. Technical limiting factor.

The hour capacity of the machine is normally given by the supplier in the machine offer or in the leaflet. At least he should be able to specify the capacity on request.

If the information is not available from the supplier, than judge the possibilities yourself or discuss the matter with an qualified engineer.

Not all machines and processes of the plant may get the same capacity and the same work load. It might be useful to determine the bottleneck, the process which has the lowest capacity related to the needs. You may than be able to base the output calculations on the capacity of this unit.

B. Specify no of working hours.

Gross working hours for manpower may be taken as:

- Daytime : 45 hours per week x 48,1 weeks
  = 2.165 hours/year
- 2 shift : 2 x 42 hours/week x 48,1 weeks
  = 4.040 " "
- 3 " : 3 x 42 hours/week x 48,1 weeks
  = 6.060 " "
- 4 " : (A turnus arrangement including sundays and holidays)
  4 x 42 hours/week x 48,1 weeks
  = 8.080 " "
- 1 shift will normally be used for all manual work and for machinery with low investments.
- 2 shift can be arranged when required, when the machine investment is higher.
- 3 shift will only be used for very high investments and preferably when the process must be continous
- 4 shift will only be used when stops over the weekends creates technical or economical problems.

C. Calculate Annual Production Volume.

Theoritically the Production volume

= Lowest unit capacity x No of annual working hours.

That figure has of course to be reduced by several factors. For unlike plants and situations these factors may be of unlike size. These are the 7 major factors:

1. The capacity utilization factor determines to which extent the specified capacity (which normally will refer to the maximum possible speed) will be utilized in practice.

It is a well known fact that machines cannot always be run on their maximum speed. This can have many reasons such as:

- The machine will often not operate properly (dependant on required quality and on the raw materials) unless the spped is reduced.
- The whole width, stroke, pressure, etc. or the maximum temperature can not be used for all work pieces.
- The operating conditions are not ideal
- The feeding of the machine is uneven
- The operator is not qualified enough.

To which extent the capacity can be utilized must be individually judged considering these indications. E.g. a stone crusher, mechanically fed by soft, precrushed stones of moderate and even size can utilize the capacity to 100 %, while hand feeding of the same crusher with hard rock of uneven size can reduce the capacity to about 60 %. I.e. if the leaflet specifies 10 M^3 per hour the practical output will be limited to 6 M^3 per hour.

If you are uncertain, you can always discuss this question with the supplier or a qualified engineer.

2. Production technical definiciency factor includes time for change of tools, maintenance, machine adjustment, technical control, power failure, cleaning,etc. Some continous process, where change of tools is not required and where cleaning and general maintenance may be done during operations (as e.g. a flour mill) can be working up to 95 % of the time. Machines with frequent exchange of tools, much adjustment and maintenance (e.g. a printing press) may be operating only 50 % or less of the working time. The normal may be around 80 %.

3. The Personal deficiency factor includes unproductive time for giving messages, discussing problems, being late at start and sundry human bodily demands. In well organized industries this loss of time can be limited to 5 %, while it in many cases is far higher. For automatic processes not requiring continuous supervision or processes with alternative operators the loss can be reduced to under 5 %.

4. The Organizational deficiency factor includes unproductive time for waiting for raw materials, waiting for take off, waiting for orders, lack of raw materials, operators absence, waiting for spareparts etc.
Depending on the process and the management, the factor can be anything from under 50 % to over 90 %.

5. The Seasonal factor determines the percentage of the year that the production is required or raw materials and other required services are available. In addition to season variations, uneven sales and lack of working capital may increase the deficiency. The factor should for most industries be close to 100 %.

6. The waste factor determines the percentage of time wasted in manufacturing wreck. It is in several industries normal to expect a certain percentage of wreck which can not be repaired and sold.

It is e.g. in the plastic industry normal to calculate with up to 5 %.

7. The Reworking factor determines to which extent the capacity will be tied up with repeated processing. In some trades as e.g wood work, the factor may be high, while in other industries with continuous processing it may be neglectible.

In projects where many of these factors are considerable, there can be very great differences between theoritical capacity and practical production. Determine the factors as realisticly as possible and calculate the anrual production accordingly.

D. Specify the Production Programme.

According to the above, and according to what is possible to sell, specify the production programme that is possible and well suited for the plant.

Use the 3rd year of operation as a base and determine the volume of the different product varieties including possible by products and second class products.
The division on 1st and 2nd year may be specified under the sales programme as outlined before.

7.3 RAW MATERIALS.

A. Quantities and Costing.

Specify the material requirements. When adequate, a list as follows may be made:

Material type	Quantity per product item		Gross Price Rp./unit	Cost per product
	Quantity	Unit		

- The quantities may include requirements for cutting and faulty products, or this may be added in the end.
- The unit price may include freight, transport and all expenses, or this may also be added in the end.
- Finally multiply with number of items per year to get total material costs.

B. Raw material Availability.

- From where are raw materials available ?
- Will it for the different materials be possible to make use of at least two alternative suppliers to ensure availability at all times ?

- Clarify whether there is expected any shortage of any of the raw materials and how this problem is taken care of. Are any purchase license or quota required ? If so, what are the licensed quantities for this project ? Is there any kind of monopoly within the raw material supplies which may effect the future price or supplies ? Are there made any agreement with the suppliers ?

- Are the available qualities adequate for the purpose ? Have they been tested ? (It necessary specify the test results). Are the raw materials perishable or do they need any seasoning ? (this may involve increased working capital or increased costs).

- Will any special transport or handeling equipment be required ?

- If it will be required to determine local value added, than specify the net foreign costs of imported raw materials, excluding all local costs as duties, sales tax, freight, etc. This applies both to own importation and to locally purchased imported raw materials.

C. Seasonal Materials.

When raw materials are available with seasonal variations, it normally means that both the availability and the price varies. Dependant on the perishability, one may be able to store the materials for some time. Storage capacity and especially the available working capital however, may make it impossible to keep enough stocks to keep the production running throughout the year.

The seasonal material disposition may be well planned in a table as follows:

Month	Normal Local production Volume.	Normal price for the month.	Planned possible purchase volume	Purchase cost Rp. for the month	Production Volume items/ month.	Stock Volume items	Capital binding in the Stock Rp.
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Monthly Average							
Yearly total							

From the table one can see how availability and prices change over the year, and one may judge possible purchase quantities and see when it pays better to do the purchases.
Deducting production volume from purchase volume, one will find the required stock volume and stock capital binding. One can also see whether it will possible to bind the necessary capital to keep production running throughout.

D. Capital binding.

The payment conditions one can get from the material suppliers, and the necessary storage time for the raw materials, determine. the working capital requirements for raw material purchases.

Credit of 1 - 3 months are normal in many trades, but customers not making arrangements with the suppliers may be forced to pay cash. Cash payment is a heavy strain on the working capital, which one much try to prevent .

The storage time may additionally to seasonal storage, also be determined by minimum purchase quantities.

If supplies are regular and uncomplicated, one may be able to operate with 1 - 2 weeks stock for materials available within the town, 1 month for materials from further away, while 3 months stock may often be required if doing ones own importation.

7.4 MANPOWER REQUIREMENT.

A. Man-power requirement.

The type and no of employees as well as the cost of personnel must be specified. It is important to distiguish between those representing variable costs, i.e the operative labourers, and those which number is not dependant on the production volume, i.e. administrative staff, maintenance people, cleaners, watchmen etc.

Variable Staff. These are process operators and assistants in the production. The required no and the type of operators should be determined as specified under para 7.1 A. Provide for reasonable wages. The rate table on page 107 may give you some guidance, but please consider the specific situation and adjust the figures as required. Specify in a list, no of each type of operator, monthly salary and total yearly cost. Find the sum and social costs as indicated in the continuation.

Fixed Staff are other personnel required in the company. Handle this list in the same way as above. The no of people, the rates of salary and the social expenses are indicated in the same table. Judge in each separate case whether the proposed norm-figures for no of persons and rate of salary will apply in the specific case. No of technical staff required depend on the complexity of the production, the varieties of the products and the demand for maintenance and supervision. The no of commercial staff depends on the no and size of orders and customers, the sales system and the no of employees.

The no of staff to be required should be specified as at 100 % production, normally expected to occur the 3rd year of production.

B. Social Costs.

Social costs are expenses which are connected with the employment of staff.

They may include the following elements:

- Health insurance-is normally not paid by small scale industry relying more on the Puskesmas and governmental free hospital facilities. Small expenses may still occur.

- Life insurance-is compulsory under the ASTEK scheeme and may ammount to 1 - 2 %

- Sick leave expenses are not compulsory, but it is rational to expect around 2 % for help during sickness.

- Transport and Food must be incalculated with at least Rp. 500,- per day per employee.

- Uniforms, protective clothing, etc. may be required in certain industries.

- Annual leave grant is compulsory for enterprises with more than 3 Hp motorpower installed and more than 10 employees (2 weeks or 4 %).

- House allowances will not apply.

- Maternity grant is normally not paid, but limited costs for some help should be expected.

In total, this can ammount to anything between 10 and 20 % in addition to food and transport. You can in general calculate with the following:

Size of enterprise	Location		
	The bigger cities	Other Towns	Villages and rural areas
Under 10 employees	20 %	18 %	15 %
10 employees or more	22 %	20 %	18 %
Additionally per person per day for food and transport	Rp. 600	Rp. 400	Rp. 300

C. Skills and Training.

Specify for which of the jobs any special, not easily obtainable skills are required. Specify also how these skills will be gained. Are any particular qualified person(s) already available or how will they be provided ? Have the specified salaries been agreed upon with the persons in question ? To which extent does these persons fit to the requirements ? Are there arranged for any overseas or other training, and how will these costs be catered for ?

Training may preferably and if possible be arranged on the job within the project, possibly conducted by technology specialists from outside. In certain cases may it be required to send people to other factories for training, or to participate in class room training.

When training is required, than specify the requirements:

- Subjects of training
- Required duration and way of learning
- For which jobs and how many people
- Where to get the training and who to conduct it.
- Costs involved.

D. Salary and Wages Level. Number of staff.

Recomendable level of salaries varies not only with job location and size of industry, but also with trade and personnal performance. The rates indicated in this table may be used as a norm, but individual adjustments must be made:

Number of Employees and rate of Salary.

Salaries and wages vary with location, trade and other factors. If no better information is available, this table may give some rough guidelines. The table is ment for villages and rural areas. For the bigger cities may be added 30 %, and for other towns 10 - 20 %. For shift work add 5 - 10 %.

J O B	Number of employees and monthly salary for different levels of investment.					
	Investment Up to 2mill.		Investment 2-20 mill		Investment 20-100mill	
	No.	Rp./ month	No.	Rp./ month	No.	Rp./ month
Unskilled labourers		24.000		24.000		24.000
Semiskilled labourers		30.000		32.000		34.000
Trained labourers		42.000		50.000		60.000
Machine operator	-	-		60.000		75.000
" " assistant	-	-		35.000		50.000
Responsible Specialist processor	-	-		75.000		90.000
Maintenance Mechanic	-		0-1	60.000	1	85.000
" Electrician	-		-		-	90.000
" Carpenter	-		-		-	70.000
Foreman	-		-		1	95.000
Skiffs Foreman	-		-		0-1	80.000
Driver lorry	-		-		-	70.000
Driver van	-				0-2	70.000
Store keeper	-			60.000	1	80.000
Watchman	1	24.000		26.000	2	30.000
Shopkeeper	-			54.000	0-1	65.000
Shopkeeper Assistant	-		-		0-2	30.000
Manager	1	75.000		100.000	1	150.000
Production Engineer	-			85.000	1	100.000
Accountant	-				1	120.000
Accounts Clerk	-		1	80.000	1	90.000
Sales Representative	-		1	75.000	1	100.000
" Assistant	-		-		1	60.000
Office Superintendant	-		-		1	120.000
General clerk	-		1	45.000	1	45.000
Secretary	-		-		1	65.000
Copy typist	-		1	40.000	2	45.000
Messenger	-		1	24.000	1	24.000

E. Expatriate Staff.

Will any expatriate staff or temporary staff brought from the outside be required for:

- Erection and commissioning of the plant
- Running in of the production
- Initial technical management
- Maintenance
- Management ?

If so, specify which jobs will be required, as well as duration and costing, including salaries, travelling and accomodation.

Where will the personnel be provided from,and which guarantees are available for the success and the completion within the stipulated periode ?

Are the specified costs related to agreement with the suppliers or others ?

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8. L O C A T I O N.

The industry must be located where it is best fit. This is a question about economy; which location will cost less for the industry. It is not a question about which is the homeplace of the client or the station of the project officers.

A. Resource oriented contra market oriented industry.

Most industries are either resource oriented or market oriented.

Determine whether the project ought to be located close to the raw material sources, or whether it rather should be located near the market.

Recources oriented industries are:

- industries which use raw materials in larger volume than it makes of products
- industries which is extensively dependant on collection of available resources.

Examples of such industries are:

- projects based on agricultural crops (as fruit, vegetables, seeds, straw, etc.)
- Sawmills, sement production, chemical products, wallboard production, tanneries, salt refining, fish and meat processing, metallurgical products, quarries.

If these industries are located far from the raw material resources, the materials and/or the transport will become too expensive and it may be difficult to control the availabilities or the prices for the resources.

Located in the middle of the cultivating area, a fruit processor can encourage and advice the farmers and secure sufficient supplies to acceptable prices. A saw mill located in the forest itself will greatly minimize its transport problems and can operate over a longer season when roads in the forest may become nearly impassible in the rain period.

Market Oriented Industries are those where:

- products are more voluminous than raw materials
- close contact with the customers is important

Examples of such industries are:

- carpentries, metal workshops, glass work, plastic products, pottery, repair and service industries.

We must for market oriented projects distinguish between projects fit for a countrywide market and export, and projects aiming only at the local market. The first category normally fits best in the surroundings of the cities while the other category, dependant on the market it is aiming at, can be located anywhere where there is sufficient local market.

B. Urban Contra Rural Projects.

Secondarily, one can distinguish between projects fit for urban, contra projects fit for rural areas.

Rural Oriented Projects are:

- projects requiring low cost labour and many workers
- projects requiring much space
- projects creating noise, smoke etc.
- agrobased projects
- In general all projects that do not specifically require to be located in the town.

Urban oriented projects are:

- projects which can benefit greatly form a very close contact with a high number of customers or other contracts.

Do not locate a project within the urban zone if it is better fit within the rural areas.

C. Selection of site within the selected area.

In addition to finding the most suitable geographical location, the project should be adequately sited. You then should consider:

- Is the size of the plot or the building fit for the purpose? (Make a layout sketch to determine the demand, or get it from the suppliers) Are future expansions possible ?
- Is the quality/costing of the building construction fit for the purpose? (Not too costly and not too poor).
- Is the site reasonably within reach for employees, customers etc.? (Consider distances, communications and traffic).
- Is the cost of connection to the electricity main line reasonable ?
- Is the supply situation good, m.h.t. raw materials and products (Road connection, Railway connection)
- Is water and effluent connection a problem ?
- Is a telephone installation possible ?
- Are the necessary service facilities available in the surroundings ?
- Can wastes be disposed, will noice, smell, smoke or extended traffic disturb the surroundings too much ?

D. Approval of the location.

Most projects require approval of the location from the authorities.

Reasons for rejecting such approvals can be:

- Urban planning of the environment, hygienic reasons, exploitation of the ground or natural resources, noice, smoke, dust, effluent, traffic, safety, etc.

Dependant on the situation, the approving authority may be the town council or the BUPATI as the head of the Kabupaten.

Sometimes approvals will be given on certain conditions which involves extra costs for the project. Such costs should be included in the project paper.

E. Location Economy.

If it is not obvious which locations is the better, than calculate which location creates the lowest costs:

List all parameters which will get different cost with the different locations and add together the total yearly cost for all the parameters separately for each of the location alternatives which are considered.

Such parameters may be cost of freight, local transport, rent of building, travelling, telephone, communication time, sales cost, etc. etc.

9. THE ECONOMY OF THE PROJECT.

9.1 INVESTMENTS.

Under investments should be specified the total capital that is required to start the project. There should for each item be given a sufficient description to judge the suitability of the item and its fitness to cope with the production programme.

The cost of all items, in Indonesian Rupias, should be specified in a column on the right side and a subtotal should be made for each of the sub paragraphs.

If the specifications amount to more than one page, do the specifications in an appendix and give only a brief summary in the paragraph.

9.1.1 Land and BUILDING.

If the project will be located within some sort of an industrial estate, append a layout to scale to show how the production can be rationally and comfortably located within the allocated building. Also confirm the rental period and conditions, and the rate of rent. Specify to with extent the required installations and infrastructure will be provided from the estate.

Specify costs for required modifications of the building, reconditioning, fundations and other preparations that must be undertaken by the entrepreneur. If the requirements have to be settled through new building, than consider which of the following items will be required, give a brief description of the required facilities and specify the cost:

Plot: State size. Give a short description, confirm its suitability and whether it allows for expansion of the production.
If a new building must be erected, is its fitness for building fundamentations, etc. known ?

Building. Which buildings are required or which departments in the building are needed:

- Raw material store, production depatment, product store. other stores, shop/expedition, boiler house, maintenance department, warderobe, toilets, office, watchmans shield, water treatment or water storage, effluent treatment, staff accomodation.

Specify:

- Required and provided spaces (if possible append a layout drawing)

- Required and provided standard of the building(s)

- Specify whether the investment figures refer to estimates or tenders. Specify the building costs per m^2. Normally the cost of the building should be based on tenders.
For a rough estimate you may calculate:

  * Permanent buildings in concrete/stone with more than one floor divided into rooms Rp. 150.000 per m^2
  * Permanent buildings, concrete or stone, one floor, wider areas Rp. 120.000 per m^2
  * Steel structures, asbestos covered Rp. 85.000 per m^2
  * Steel/wood structures with corrugated steel sheet covering of roof and walls Rp. 75.000 per m^2
  * Simple sheds, covered with corrugated steel sheets without concreted floor Rp. 40.000 per m^2

* Roofed areas without walls for simple storage, sawmills, etc. Rp. 25.000 per m^2

Other building facilities.

- Specify the length and width of road to be built or improved, the cost per m^2, and the total cost. Road costs may vary from about Rp. 500 per m^2 for a simple murram road, to about Rp. 8.000 per m2 for a tarmacked road on a better fundation.

- If a railway siding is required, specify the length and the cost according to quotation from Indonesian State Railways (PJKA).

For Fencing specify the required length, height, standard and cost.

The costs may ammount to;

- For simple low barbed wire fence on wooden poles Rp. 1000 per m

- For chainlink fence 2m h with barbed wire on top Rp. 6000 per m

- For stone fence Rp. 7500 to Rp. 10000 per m^2

- Specify no, size and cost of fundations, structures, silos, platforms, etc.

- Specify requirements and cost for air conditioners and cooling fans, water reservoir, effluent sedimentation basin, and other special building structurers or installations.

9.1.2 PRODUCTION MACHINERY AND EQUIPMENT.

A.1 Which equipment to include

The production machinery should include:

- All machines required for the production process from material collection to dispatchment of packed products.
- All motors, starters, transmissions and feeding equipment for the above machines.
- All machine tools which are required in order to make all the products in the programme.
- All hand tools which are required in the production, working models, lasts, jigs, and special erection fixtures.
- Working tables, chairs and other production inventory.
- Electricity generating equipment, when required.

2. Which information is Required.

For the individual items the following information is required:

- Name and address of the supplier. Reference to date of quotation/proforma invoive. Validity of offer and delivery time.
- If the supplier is a local trader, also the origination of the equipment.
- Name, type identification and possible description of the item and/or the function it has.
- If secondhand state age, physical condition, inspection, valuation, guarantee. Availability of service and spareparts.
- Capacity, if possible expressed in no of operations or product units per hour.
- Size of electrical connection in KW and electrical consumption in Kwh. per hour.

- Including of spareparts for 2 years of operation.

- Possible requirements to water, oil, compressed air, transport ducting, lifting equipment, gas extraction, drainage, and electricity generation or transformation (If not included under building costs)

- Cost may be specified in the currency of the quotations and converted into Indonesian Rupias (Use buyers exchange rate which is slightly higher than the medium rates refered in the newspapers).

- Whether the prices are valid Ex factory, FOB, CIF, FRANCO or Installed.

B. Additional costs on machinery.

Dependant on the purchase conditions, all or some of the following costs should be calculated in addition to the costs that are specified above.

a) Costs specifically on imported machinery and equipment:

Packing cost, overseas local freight, and ships loading will apply if the offer is valid ex factory excl. packing.

Inspection fee will apply when inspection before the dispartchment from overseas is required.

Seafreight will apply if the goods is offered FOB. The sea freight to Jakarta or Surabaya may presently amount to:

From Japan	125/-	U.S. $/ton or m^3	whichever is highest
" The Netherlands	190/-	"	"
" U.S.A.	190/-	"	"

From Hongkong 125/- U.S.$/ton or M^3 whichever is highest.

" Singapore 45/- - " - - " -

" Taiwan 75/- - " - - " -

Normally the volume freight will apply as the highest. Shipping dimensions are normally given in the leaflets for the machinery.

Bank Charges. For opening of L/C and conducting the transactions of payment of imported machinery, the bank will charge a administration fee of Rp. 25 per U.S. $, or 2,5 %.

Duty is calculated according to the tariff. The variations are according to the importance of the machinery and whether it is locally manufactured or not.
Machinery imported in a completely knocked down condition may frequently be allowed at substantially lower rates. It is also possible to apply to Ministry of Finance for reduction in the duties.

Sales tax on imported machinery is 5 % or 10 % on top of invoice value and duty.

In 1984 the rates of duty and sales tax are generally still as stipulated in 1980. Some examples can be given:

	Duty	Sales tax
Specific trade machines:		
- Machines and machine tools for the working of wood, cork, bone, ebonite, hard artificial plastic materials	10	10
- Printing machines	5	5
- Knitting Machines	5	5
- Laundry Machines	40	10
- Sewing Machines	20	10
- Stone crushers	10	10
- Agricultural machines,	20	10
- Dairy Machines	20	10
- Foundry moulding boxes	10	5
Specific purpose Machines:		
- Electric Motors	30	10
- Furnaces for Industry and laboratory	10	10
- Scales	20	10
- Cranes and hoists	5	5
- Filtering and purifying equipment	30	10
- Air conditioners	30	10

		Duty	Sales tax
-	Pneumatic hand tools	20	10
-	Presses and crushers	20	10
-	Loading, unloading machines, equipment for handeling	5	5

Clearing of imported goods in the harbour must be undertaken by authorized clearing agents. According to the tariffs, they charge a flat rate of Rp. 650.000 for all consignments up to 5 tons. For larger consignments will be added Rp. 12.500 per additional ton.
These rates are however subject to negotiation, especially for small consignments.

b) Costs also applying to locally manufactured Machinery.

Local Seafreight are according to decree of 12th January 1984:

Port distance: nautic mile	Rate:
0 - 200	(Rp. 18,72/mile + Rp. 979) per ton
201 - 300	(Rp. 14,39/mile + Rp.1.848) - " -
301 - 400	(Rp. 12,10/ " + Rp.2.533) - " -
401 - 443	(Rp. 10,72/ " + Rp.3.095) - " -
444 and up	(Rp. 5,14/ " + Rp.5.552) - " -

Local Highway transport are according to decree of 12th January 1982, as maximums rate:

Zone I, (Java, Bali and Lampung)	66	Rp./ton x Km
Zone II, (North Sumatra, West Sumatra, Riau)	82	- " -
Zone III, (South and Southeast Sulawesi)	96	- " -

When hiring the whole truck for short distances transport, somewhat higher ton rates may be negotiated.

Railway Transport are according to decree of 1982:

For general cargo	Rp. 15,55
For luggage and dispatches	Rp. 40,36

Transport insurance. The insurance rates are negotiable and may vary from company to company. The average preminium can be taken as 0,5 % for machinery.

For smaller items and easily breakable equipment, expect slightly higher rates.

Contingencies should be added due to uncertainness in the costing. Such uncertainness includes:

- possible price increase
- possible change in rate of exchange
- required equipment or expenses not regarded in the specifications.

Dependant on possible delays in implementation and on the firmness of the offers, contingencies can normally be added with 10 - 15 % of the total cost of the production equipment.

C. Installations, Service machinery and equipment

This equipment and its cost should be handled as described for production equipment.

Make sure that whatever is required of the equipment and installations which are listed below, will be included in the project paper. In the continuation you can find some guidelines for the calculations, but the safest is it in all cases to collect offers from the suppliers, especially for major costs.
Specify which of the following costs will occur:

- Physical installation of the machinery
- Electrical installations
- PLN connection
- Water installation with possible reservoir, well, pump. installation.
- Drainage or sewerage installation and connection
- Air compressor with pipe installations
- Boiler or water heater with pipe installations
- Fire extinguishing equipment.
- Fuel installation
- Ventilation and air conditioning. Chimney. Freezing or refrigeration.
- Maintenance equipment, Mechanical, carpentry and electrical.

- Chainblocks, cranes or other lifting equipment
- Pallet trucks, and other internal transport wagons
- Scales
- Transport equipment as belts, rollers, preumatic transport, etc.
- Stores installation with shelves, pallet-shelves, bins, tanks, etc.
- Expedition or shop-installation
- Laboratory with installation and equipment
- Waste treatment and waste disposal, including bale presses, bins, transport continers, etc.

Comments on some of the above costs:

Physical Installation.

For small machines to be fit on the floor or an a fundament, whether or not be bolted in position, the cost of installation will when no connection is required and the machines are supplied completely assembled, be minimal and can be omitted. (This may e.g. apply for ordinary sewing machines.)

In more complex cases, the cost of installation can be considerable. Any general guidelines for the cost can not be given. Please estimate on individual basis how much each of these components of the cost of installation will amount to in time, material consumption, and money:

- Fitting together of the machine or building it up in position when it is supplied in parts or sections (mainly labour cost).

- Haulage of the machine, lifting it in position (may sometimes involve hiring or purchase of expensive transport and lifting equipment and also changes in the building to allow for the movements. Manufacturing of transport structures may also be required).

- Manufacturing and erection of supporting legs, brackets or structurers, operation and inspection platforms, gangways, stair cases, etc. (The material and time requirements may be considerable. The costs should be calculated).

- Connection to the machinery of water, steam, air pressure, hood, ventilation ducting, transport arrangement, filling and emptying equipment, chimney, remote control etc. (May sometimes involve large amounts of materials and fittings).

- Testing of the machine and trial operation. (May cause waste of production raw materials and it may take time to do proper adjustment of the machine)

- Cost of supervision during the installation period

- Cost of communication with suppliers and contractors, incl. telephone charges, possible travelling charges, and possibly collection of process experts.

Electrical Installation.

The cost of the electrical installation is first of all dependant on the no and the size of the motors, possible electrical heating elements and the light. The size is measured in kilowatt (Kw). If Horsepower is specified for the motors, 1 Hp = 0,735 Kw).

1-Phase Installation. If only small motors will be used (under 1,5 Kw), and the total installation addéd together is maximum about 20 Kw, one may use 1-phase installation which is much cheaper.

(All motors must then be 1-phase, which makes the motors themselves slightly more expensive). One can also not later on use 3-phase motors without exchanging the whole installation. For larger installations will be used 3-phase motors and 3-phase installation.

The Cost of the Installation can be obtained from an electrical contractor. But for a rough estimate you can calculate with the following figures for the total cost of the installation:

-	Per socket, 1-phase, 6 Amp.	Rp. 11.000
-	Per light point with light bulb	Rp. 12.000
-	Per light " " fluorecent light	Rp. 18.000
-	" 3-phase plug, 16A, (8 Kw)	Rp. 40.000
-	" singel phase motor, 1 Kw	Rp. 14.000
-	" 3-phase motor, 3 Kw	Rp. 60.000
-	" 3-phase " 10 Kw	Rp. 65.000
-	" 3- " " 20 Kw	Rp.100.000
-	" 3- " " 40 Kw	Rp.175.000
-	" 3- " " 60 Kw	Rp.280.000

Sockets and light points are included in the above, but motors and starters (which are normally a part of the machine) are not.

The above is valid for premises up to 100 M^2. For larger premises will be used larger cables. For lenghts over 15 M must be added for increased cable cost.

PLN Connection.

In addition to the charges for the internal electrical installation, PLN will always charge for connection of the installation to their supplies.
If all the machines are not run simultaniously, the size of the connection may be reduced, by up to a maximum of 50 %.

According to PLN's tariff for 1983 you can calculate with the following connection charges:

1-phase.				3-phase.			
0, 5	Kw	Rp.	30.000	1	Kw	Rp.	120.000
0,75	"	Rp.	60.000	2	"	Rp.	240.000
1, 0	"	Rp.	100.000	5	"	Rp.	600.000
2,0	"	Rp.	225.000	10	"	Rp.	1.200.000
2,5	"	Rp.	290.000	20	"	Rp.	2.400.000
3,	"	Rp.	355.000	30	"	Rp.	3.600.000
4,	"	Rp.	485.000	50	"	Rp.	5.800.000
5,	"	Rp.	615.000	80	"	Rp.	9.000.000
6,	"	Rp.	745.000	100	"	Rp.	10.500.000
				200	"	Rp.	20.000.000
				300	"	Rp.	27.500.000

If a transformator must be installed; up to a maximum of 50 % may be added. If an own transformator will be installed, up to 45 % deduction may apply.
If the installation is far from the power line, additions may also apply.

Electricity generator;

Many companies prefere to install their own diesel operated electricity generators. The costs varies with selection. For rough calculations may be taken the following figures including installation:

1	KW	1-phase	Rp. 400.000
1	"	3-phase	Rp. 1.300.000
3	"	"	Rp. 2.500.000
10	"	"	Rp. 5.000.000

Fire Fighting equipment.

The need for fire fighting equipment can be roughly estimated as follows:

Class of Industry	Type and quantity of Installation	Total Cost Rp. Small area (50 M^2)	Larger Area per 200 M^2
Metal workshops and Similar industries	5kg CO_2 fire extinguisher		210.000
	2 kg CO_2 fire extinguisher	135.000	
Wood workshops	2x10kg water extinguisher		175.000
	1x 5kg water extinguisher	50.000	
Plastic factories and factories for paints or flammable liquids	2x10kg powder extinguisher		270.000
	1 x 10 l water extinguisher		90.000
	4,5kg powder extinguisher	90.000	
	or 2kg powder extinguisher	50.000	

Additionally a set of the following may be considered for the project, and may for certain projects be demanded by the authorities:

Fire alarm with bell	Rp. 40.000
or Alternatively sirene with hearing distance 1,5 Km	Rp. 70.000
Alternatively smoke detector with automatic alarm	Rp. 150.000
First aid kit	Rp. 60.000
Hose reel, 35 m, 1"	Rp. 200.000
Water tank and booster pump for same	Rp. 300.000

9.1.3 Other Assets Required.

These can be treated as specified for machinery. The specification should include whatever is necessary of the following equipment:

- Vehicles, tractor, trailer, bicycle, hand cart.
- Office furniture with tables, chairs, shelves and filing cabinets.
- Office machinery and installation with typewriter, calculator, safe and telephone installation.
- Deposits on rent of building, production equipment, gas cylinders, electricity, water installation, etc.

9.1.4 INVESTMENT SAFETY FACTORS.

A. Contigencies

There is always a possibility that necessary investments may be forgotten. Sometimes small matters may be required which one is not aware of. One can also not go down in detail to cover the smallest of the items that are required. Mis-judgement of cost estimates may also occur.

It is therefore necessary to add in a lumpsum as contigencies. It is normal to add a certain percentage specifically under machinery and installations. How much to add, depends only on how thorough the specifications and investigations have been done. Normally less than 10 % should be required.

B. Allowances for Price increases.

It will often take some time from preparation to implementation of a project. Prices may increase in the meantime and if no allowances have been made, the project may run into problems of underfinancing.

Price increases may apply to buildings, machinery installations, and other assests. How much to add, depends on the normal price increase in the trade and on the implementation time.
Hence, if expecting 15 % price increase p.a., and 8 months implementation time, 10 % addition may apply.

C. Foreign Currency Fluctuation.

If buying equipment to be paid in a foreign currency, there is always a risk of change in the exchange rates. Any devaluation can not be foreseen or planed for, but limited changes must be expected.
Dependant on the currency and the situation, 3 - 5 % safety margin may be specified for the foreign payments.

9.1.5 Pre-Operational Expenses.

All costs, which initially will occur before or during the start of the operations and are not a part of the regular running of the business, are pre-operational and must be included here if they are not included above. Consider which of the costs listed in the following should be expected to occur, and specify the costs:

- Feasibility study fee or appraisal fee. It is expected that DJIK as other institutions preparing feasibility studies will be charging a fee for the work.
  A fee in the range of 0,5 % to 1 % of the total investment may apply. If the entrepreneur himself has done a substantional and acceptable part of the job, the fee should be reduced.

- Committment fee. If a client delays making use of the loan that may be allocated to him, the bank may charge a committment fee of 1 % + 1 ‰ tax stamp. The fee may be run from allocation of the loan until the client has fulfilled his conditions for ordering of the equipment.

- Company formation. If the company is not yet registered up to the required standards, you should for limited companies calculate expenses for the formation of 1 % the share capital, + a registration fee to the directorate of Patent of maximum Rp. 100.000 (The last one is not compulsory and is for the protection of own trademark etc.) For proprietorships and small companies no fees will apply.

- Valuation. When providing securities for a bank loan, the bank will require valuation of the property. For loans up to a maximum of Rp. 100 million, the valuation is done by the bank and no fee will apply. For bigger loans, an appraisal company will be required to do the valuation. They may charge up to a maximum of 1 % of the value.

- Juridical assistance. If any legal assistance is required e.g for drawing and certifying of lease agreement, collaboration agreement etc. the fees will often exceed Rp. 30.000 per item and should be included.

- Know-how. If the production is based upon collaboration with a foreign party utilizing patents or production secrets, this will often be charged either as a royalty to be included in the production costs,or as a know-how fee to be stipulated under the pre-operational expences.

- Training. If other training than normal gaining of experience during the operations are required, the occured cost must be catered for. These costs can include cost for travelling and stay in a different place or a foreign country, or it can include fees, travel, and accomodation for local or foreign collaborators to do the training within the production.

- Assistance for planning and start. If any detailed planning of the production must be done, construction of production equipment or supervision of erection or start, consultancy fees as applicable must be specified. This applies whether the job will be undertaken by BIPIK or by others.

  Also must be considered whether consultant assistance may be required for building construction, or for installation of electricity, water, steam, etc.

- Ready making of the building. Especially if the building is leased, cost for making it ready for the production, not refundable from the landlard,may occur. If such costs can not be considered as an investment providing security for the project, they may be specified here.

- Printing of the first lot of stationery. Printing of stationery belongs among the normal overheads. One will however often find that the first ordering consums high costs especially when layouts, trade mark etc. has to be made. It can be fair to include these initial costs here.

- Material Consumption for trial production. This may be included if considerable costs can be expected, e.g. if new products must be developed, complicated processes need to be adapted or adjusted or if initial wreck production can be expected for training reasons.

- Interests before start of operations. Disbursement of investments will take place at different times before start of operations. Calculate interest on the disbursments for an average period of time from disbursement until start of payments for the sales from the production. These costs may at times be high, especially when the implementation require long time. Try to shorten, but realistically assess the time requirement.

  Building out the sales organization. Appointing of sales representatives agents or distributors and informing them, may involve travelling, advertising, training, rent etc., costs belonging to the pre-operational expenses.

- Salaries, wages and overheads before start of production. If parts of the staff need to be employed before start of ordinary operations, the cost of this incl. social costs should be specified here.

  Regular Overheads before start of operations. This include the monthly fees for electricity, telephone water, rent of building, general transport and vehicle expenses, travelling and insurances.

- Possible other initial costs related to the project which are not mentioned above.

9.1.6 Working Capital.

Working capital is the money required for doing the business, buying, selling, keeping stocks paying wages and other costs.

If working capital is not sufficiently present in the project, the project can not be able to reach the intended production programme. One cannot base the demand for working capital on expectancy to the future profit. If sufficient working capital is lacking, it is very likely that the project will get losses instead of profits and that the working capital will decrease instead of increase. Finally the project may hence be forced to close down.

Calculate the working capital based on full production.

The demand for working capital should preferably be calculated on basis of the requirements during full production, as normally stipulated for the 3rd year of operation.

One could of course consider that if the operations the first year is estimated at 50 % of the full programme, less working capital may be needed. There are basically two reasons for why this may be a dangerous consideration:

a) It is difficult to know really how much one will be able to manufacture the first year. If one will be able to make more than forecasted, a higher part of the working capital will be required. If one will make less, one risk draining parts of the working capital and will run into big problems if sufficient capitals is not available.

b) One may in spite of the projections meet unlike difficulties during the initial stages and make less profit than expected. It can therefore be difficult to accumulate from the profit the increase of working capital which is required for the 2nd and 3rd year.

Only if the prospects are sufficiently bright, if the break even point is very low, and if further financing is too problematic, one should consider to base the ammount of working capital on the 1st years demand. It will for such cases be necessary to compute the working capital for the 3 first years and to show in the cash flow how the working capital will be built up from year to year, from the profit or from other sources.

Components of the Working Capital.

Dependant on the project, the working capital will normally consist of capital bound for the following purposes:

a) Prepayment of goods in order

b) Raw materials in stock

c) Work in progress

d) Products in stock

e) Products under dispatchment

f) Debtors

g) Less creditors

h) General cash in hand

You may compute the capital demand for the different purposes under the following considerations:

a) Prepayment of goods in order. Local purchase of raw materials will in most cases be on credit on cash on delivery basis (C.O.D). Hence prepayment will not apply. It however sometimes happen that the supplier, especially when not trusting a customer ordering something which is not regularly supplied, may ask for advance payment, or he may ask for a certain percentage deposit.

The same may happen for suppliers who themselves are lacking sufficient working capital to carry out the order.

For imported raw materials must be opened a Letter of Credit (L/C) before the goods can be dispatched. The period from opening of L/C until the goods is in hand may many times be considerable, and can be examplified as follows (but please correct the computition for the actual case):

- Time for transfering the L/C from the local bank to the supplier abroad via foreign banks	2 weeks
- Delivery time for the ordered goods (varies extensively from case to case)	4 "
- Waiting time for shipping possibilities	2 "
- Ship transporting time	4 "
- Waiting and clearing in the local harbour	2 "
- Dispatchment and waiting time for local transportation	1 "
Total	15 weeks = 3½ month

One will be aware that the bank of the project who opens the L/C is bound to release the payment according to the L/C terms. The bank may refuse to open the L/C if it does not fully trust that the payment from the project will be made promptly when due. It is therefore in most cases normal that the bank will ask either a standing guarantee for such payments or they will require deposited a certain percentage of the payment in an account with them. Something like a 25 % deposit may be required. The requirements vary, and clarification should be sought from the actual bank connection in the individual cases.

b) Raw Materials Stock.

While capital for raw materials in order is dependant on the invoice value, raw materials in stock is determined by the Landed cost or the local purchase price including duty, local freight etc.

The stock holding of raw materials fluctuate over the time. One can distinguish between the maximum stock after receival of the consignment and the minimum stock just before receival of the next consignment. One must have enough capital to cater for the maximum stock. If however the supplies are divided between many different raw materials and several suppliers, one can consider that the supplies will arrive at different times independant of each other. If that is the case, one can base the capital demand on a quantity somewhere between the maximum stock and the average stock.

The Minimum Stock which is required must be determined so big that one has sufficient security against stop in the production.

For local supplies where one can rely fully on stock holding of the supplier, the minimum stock may safety go down to under a week if also the transport possibilities are very reliable. Several materials require storage for curing or drying. E.g. wood should normally require 2 months storage or more before processing.

For supplies from overseas or for less regular local supplies the minimum stock holding may be considerably higher. Considering the importation time example indicated above, one can imagine that the supplies may delay as much as 1 - 2 months. The minimum stock can therefore not be less than 1 - 2 months. Still the order has to be made 15 weeks before the planned arrival time, which required a very efficient planning of the production and the purchases. If one expect some irregularities, it would hence be better to give allowance for a minimum stock of at least 3 months.

The maximum stock is determined by the minimum stock + the order quantity.

The order quantity is ideally a question of the most economical size of the order. This again is a balancing of the ordering cost on one side and the storage costs on the other.

For cheaply locally available raw materials the order size may be determined as a 7 ton lorry load (E.g flour for a bakery).

In other cases the quantities may be determined by the minimum available quantities (e.g. a whole roll of each of the textile types which are required). For perishable goods, (e.g. food stuffs) one may be forced to collect the raw materials very frequently and hence reduce the demand for working capital but increase the transport costs.

It is possible scientifically to calculate the most economical order quantity by a formula as follows:

$$\text{No of units per order} = \sqrt{\frac{200 \times \text{No of units required per year} \times \text{ordering cost per each order (Rp.)}}{\text{price in Rp./item} \times \text{storage cost in \% p.a.}}}$$

Many times it may be necessary to order less than what is economical simply due to lack of working capital.

The Stock holding should preferably be calculated under the above consideration.
As a practical indication of storage times to be calculated averagely, can however be indicated:

-	Fruit for processing	3 days
-	Flour for bakeries, 1 lorry load or	1 week
-	Consumeables available from stock in the nearest town	2 weeks
-	Steel from works (considerably cheaper than from local stocks)	1 month
-	Products to be made on order locally	2 months

- Un-seasoned wood	2-3 months
- Imported raw materials when one supplier cater for the main demand	3 months
- Imported raw materials distributed on a range of raw materials and suppliers	4 months

c. Work In Progress.

The working capital demand for work in progress is the capital bound in products under manufacturing.

The capital demand in Rp. is determined by:

i) the manufacturing time and

ii) The costs bound in the product during manufacturing

i) The manufacturing time will differ extensively from one type of production to another. Roughly we can indicate generally for some trades:

- Bakeries, stone crushing, flour mills, canning	less than 1 day = neglectible
- Garment production for sales	2 days
- Simple metal or wood products, painted	3 days
- Garment manufacturing on order	1 week
- Tanneries	1 - 2 weeks
- Furniture manufacturing	2 weeks
- Machine building and construction work	4 - 8 weeks

ii) The costs involved depends on how early in the process the costs are created. The major material costs normally apply from the start of the manufacturing, while labour and over-heads involvement will often increase during the manufacturing.

In general the costs may be taken as 80 % of the total yearly costs of the project.
More specifically calculated the costs may be loaded e.g. as follows:

- Materials 90 %
- Labour 40 %
- Overheads 50 %

Example: If the production time is 2 weeks, the loading time for the cost components is as specified above, and the yearly costs for materials, labour and overheads are respectively Rp. 100 million , 15 million and Rp. 25 million, the capital requirement for work in progress will be:

$$\frac{2 \text{ weeks}}{52 \text{ weeks}} \times (0.9 \times \text{Rp. } 100 \text{ mil.} + 0.4 \times \text{Rp. } 15 \text{ mil.} + 0{,}5 \times \text{Rp. } 25 \text{ million})$$

$$= \text{Rp. } 4.170.000$$

d. Products in stock.

Working capital for products in stock include all manufacturing expenses multiplied with the storage time.

The expected storage time will wary with the character of the project and with the local situation. As some rough and general guidelines can be indicated the following maximum binding time of the capital for finished products in stock:

- Bakeries for fresh products	1 day
- Dry cleaners	3 days
- Stone crushers	2 weeks
- Workshops manufacturing on order	2 weeks
- Mass products for sales without large seasonal variations	½ - 1 months

- Seasonal products with 50 % of the sales in 2 short seasons, continuously manufacturing, 3 months

- Seasonal products with all sales in 1 short seasons, manufactured over 8 months 7 months

e. Products under dispatchment. If products will not be paid before arrival at the customer (normal), or if payment time will not be counted before arrival (not normal), working capital for the dispatchment time will be required.

Export sales payable at sight may get a payment delay of 1 - 2 months while local dispatchments may get a delay in C.C.D. deliveries of ½ - 1 week. It may however for export sales be possible to obtain up to 100 % export financing from presentation of the invoice and bill of loading in the bank.

f. Debtors.

Several terms and payment conditions exist, requiring unlike binding of working capital. The following alternatives can be mentioned:

1) Payment by deposit. A deposit of e.g. 20 - 50 % of the invoice value may be asked for purchase of raw materials etc. The rest to be paid C.C.D.

2) Cash on Delivery (C.C.D), Generally no debtors will occur. This is the most normall payment condition for retail sales and for irregular non established customers.

3) 30 days credit. This is the normal payment condition for small scale industry. Payments are frequently not regular according to the schedule.

If an efficient and strict debt collection is established it may in practice be possible to limit the capital binding time to 1½ months. Normally may however be expected 2 months or more in average.

4) 3 months Credit is also a regular term much practised by larger scale industry. To be favoured by wholesellers and retailers, it may at times be necessary to offer 3 months credit.

g. Less Creditors.

For any purchases or services one receive, not paid cash, one will get a creditor. In practice, but not in the books, this applies whether the supplies are invoiced or not.

One will hence find that many of the services are used before they are paid. This e.g. applies to electricity, water, labour etc. On the other hand, expenses as house rent are paid in advance. Instead of going in detail, it may be expected that these capital needs will balance each other, and creditors will only be calculated for raw material supplies when payment conditions as 30 days credit or more will be granted.

Provided favourable terms of payment can be agreed upon, this can create considerable reduction in the need for working capital. It is however necessary, before deducting the credits from the working capital, to make certain how long credit one will be granted for the major purchases.

h. General cash in Hand.

As will have been seen, the above requirements for working capital include both materials, wages and overheads.

Strictly spoken, there should not exist any further working capital to be required. This would however mean that the cash box or the bank account at times would be empty. That would not be good, therefore a small buffer amount should be available in addition to the above. This can dependant on the situation amount to 5 - 10% of the rest of the demand for working capital to allow for fluctuations.

9.1.7 SUMMARY OF INVESTMENTS.

It may be useful if importing any of the requirements, to summarize the investments in a table as follows:

	Foreign	Local	Total
9.1.1 Land and building:			
- Cost of land			
- Building			
- Land improvement and other constructions			
9.1.2 Production machinery.			
- Installations and service equipment.			
9.1.3 Other Assets.			
- External transport equipment			
- Office inventory			
- Deposits			
9.1.4 Investment Safety factors.			
9.1.5 Pre operational expenses.			
- Know how			
- Training costs			
- Pre operational interests			
- Other pre operational expenses.			
9.1.6 Working capital.			
T O T A L			

If dividing the investments into foreign and local investments, consider all requirements for foreign currency as foreign.

This applies whether the entrepreneur is doing the importation or whether imported goods will be bought from local dealers.

- For direct import quote the CIF value as foreign
- For local purchase of imported goods quote an estimated C.I.F value as foreign (by deducting expected profit and import costs).
- For locally made goods, quote expected C.I.F value of imported components as foreign.
- For know-how and training, quote what will be paid in foreign currency as foreign.
- Quote working capital as local costs.

9.2 FINANCING OF THE PROJECT.

A. Investment/Financing Schedule.

Make a schedule as indicated in the working plan, specifying the investment requirements and the application of the financial sources for the different needs.

The financial sources one primarily will make use of, are normally to the following;

- KIK, KMKP, feasibility loans and large scale loans from development banks as specified in appendix 2.
  Grace period, repayment time, interests, lending object, and security requirement, to be determined.
- Owners Equity, partnership capital divided among several patners, or share capital distributed on any number of shareholders.

Other possibilities exist, ordinary over-drafts for working capital from the bank, other loans from institutions or private, leasing or hire purchase of machinery etc. In general these loans become expensive and as long as KIK and KMKP loans will be adequate for both fixed investments and for working capital, there are no need to go into these.

It is sometimes seen that the entrepreneur borrow money on very unfavourable terms and risky conditions to be able to provide the required equity. That should be discouraged, also because it endangers the project. Rather recommend to involve further participation of partners or shareholders in the equity itself.

Do not just assume the financial source and the loans conditions, but discuss the matter seriously over with the bank and get all the lending conditions before completing the feasibility study.

B. Lending Conditions.

Specify the lending conditions including the following:

- Grace period. The time the bank allows before repayment of the loan must start. Clarify whether the grace period will be calculated from commissioning of the plant, initial loan disbursement or otherwise.

- Rate of interest. Specify the percentage, and whether it is a fixed rate, or subject to alternations according to general market rates, or otherwise.

- Grace period interests repayment. The rate of interest for the grace period use to be equal with the interest for the repayment period, but the repayment requirements may differ. Specify whether the interests in the grace period must be repaid during the grace period or whether they will be added to the capital for repayment together with the rest of the loan.

- **Loan repayment.** Specify loan repayment time after the grace period completion, and intervals of loan repayment (monthly, ½ yearly, or otherwise).
  Specify also mode of loans repayment, whether with fixed installments and decreasing interests, or as an annuity loan where the installments will be increasing, so that the sum of interests and installments always remain constant.

Repaying the loan on an Annuity basis is normally to prefere. One will than avoid the extra burdens of a higher amount of interest in the initial phases of the project when the economical position is still weak.
The total yearly repayment can be calculated as

$$a = K \frac{1.p^n \times 0,p.}{1.\ p^{n-1.}}$$

K = Total Loan, p = interest percentage, n = number of years repayment.

The Annual repayment per Rp. 100.000 of loan may however be taken directly from this table:

ANNUITY LOAN REPAYMENT, YEARLY REPAYMENT OF Rp. 100.000 LOAN.

Repayment time for the loan. Years:	Total repayment per year in 1.000 Rp. for different rates of interest.								
	6 %	8 %	9 %	10 %	11 %	12 %	13 %	14%	16%
2	54,54	56,08	56,85	57,62	58,39	59,17	59,95	60,72	62,3(
3	37,41	38,80	39,51	40,21	40,92	41,64	42,35	43,08	44,5
4	28,86	30,19	30,87	31,55	32,53	32,92	33,62	34,32	35,7
5.	23,74	25,05	25,71	26,37	27,06	27,74	28,81	29,13	30,5
6	20,34	21,63	22,91	22,96	23,64	24,32	25,02	25,72	27,1
7	17,91	19,21	19,87	20,54	21,22	21,92	22,61	23,32	24,7
8	16,10	17,40	18,07	18,74	19,43	20,13	20,84	21,56	23,0
9	14,7	16,01	16,68	17,37	18,06	18,77	19,49	20,22	21,7
10	13,59	14,90	15,58	16,28	16,98	17,70	18,43	19,17	20,6

C. Loan Repayment ability.

The project must be able to repay the loan with sufficient safety margin. The Cash flow (chapter 9.4) shows from period to period whether there will be any cash surplus.
A cash surplus proves that the project will be able to serve its payment commitments.
One should however preferably have a good safety margin to allow for deviations from the plan in the practise.
If the surplus is larger than the loan repayment, one has a safety margin of over 100 % which is in most cases sufficient. Comment on the situation .

D. Se utiry Specifications.

Find out the security requirements of the bank, and specify which securities are available to cover these requirements.

For KIK and EMKP loans, the securities within the project itself will normally be sufficient. For feasibility loans and large scale loans will regularly independant securities be required in addition.
Such securities normally means that the bank will take a charge over a piece of property as a security object. The bank will get a document shoving that they can sell the property to repay the loan if the loan will not be repaid as agreed).

Plots, buildings, industrial properties, share certificates etc. use to be acceptable securities as long as there are no charge over them already. (At times a 2nd charge is acceptable).

The loan will normally be limited 70 - 80 % of the value of the security. The value depends on the valuation of the bank itself, or a value certificate made by a professional valuer accepted by the bank.

9.3 PROFITABILITY ESTIMATE.

A. General.

The profitability estimate should on a yearly basis show the sales revenue and the running costs. The difference is the profit. Economical profitability parameters may be calculated on basis of the estimates.

The aim of the profitability estimate is first of all to show the profitability and the safety of the project, but it is as much a budget with guidelines for the entrepreneur to run the project, and a basis for practical and financial dispositions.

B. Expectance to the yearly production programme.

The profitability estimate for small scale projects should be calculated for 3 years. For larger projects over Rp. 100 million the profitability should be calculated for 10 years, and also some further profitability parameters should be calculated. (Not mentioned here).

Start of new projects is difficult, one must learn the production and the management, learn to operate the machines and train new operators. Mistakes will be done, machinery will fail and will need adjustment. To be know and get confidence on the market takes time and also to find the right customers. Many unknown problems will arise and formalities one has not been sufficiently aware of may hinder the operations.

Consequently one should never expect being able to go into full production from the first year. How quick it will go to reach full production, and which percentage one should expect from the start depends mainly on:

- the competition on the market and the fitness of the product.

- the complexity of the production, and
- the drive of the management.

Under average conditions can be estimated:

1st year	50 %
2nd year	80 %
3rd year	100 %

These figures may be adjusted individually for each project. For further years one may of course if shift production is not utilized, but considered to be a realistic possibility, budget with some further increase in the production.

C. Expansion Projects.

If the project is an expansion project, i.e. that some sort of production has already started, give also the breakdown of the existing costing.

Hence in the layout (page 152) in front of 1st year, add another column with the same sales and cost components, determined as "existing situation" or "last year before the extension".

In this column you can make use of adjusted figures from the profit and loss account of the company. If no proper accounts exist, build up the costing based on interview with the entrepreneur and based on the additional calculations you will have to do.

D. Monetary Value.

One should expect that the inflation will continue. It is possible to make adjustments in the project for decreasing value of money. Taking all possible considerations into account, such adjustments can became very complicated and still the results will not be relyable.

We have found that it is better to base the project on the existing value of the rupiah throughout, well knowing that this strictly speaking is not correct.

Only if a definite price increase is expected in the very near future, one may base the project on these changes, but must then be aware that also other costs or prices may change, possibly as a consequence of the first one.

Not compensating for price increase, will first of all make the capital costs, the depreciations and the interests heavier to carry in the future than what they really will be. Hence it normally carries extra safety not to compensate for the cost increases.

The dangers connected with possible increase in the prices of major raw materials may, judged under a possible sensitivity analysis or in the conclusions.

E. Fixed and Variable Costs.

It is very necessary to distinguish between fixed and variable costs and to separate them under different headlines. Only in that way can one get a reasonable economical picture of the project with knowledge of the break even point and the safety margin.

a) Variable Costs are those which varies in ratio with the fluctuations in the production volume. These costs will normally include:

- Raw materials (a definite quantity is required for each product).
- Packing materials and consumeables (varies also in the same ratio even if not so directly related)
- Wages to process operators. (This is correct to the extent that the no of operators will go down when the work becomes less.

Essencial operators with special skills may not always be released even if the production volume goes down.
(It hence can be correct to group some such wages as fixed expenses).

- Electricity for the production. (Only the possible limited part of the electricity bill which will remain when there is no production can be considered as fixed expenses)

- Transport of raw materials and products (These are variable costs to the extent that the journeys must not be paid for anyway).

- Sundry maintenance costs. Some maintenance must be done whether the production is running or not, or must be done similarly whether the production is high or low. Those are fixed costs. Another part of the maintenance which is dependant on wear should be considered as variable cost.
(E.g. for a stone crusher the wearing out of the jaws can only be considered as variable costs).

b) Fixed Costs, are those which does not change if the production volume goes down.

If the production will be increased out over the intended capacity, most of the fixed costs will increase, but in that case they will generally remain fixed on a higher level if the production again goes down. The term "Fixed costs" does not mean costs which can not change, but is related to whether they generally will remain when the production volume temperary or more permanent goes down. One will bear in mind that the aim of determining costs as "Fixed" is to determine the cost of the production on a lower level than normal.

If the fixed costs turns out to be dangerously high, it should again be investigated whether one should start the project in a smaller scale.

The fixed costs will normally include:

- Salaries and fixed wages. (For all staff which will remain employed even if the production goes down to a minimum.)

- House rent, Insurance, Audit, Depreciation, Interest on fixed cost. (Even if it can be argued that depreciation and audit may be slightly less at a lower production.)

- Stationery, postage, telephone and other office costs, travelling, sales costs, professional services, are also considered fixed costs. If production goes down, one may even be forced to increase these costs in the efforts of increasing the sales.

- The non-production part of electricity and water, maintenance, the further transport activities, are costs which to some extent varies with the production. As these variations are only limited extent related to the variations in the production, such costs should be considered as fixed.

Lay-Out of the profitability estimate.

		Yearly Cost in 000 Rp.		
		1st year	2nd year	3rd year
	Production quantity in % of full production	50 %	80 %	100 %
	Production of quantity in no units			
1	Total gross yearly sales in Rp.			
2	Less sales income reductions:			
3	- Sales tax			
4	- Transport of products			
5	- Discount to customers			
6	- Agent commission and/or other specific sales costs			
7	- Add possible export incentives or other governmental subsidies			
	- Net sales in Rp. per year (total sales less sales income reductions)			
	Variable Costs:			
8	- Raw materials			
9	- Production wages (with social costs)			
	- Royality to know-how partner			
10	- Packing materials			
11	- Consumeables, lubricants, abrasives, etc.			
12	- Electricity for the production			
13-14	Fuel, water			
15	- Transport of raw materials			
16	- Production related maintenance			
	- Other variable costs.			
	Total variable costs			
	Gross profit (Net sales less Variable cost)			
	Fixed Costs:			
	- Salaries and fixed wages (with social costs) (See Para 7.4)			
17	- Rent of Building			
	- Electricity (Fixed part if any)			
	- Maintenance and repair (plant and building)			
	- Vehicle expenses			
	- Other transport expenses			

	1st year	2nd year	3rd year
20 - Travelling expenses			
21 - Office expenses, with postage, telephone, and stationery			
22 - Sales Promotion expenses (sales material, exhibition fees, advertisments etc,).			
23 - Audit			
24 - Other professional fees			
25 - Insurances			
26 - Depreciations (Specify)			
27 - Interests			
28 - Bank charges			
29 - Sundries			
Total fixed costs			
Net profit (gross profit less fixed costs)			
30 - Corporate tax			
Net profit after tax			
31 - Break even point (%)			
32 - Profit in % of net sales (before tax)			
33 - Return on total investment (after tax) %			
34 - Total employment (no of persons)			
Total Investment per employee (Rp./person)			

G. GUIDELINES ON COMPUTING OF THE ELEMENTS OF THE PROFITABILITY ESTIMATE.

1. Yearly out-put.

The sales volume will remain the same as the production volume as long as there are no increase in the volume of product stock. With increased production, stocks may possibly also increase.

To make matters simple, we can throughout expect the volume of production and sales to remain the same.

2. Sales income reductions.

Some costs are so directly and closely related to the sales and have so little connection with the production that it will be more correct to deduct them from the sales income than to specify them under fixed or variable costs.

Sales income reductions will normally include sales-tax, product transport, discount to customers and possible agent commission.

3. Sales Tax.

Sales tax will now and in the future be calculated as a value added tax. That means that the company will pay Sales Tax of the sales value of the product after deducting purchase value for raw materials and components.

The value added tax is in general 10 %, but with exeptions for certain commodities. Some essential products may have sales tax reduced to 5%, others increased to 15 %. Some luxury goods may be charged a maximum of 35 %.

The sales tax is not a regular expense for the company. It is a surcharge to the price of the product. The price may be calculated including or excluding sales tax.

If sales tax is excluded from the price, the customers will have to pay the tax amount extra, and the money will be kept until paying the tax. The sales tax will hence not affect the profitability of the project at all.

If sales tax is included in the calculated prices, than the total yearly amount of sales tax must be deducted from the sales as a sales income reduction before the net sales can be calculated.

4. Transport of products.

This cost should be deducted from the sales only if freight is included in the product price i.e. if the products are sold on other terms than ex factory. If one use own vehicle for the transport one may rather specify the costs under fixed expenses.

For products which are exported F.C.B should be deducted local freight up to the harbour as well as clearing and ship loading costs. For products offered C.I.F foreign harbour, should also be deducted sea-freight and insurance.

5. Discount to Customers.

It is normal that certain types of customers get certain discounts for different purchase quantities. Also it is sometimes normal to give a special discount of e.g. 2 % for cash payment. As these discounts are not an even figure, it will be necessary to calculate the average rate of discount and to deduct this from the sales figures.

6. Agent Commission and/or other specific sales costs:

If the price has already been quoted ex factory or been based on the prices which actually will be charged from the factory, no deduction should be made for resale profits.

Still however it may happen that one fully, or to some extent, use agents for collection of orders. Such agents will normally be paid a commission which is not reflected in the product price. This commission can amount to anything between 2 % and 15 %.

If other sales cost occur they can be deducted as a certain percentage from the price, rather than calculated as a fixed costs. E.g. some luxury products as cigarettes, beer, perfumes etc. are loaded with a special government fee to be deducted. Such costs are based on the sales price or the sales volume and not on the production or the production volume.

7. Export Incentive or Subsidies.

On export of products made in Indonesia is recervable from the Government an export incentive. 2 different systems applies; the drawback system that is now slowly being replaced by the system of export certificate.

The Drawback system allows the exporter refund of all duty expenses paid on the raw materials that he has imported himself. The expences can be claimed during exportation, but the refund may be pending for 6 months or more.

The system of export certificate allows an incentive dependant on the comodity within a range generally between 2,5 and 25 % of a value for the product stipulated by the Government.
The incentive is not directly related to the amount of duty that has been paid.

The exporter must apply to BPPI (Badan Penelitian dan Pengembangan Industri); Directorate General for Research and Development in advance for determination of value and percentage. The release of the payment is quicker. You may calculate with 2 months payment delay.

It is in principle also possible to get governmental subsides on local supplies of essential commodities. Presently are no such subsidies in effect for ordinary industrial products.

8. Raw Materials:

Specify the sum of raw materials and componens as calculated under para 7.3, or 9.4. Check that these costs for transport, cutting, possible duties, and salestax have been included or will be added in separately.

9. Production Wages.

See the comments under fixed and variable costs above. The specification of the wages should be available from the specification under para 7.1, the production process, or from the product calculation para 9.4.

10. Packing Materials:

To the extent it is not included in the product, both inner and outer packing materials must be calculated, and if export, also the special export packing.

11. Consumeables.

This may include lubricants, abrasive materials,

paints, glues, polish, washing media, and other minor items used in production and maintenance without forming any particular part of any product.

12. Electricity for the Production.

PLN charges a fixed monthly amount according to the size of the installation, and additionally a varyable amount according to the consumption in the period. The rates in 1984 are for Jakarta: (as from 1st March 1984).

Installation Size.	Tariff Type	Monthly charge dependant on size of Installation Rp./KW	Additional consumption charge Rp./Kwh	
			Normal rate	Night use $22^{00} - 8^{00}$
0,25 - 0,5 KW	Household	2.100	70.50	-
0,5 - 2,2 "	- " -	2.100	84.50	-
2,2 - 3,8 "	- " -	3.680	126.50	-
3,8 - 99 "	Industrial	2.300	106	66
100 - 200 "	- " -	2.300	100	62.50
201 -	- " -	2.100	96.50	60.50

Hence for all practical Industrial purposes one can take the charges to be

per Kw : Rp. 2.300 per month
per Kwh : Rp. 106

If as an example, having 10 KW installed and consuming 10.000 Kwh per year the charges will be

As a fixed cost 10 KW x 12 months x Rp. 2.300
= Rp. 276.000 yearly

As a variable cost 10.000 Kwh x Rp. 82
= Rp.1.060.000 yearly

The prices differ from area to area. Please check the local electricity price within the area of the project.

How big is the Electricity Consumption ?

Find out how many KW the production machines consume averagely. Multiply this with the number of operating hours per year for the machines, and you know how many Kwh the project will consume per year. When you thereafter multiply with the price per Kwh you know how much the electricity consumption will cost. If the different machines will operate at very different no of working hours you can calculate the no of Kwh consumed for each of them and add together the total.

It is for each machine specified how many Kw the motors are. (Sometimes the motor size is specified in horse power (PS). Than multiply by 0,735 and you get the no of Kw, which is slightly less).

A working machine will normally consume less electricity than the size of the motor. When the machine is ideling, the consumption can sometimes be down to 25 % of the motor size. The measured consumption however is slightly higher than the effective consumption, so this may normally balance each other out.

13. Fuel:

The cost of fuel is first of all dependant on the quantity of heat which is required. The heat requirement can be measured in different ways. The heat requirements can best be informed by the machine suppliers.

If no information is available one may get a rough idea about the requirement from the following indications about the possible heat productions from a kg of diesel oil based on a "normal" heat utilization:

1 Kg diesel oil	can dry away	7 kg	moisture
or make	10 kg	steam	
or heat	20 "	iron to 1000 °C	
or heat	70 "	water to the boiling point	
or heat	80 m^3	air to 200 °C	
or provide	6000 kcal	for any purpose.	

Oil is not the cheapest type of fuel. One should use the type of fuel which becomes most economical. This is in addition to the cost of energy also dependant on the investment.

Energy costs can roughly be composed as follows, but should be checked for local conditions and adjusted as to the required level of investment:

Fuel	Cost Indi-cati-on.	Heat Value	Normal Utili-zation of the fuel %	Cost re-lated to the heat value Rp./1000 kcal	Comment
Saw dust	20 Rp./ kg	3.200 Kcal/ kg	50 %	12	There avail-able. Useful for boilers and dryers. (May also be briquetted and char-coalized).
Coal	80 Rp./ kg	7.500 Kcal/ kg	70 %	15	Economical fuel , Prices dependant on location.
Coke	100 Rp./ kg	7.800 Kcal/ kg	90 %	14	- " -
Petroleum	150 Rp./ liter	11.000 Kcal/ kg	80 %	17	Restricted to domestic use.
Heavy furnace oil	200 Rp./ liter	9.500 Kcal/ kg	70 %	30	Complicated to burn. High investment.
Solar oil	220 Rp./ liter	10.000 Kcal/ kg	75 %	29	
Gas	4300 Rp./ 13kg	12.000 Kcal/ kg	90 %	31	
Electricity, domestic rate	84.50 Rp./ Kwh	860 Kcal/ Kwh	100 %	98	Smallest ins-tallations 71 Rp./ kwh
Electricity, industrial rate	106 Rp./ kwh	860 Kcal/ kwh	100 %	123	Largest ins-tallations Rp. 97 Rp/kwh
Charcoal	500 Rp./ kg	7500 Kcal/ kg	90 %	74	In short supply. Easy clean combustion.
Fire wood	200 Rp./ kg	3.500 Kcal/ kg.	60 %	95	Prohibited fuel

14. Water.

Cost of water should only be calculated if the project is connected to the communal water supply.

Ideally spoken, the water consumed by fixed staff can be considered as fixed costs. These quantities are however so low that it is better to consider the total water consumption as variable costs.

The consumption of water can roughly be estimated as follows:

* Water used personally by employees and for general cleaning;
  - If water toilet is installed: 10 m^3 per person per year
  - If also shower(s) is installed: 20 m^3 per person per year.

* Water for mixing into the products or for cleaning of utensils;
  - In most cases neglectible.

* Water for cleaning, rinsing, drying or wet processing of the production:

- For tanneries	1 m^3/hide
- Dying of yarn or textiles	60 x yarn weight
- Bakeries	2 - 3 x Dough weight
- Fruit processing	8-10x Fruit weight
- Slaughter houses	10-15 x Meat weight

* Water for cooling. The quantities are dependant on how much the cooling water temperature can be allowed to increase. If one expect an temperatur difference of 50 °C between inlet and outlet;

1 l water will cool, 50 kcal or
1 l " " " 0,06 kwh
or 17 l water per hour will cool 1 kw.

If the cost of cooling water becomes too high, the installation of a cooling tower or a refigerating unit may be considered.

The cost of water is presently Rp. 250,- per m^3 = 1.000 liter. Hence for a project with no process water, the water will cost;

- if a shower is installed : Rp. 5000 per person per year.
- if a water toilet " : Rp. 2500 per person per year.

15. Transport of raw materials.

If the transport costs will be considerable, collect offer for the transport. Compare costing to see whether it can pay for the project to invest in own means of transportation (See page 165).

With the existing rates and prices one will however very rarely find it economical for the projects to invest in their own vehicle. It will normally pay much better, rather to invest in more production machinery and tools.

The following rates are specified from the Government for Highway transport for short and long distances: (Jan 1983)

- Zone I : Java, Bali and Lampung Rp. 66 per ton km
- Zone II : North Sumatra, West Sumatra, and Riau - " -
- Zone III: South Sulawesi and South East Sulawesi - " -
- For other areas are no tariffs determined and costs will generally be higher.
- For Railway transport applies : (Jan 1983)
  Rp. 15,55 "
  for luggage and small consignments Rp. 40,36 "

16. Maintenance.

Maintenance can be calculated as a percentage of the machine investment. But unlike trades have unlike cost of maintenance. If more specific information is lacking you can roughly calculate:

Type of industry	Maintenance cost in % of machine cost for year No.									
	1	2	3	4	5	6	7	8	9	10
Wood work, metall-work, garment, and shoe production etc.	2,5	2	2	2	2,5	2,5	3	3,5	3,5	4
Flour milles, bakeries, plastic production, printing press, textile production etc.	4	3,5	3,5	3,5	4	4,5	5	6	6	7
Stone crushing, concrete production, ceramics, saw mills etc.	6	5	5	6	7	8	9	10	11	12

For shift production add 50 % per shift more than one.

Building maintenance (fixed cost) may be estimated at about 1 % of the building cost for permanent building, but up to 5 % for less permanent buildings.

17. Factory rent.

Quote the rent amount which has been agreed with the land-lord as to the lease agreement. Try to prevent estimation without knowing the level. The costs can vary considerably.

18. Vehicle Expenses.

The costs can with the present prices be estimated about as follows:

Vehicle Type	Car 1200 CC	Pick-up 1 ton	Truck 3 tons	Truck 7 tons Petrol	Diesel
Normal Purchase Price Rp.	12 MILL.	5 MILL.	10 MILL.	14 MILL	21 MILL
Variable Costs at 30,000 Km/ year :					
- Petrol (Rp. 350/ liter)	1.000.000	1.500.000	2.100.000	2.620.000	600.000
- Lubricants	100.000	120.000	180.000	230.000	230.000
- Maintenance	300.000	500.000	800.000	1.500.000	1.500.000
Sub total	1.400.000	2.120.000	3.080.000	4.350.000	2.330.000
Fixed Costs:					
- Road License	90.000	50.000	80.000	150.000	150.000
- Insurance	350.000	200,000	400.000	500.000	500.000
- Depreciation, 20 %	2.400.000	1.000.000	2.000.000	3.400.000	5.250.000
- Interest,18%	2.160.000	900.000	1.800.000	3.050.000	3.770.000
Total fixed costs	5.000.000	2.150.000	4.280.000	7.100.000	9.670.000
Total annual Costs at 30.000 Km/year.	6.400.000	4.270.000	7.360.000	11450.000	12.000.000
Costs in Rp. per kilometer:					
at 10.000 km/year	546	285	530	855	1.277
30.000 km/year	213	142	245	382	400
50.000 "	146	114	188	287	271
100.000 "	96	92	145	216	17.
200.000 "	87	81	124	180	128

Estimate how many Km the intended vehicle will be used per year and compare the costs with hired transport. If own transport becomes cheaper and the vehicle should be included, you may, unless investigating more individually, use the above figures.

The costs include Interests and depreceiation. If those costs are already included separately in the profitability estimate, do not include them again.

19. Other transport expenses.

Transport of raw materials and products is catered for above. If the project does not have its own vehicle, transport other than for materials and products should be specified under this paragraph.

20. Travelling expenses.

The manager, possibly a sales man and the technical leader of the project will have to travel, to central areas, to the customers and to raw materials suppliers.

Find out how many travelling days should be expected per year and calculate travelling costs, food and commodation.

21. Office expenses.

Estimate the costs based on the following general suggestions.

Type of project	Sales volume Rp/year	Stationery 000 Rp/ year	Postage 000 Rp/ year	Telephone 000 Rp/ year	Total 000 Rp /year
Project which has direct contact	5 million	20	10	-	30
with local	10 "	40	30	-	70
Customers	50 "	80	40	100	220
Only	100 "	120	50	200	370
Projects with					
	25 million	80	40	120	240
country wide	50 "	120	60	200	380
Sales	100 "	200	100	400	700
	500 "	400	200	600	1.200

These figures may increase:

- if the number of customers is high
- if the number of employees is high
- if purchase is from many sources
- if export and/or import is being done.

22. Sales promotion expenses:

Resale profits, agent commissions and travelling expenses are catered for as sales income reductions above.

The sales promotion expenses include other expenses as printing of leaflets, advertisements, product demonstrations, exhibition fees, product samples, and other sales promotion expenses. The sales promotion expenses include the costs involved in informing about the products, but does not include the costs involved in the individual sales orders.

Sales promotion expenses applies to public oriented products, especially new types of products which must be made known to the users.

Unless the competition is very high, the costs will mainly apply the first year but partly also the 2nd and 3rd year when the sales is expected to increase. Indication-wise the costs may be as follows in Rp./year:

	Completely new product on the market. No competition.		A new brand to share the market with existing products	
Planned sales volume Rp/year	100 mill Rp.	500 mill Rp.	100 mill Rp.	500 mill Rp.
1st year	3 mill	8 mill	2 mill	3 mill
2nd year	1 mill	3 mill	1,5 mill	2 mill
3rd year	0,5 mill,	1 mill	1 mill	1,5 mill

23. Audit:

A limited liable company is by law forced to get the accounts audited by a registered auditor. A private company or a partnership are not forced to have their accounts audited.

Even if these smaller companies do not always keep accounts, they should very much be demanded to do so. They may at times require some assistance in keeping the accounts, but there are no reasons to require the accounts being audited.

Hence no audit fee should be included, other than for limited companies.

The size of the audit fee depends on how well kept the books are, and consequently how much work will be involved.

Generally it can be expected as follows:

Sales in Rp/year	If accounts are not well kept	If accounts are well kept
Under Rp. 25 Mill	auditing normally	not required.
Rp. 50 Mill	Rp. 200.000	Rp. 100.000
Rp. 100 "	Rp. 300.000	Rp. 200.000
Rp. 200 "	Rp. 400.000	Rp. 300.000
Rp. 500 "	Rp. 600.000	Rp. 400.000

24. Other Professional fees.

This may include engineers' fees within production guidance, product development and project preparation, lawyers fees (and court expenses), establishment of agreements, debt collection, solving of disputes, and possible architect fees for building problems. Occurence of such expenses will depend on the nature and the complexity of the project.

25. Insurance.

Fire insurance is compulsory for all companies. The rates varies greatly from one trade to an other. The rates are also extensively dependant on the standard of the production building.

Rates for most industries are specified in appendix 3

26. Depreciations.

All assets of the project except land reduce in value over the time. The reasons for such decrease in value is not only wear, but also that they in the future due to new technologies may become outdated. The wearing out is however the main factor.

The rate of depreciation should hence be determined in correlation with the wearing out time, or at least the items must be fully depreciated before time is due for their exchange. Normally the depreciated items will remain with a rest or scrap value for which they can be sold when they are not any longer suitable for the production.

Depreciations will not be paid on yearly basis. But they are, even so, as real expenses as any other expenses. The expense occur in the form of decreased value of the goods, and at the time of exchange of the worn out equipment, these expenses must be paid in the form of renewed equipment or in other ways. It therefore also is necessary to accumulate funds within the project from which reinvestments can be paid.

The rate of depreciation will vary with the type of equipment and the extent of use. Instead of following the governmental rates for permitted depreciations in the accounts, we will rather determine the depreciations on basis of normal expectable minimum lifetime for the equipment.

Rates of depreciation may be determined either:

- as a fixed percentage of the balance of the depreciated value,
- as a fixed percentage of the original costs,
- or by dividing the investment equally over a number of years corresponding to the lifetime.

Of these, the last method is the easiest to determine correctly and to use. It also will show better profit for the project in the first years when the economy of the project normally is more difficult.

We may use the following rates for depreciation, but please adjust the rates for expected special long or short lifetimes:

- Permanent buildings in concrete	50 years
- Semi permanent buildings. Buildings with wood, steel and iron sheets	30 years
- Temporary buildings	10 years
- Furniture and inventory, office equipment	10 years
- Technical installations in permanent buildings as boiler installations, air compressors, ventilation, and refrigeration	15 years
- Normal production machinery used on daytime only	10 years
- Machinery used on 2 shifts	8 years
- Machinery used on 3 shifts	6 years
- Specially heavily wearing machinery, whether on day time or on shift (e.g. stonecrushers, concrete machinery etc.)	5 years
- Large hand tools, electrically operated hand tools	4 years
- Small hand tools	3 years
- Machine tools	0,5 - 3 years
- Motor vehicles	5 years
- Tractors and trailers	8 years

27. Interests.

Interest of equity capital will not be calculated. (Instead, the project will show the return on equity, i.e. which interest the equity capital is expected to earn when invested in the project).

Interests on overdraft and on all loans must be calculated, not only the major bank loan.

Interest on the loans should be specified at the rates they actually will be paid at, and also these interests will decrease as the repayment of the loans are progressing.

Overdrafts or working capital loans will often be given at a slightly higher rate of interest than other loans. The interest will be calculated from the balance from month to month, and will therefore vary with the size of the business activities. Interest of overdraft loan may therefore be considered as variable costs.

28. Bank Charges.

Bank charges are ledger fees, fees for payment transactions in foreign currency, and sometimes a fee for cashing of cheques from distantly located banks.

These charges should be calculated for projects having a high extent of foreign transactions but also for projects having many disbursements/ payments over the bank.

29. Sundries.

Different expenses, not possible to mention above, will occur during the operations. This includes entertainment, litterature, etc. Add about 5 % of the fixed expenses for sundry expenses.

30. Corporate Tax.

The tax is 35 % of the net profit as a flat rate.

If the project during the initial operations will make losses, such losses may be carried forward and deducted in later years profits, before calculating the taxes. (To be applied to Ministry of Finance)

Example;

	1st year	2nd year	3rd year
Net profit (loss)	(300.000)	100.000	500.000
Net profit after deducting earlier losses	(300.000)	(200.000)	300.000
Corporate tax 35 %			105.000
Net profit after taxation	(300.000)	100.000	395.000

31. Break Even Point.

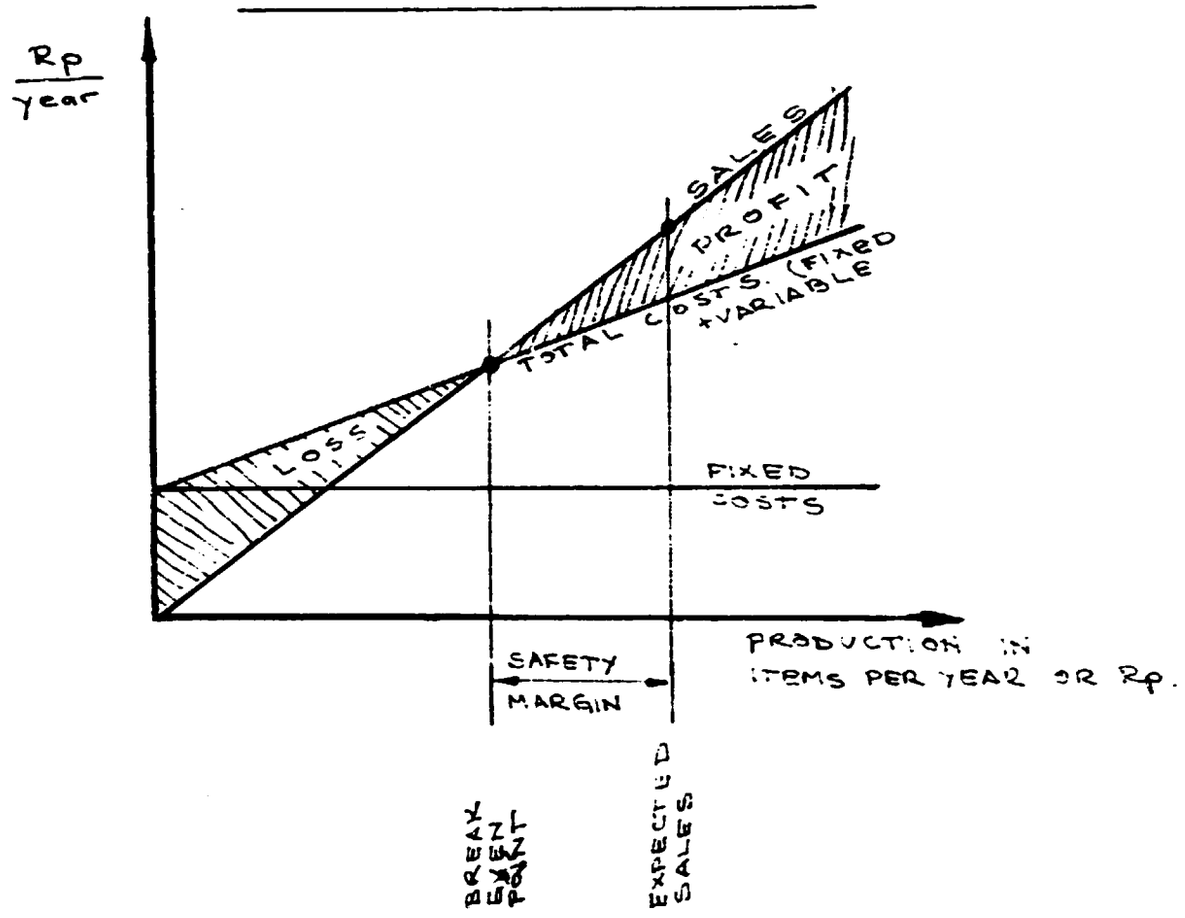
Determine the break even point for each year as follows:

$$\text{Break even point in \%} = \frac{\text{Fixed costs in Rp./year} \times 100}{\text{Fixed costs in Rp./year + profit in Rp./ year.}}$$

The break even point tells how much lower the sales can be before the project will make losses instead of profits.

You may when you find it useful, draw a break even diagram for illustration as follows:

BREAK EVEN DIAGRAM



32. Profit in % of sales.

Divide for each year the calculated profit before tax, with the net sales.

This is the normal profit margin for the project. The yearly profit percentage is dependant on how fast the capital revolves within the company. As the capital normally will revolve a few times in a year, the return on capital will normally be higher than the profit on the sales.

33. Return on investment.

Find for each year return on total investment by dividing the net profit after tax with the total investment including working capital.

Find in the same way the return on equity by dividing the same profit with the total contribution of the entrepreneur.

34. Employment and Investment per employee.

Specify the number of persons employed or working within the project from year to year. The fixed staff will normally remain unchanged or with small alterations from year to year. (See para 7.4).
The variable staff will normally vary in ratio with the volume of production from year to year.

Find investment per employee by dividing the total investment in Rp. including working capital with the total number of persons for each year.

Investment per employee should always be as low as possible.

9.4 PRODUCT CALCULATION.

Product calculation is required when several products will be manufactured and when material costs and operation costs have not been determined otherwise (Para 7.3 and 7.4)

The purpose of the product calculation is:

- to show how costs and profit varies from one product to another or alternatively to determine prices and profits.

- to determine machinery selection and to calculate the loading of machinery and operators.

- to compute the best possible production programme.

- at full capacity utilization to identify profit related to loading of the bottle neck. Through that to optimise the production programme.

A. Cases when normal product calculation is not adequate.

There are two cases when a product calculation is not required:

I. If only one product is made and the costing is sufficiently evident from the profitability estimate.

II. If no fixed production programme exist.

Projects embarking on different kinds of services or making products on customers requests can not be cost-calculated for the different products. This situation can be solved in 3 different ways. (Select whichever method seems most adequate for the case).

a) Selection of one or a few examples or products. Calculate as if these represents the whole production and base the profitability on these costs and prices. Be aware of that the use of materials and the loading of the production plant may not be fully representative.

b) Make use of key-figures and normal-ratios When it is known from several similar projects how the costs are divided on materials and labour and related to sales prices, the costing can be built up accordingly.

The method is so far uncertain that it should only be used for smaller projects. It will also be necessary to make use of data collected and compared from a few projects.
Indonesian statistics for Small Scale Industry of 1979 from central bureau of Statistics contain average figures for small scale manufacturers divided on 108 different commodities, divided also on the different provinces.

The statistics specifies the costs and the figures on the following costs elements:

- Wages and salaries
- Raw materials
- Electricity
- Fuel and lubricant
- Packaging materials
- Other materials
- Repair and maintenance
- Industrial services received
- Rent of buildings and machinery
- Other expenses.

This is related to figures for Production volume and others. It is very much recommended to make use of this statistic material for the cost estimations for such projects.

c) Make use of hour-rates. This applies to service workshops and to projects working on orders without any particular production programme. A hour rate should be established so that one will be able to cover the variable and fixed expenses of the profitability estimate, giving a profit in the range of 10 - 20 %. Materials should be invoiced based on its actual costing + a reasonable profit.

One must for such cases, in determining the hour rates be aware that not all working hours are possible to invoice. Some time will be used for internal purposes and some hours will not be possible to sell. Dependant on the project, one can estimate it being possible to invoice between 50 % and 80 % of the working hours for the production operations. The viability of such projects can be determined by comparing the hour rate, the services and the load factor with other competing projects within the trade.

B. Layout of the product calculation.

Products which are relatively like in requirement to materials and process, may be calculated in the same form or table, with separate colouns for the quantities and costs of the different products. Products with very unlike requirements can better be calculated in separate charts.

C. Product Cost Calculation Chart.

Product: _____

	Material Type	Quantity and unit	Price per unit, Rp.	Total Rp.
Materials and components.				
	Total direct materials and components:			
	Add indirect variable costs related to materials consumption.		+ % =	

	Operation	Machine	No. of Operators	Working time, each	Cost per man hour	
Production processes:						
	Total direct labour costs:					
	Add indirect variable costs related to the operations:				+ % =	
	Total variable costs per product: (After adding possible royalty or other variable costs)				+ Rp. =	
	Gross sales price:					
	Less sales income reductions = Net sales price				- %	
	Gross profit = (Deduct total variable cost above)				= %	
	Less fixed costs (OBS: Deduct in % of total variable costs)				- %	
	= Net profit				= %	

D. Remarks to the cost calculation:

When one use a system for the cost calculation as specified above on Page 179, only the direct materials and the direct labour need to be calculated specifically for each product.

The other costs are added or deducted with a certain percentage which can be calculated once and added equally with the same percentage for all the products.

These percentages can be calculated once and for all as follows with the annual figures from the profitability estimate:

a) Indirect variable costs related to material consumption in %:

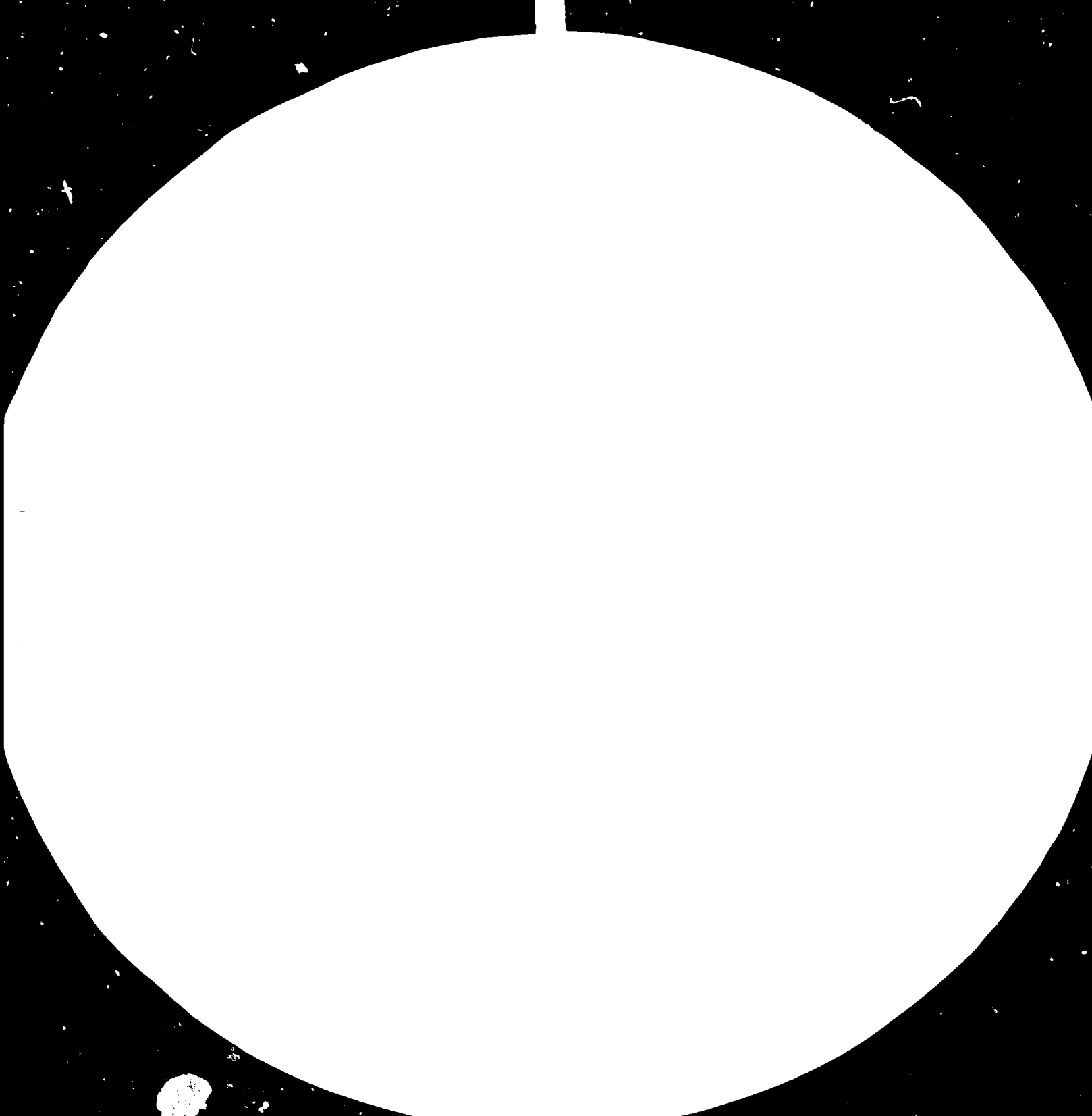
$$\frac{\text{(Freight and transport for raw materials + fuel + water + packaging materials and sundry consumeables)}}{\text{Annual direct material consumption}} \times 100 = \boxed{\quad\quad\%}$$

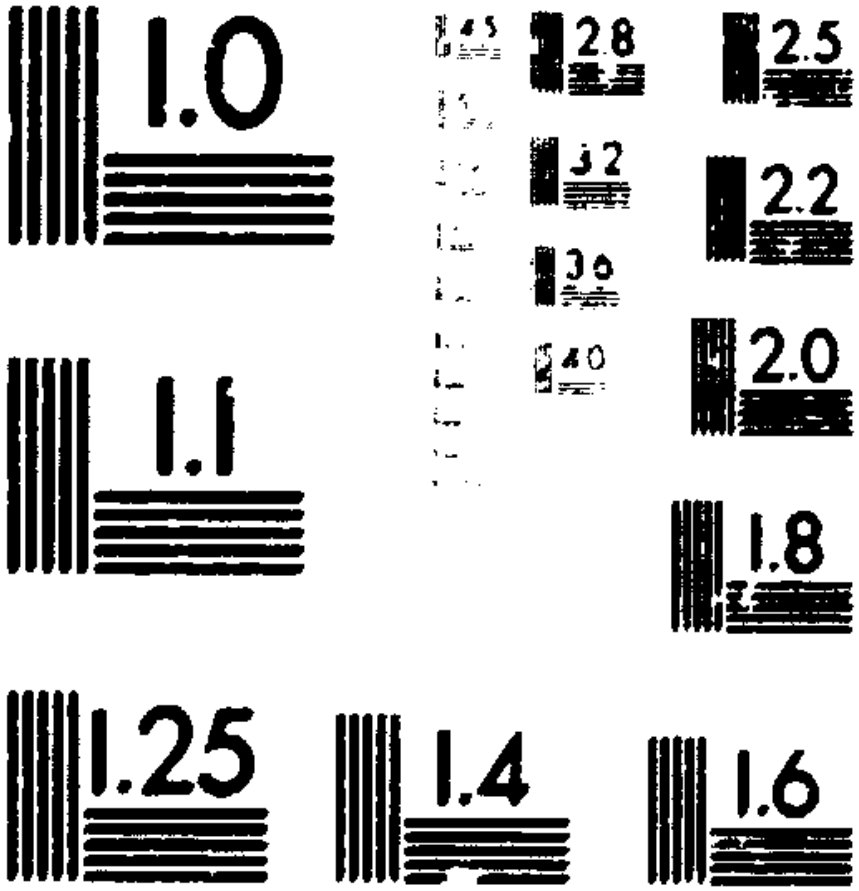
b) Indirect variable costs, related to the operations in %:

$$\frac{\text{(Electricity, lubricants, abrasives, maintenance, and possible other variable costs not listed above)}}{\text{Annual total variable labour costs}} \times 100 = \boxed{\quad\quad\%}$$

c) Sales income reduction, related to gross sales price in %:

$$\frac{\text{(All the sales income reduction costs as listed in the profitability estimate, as sales tax, product transport, customer discounts, agent commissions, etc.)}}{\text{Annual Gross Sales Income}} \times 100 = \boxed{\quad\quad\%}$$





d) Fixed costs, related to variable costs in %:

$$\frac{\text{(Total annual fixed costs)}}{\text{Total annual variable costs.}} \times 100 = \boxed{\quad\quad\ \%}$$

If calculation of the operation time has been done under the production process (para 7.1) it does not need to be repeated here. The total cost can then be refered.

Holding together the calculations for the different products specifying the sales quantities, one may if need be summarise the raw materials, the man hours, the machine hours, and the gross and net profits from the different products. This should correspond with the totals of the profitability estimate.

9.5 CASH FLOW.

The Cash flow shows the payments to, and the disbursements from the project, from year to year. The remaining difference, the surplus or the deficit tells whether the available financing will be sufficient to facilitate the required disbursements.

Make the cash flow as simple as possible and use a form as specified under the Working plan page 38. Specify the cash flow for as may years as the profitability estimate, at least 3. Year 0 refers to the implementation stage.

The Cash flow involves the following elements:

- Profit before tax. As long as this is an annual information, one does not need to specify disbursements and revenues, but can simply record the annual profit for each of the operating years, whether positive or negative. Put negative figures in brackets: ( )

- Depreciations. Depreciations are not paid, so since they have already been deducted in the above profits, they must be added back again in the cash flow with the same amount as deducted in the profitability estimate.

- Loans Utilization. The total loans amount will normally be available in year 0. But it will be beneficial in order to save interest, to draw on the loan according to disbursement requirements. Parts of it may therefore be received in year 1.

- Equity. This is the entrepreneurs own contribution that must be paid in before the bank will release any loan.

- Fixed assests. Most of these will in general have to be paid in year 0 but it depends on payment conditions.

- Working capital increase. Working capital disbursements occur as raw materials and wages are being paid and stocks and debtors accumulate. When the working capital requirements are calculated, based on the needs for the 3rd year, and the earlier requirements are less, hence the disbursements will be distributed over the period from year 0 to year 3.

- Tax Payment. No tax will be paid before the project make profit, and the taxes will be paid the year after they are calculated in the profitability estimate.

- Loan repayments. The yearly interests and installements to be specified according to the lending conditions indicated in para 9.2 B, Page (145).

- Cash Surplus may at times be negative but not the accumulated cash. That only shows that further financing must be provided.

Seasonal Production.

If the project is seasonal, the demand for capital will vary over the year, and it may be necessary to make a monthly cash flow at least for one year.
It will than be necessary to specify disbursements, and revenues, stocks of materials and products, debtors and creditors.

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10. IMPLEMENTATION PLAN.

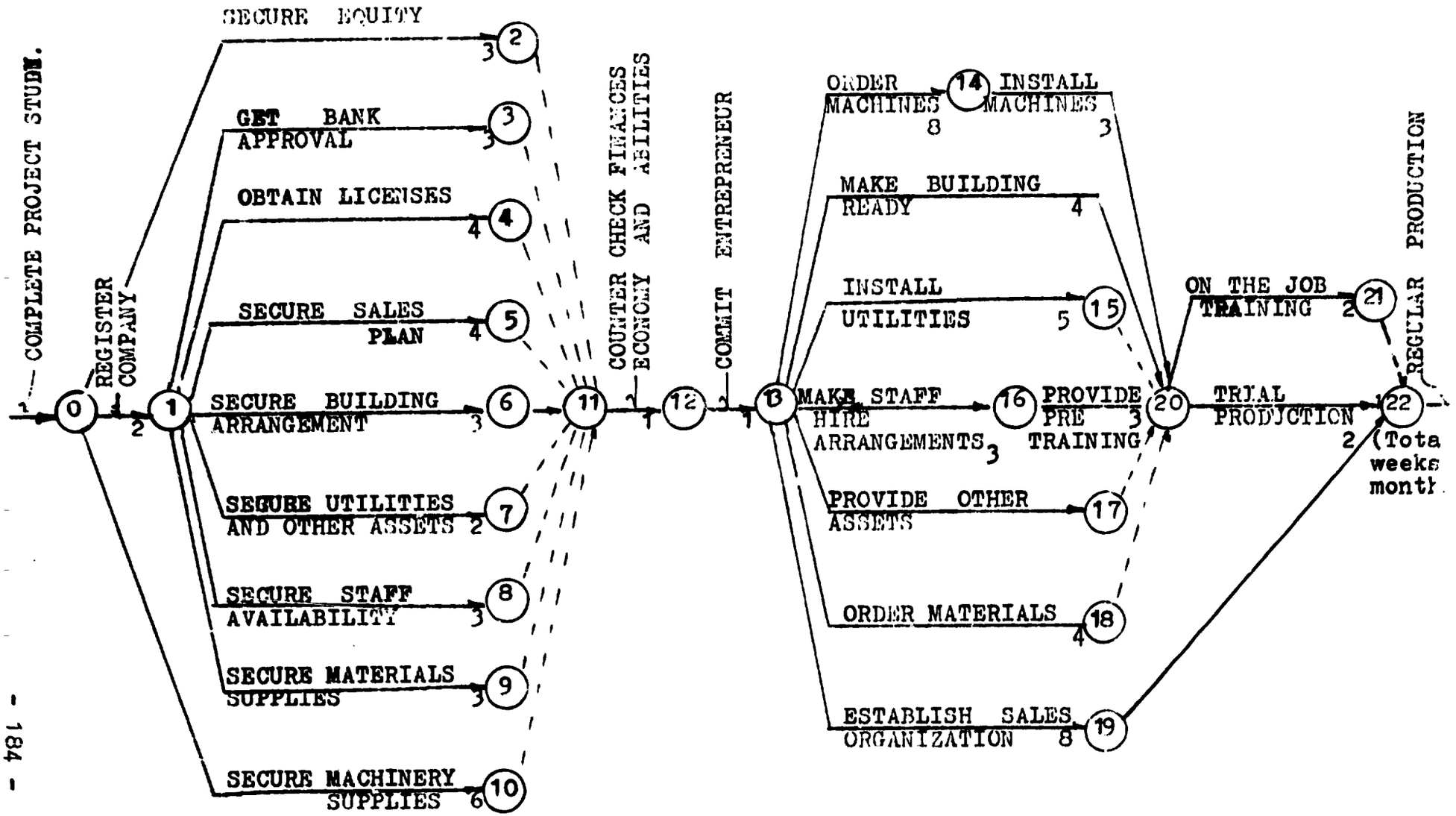
A. Make a time chart.

Make a time chart for the implementation plan, specifying the main activities. A network plan as indicated on page 184 or a Gannt plan as shown on page 185 may be used as may be found most practical.

Both plans are intended as examples. Which activities are required, as well as the time requirements, will vary a bit with the individual projects.

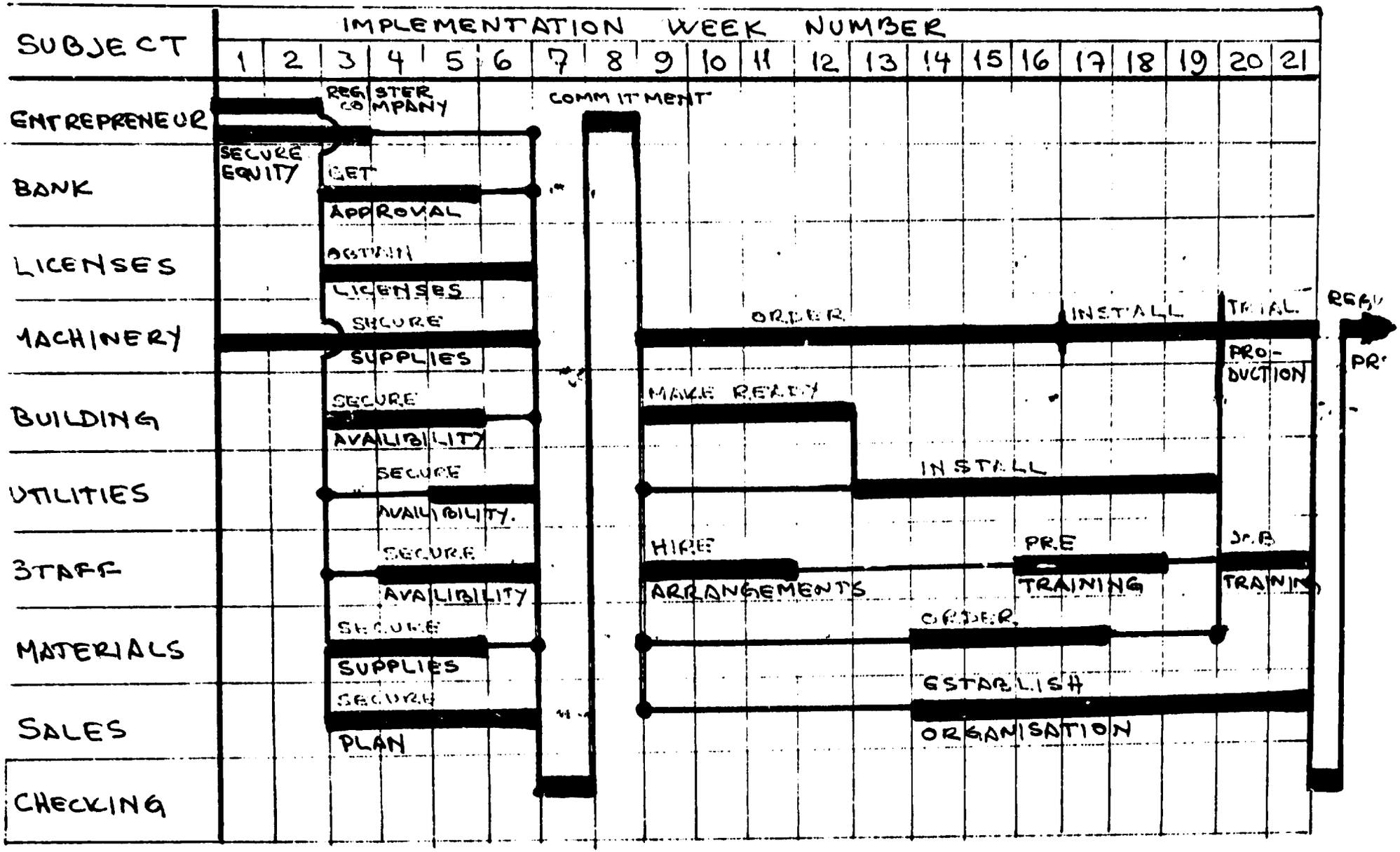
Both plans indicate how the activities may be connected together, what can be done simultaniously and what must be completed before other activities can start. In the network plan the time requirement for each activity is determined with a figure for the number of weeks that is required. Both plans indicate a total time requirement of 21 weeks. A small project for the local market using readily available machinery can obviously be implemented faster, while a project requiring imported machinery, foreign collaboration and training, as well as a countrywide network of sales representatives will take longer time.

Only major activities are indicated in the plan. That will also be sufficient for the feasibility study. When it comes to the actual implementation, a more detailed plan may be required, splitting the activities into elements.



NET WORK IMPLEMENTATION PLAN.

IMPLEMENTATION PLAN (GANNT)



B. **Planning of Capital Employment.**

The operational interests may for projects requiring long implementation time be considerable, and it may be necessary to calculate them more thoroughly.

Also the bank may require a time plan for the disbursements. Looking at the different cost elements of the investment plan and the quotations, one will be able to determine the disbursement requirements sufficiently accurately. The plan may be made with a shadule as follows, specifying disbursements on quanter-yearly basis:

Cost Components	Disbursements											
	Before start of production								After production start			
	Year 00				Year 0				Year 1			
	1/4	2/4	3/4	4/4	1/4	2/4	3/4	4/4	1/4	2/4	3/4	4/4
Land												
Building												
Machinery												
Other Assets												
Pre operational costs												
Working capital												
Sum disbursements												
Disbursements accumulated												
Capital Employment: - Equity - Fixed loan - Working capital loan												
Interest before production start.												

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AVERAGE PERCAPITA MONTHLY CONSUMPTION AND EXPENDITURE BY ITEMS OF FOOD.

ITEMS OF FOOD	Unit	URBAN + RURAL Quantity	Value(Rp)	ITEMS OF FOOD	Unit	URBAN + RURAL Quantity	Value
A. CEREALS							
1. Rice open market/ distributed	Kg	6,621	1347	5. Fresh corn with husk	Kg	0,178	13
2. Rice, own product	Kg	2,456	485	6. Dried corn with husk	Kg	0,104	9
3. Glutinous rice	Kg	0,104	26	7. Corn kernel	Kg	1,075	100
4. Rice product	Kg	0,017	4	8. Corn meal	Kg	0,070	9
				9. Wheat flour	Kg	0,090	17
B. TUBERS							
1. Cassava root	Kg	1,447	56				
2. Dried cassava	Kg	0,264	17	5. Potato	Kg	0,116	26
3. Cassava flour	Kg	0,040	4	6. Taro	Kg	0,090	4
4. Sweet potato	Kg	0,503	22	7. Sago flour	Kg	0,082	9
C. F I S H							
1. Fresh sea fish	Kg	0,420	195	4. Canned fish	Kg	0,013	13
2. Fresh water fish	Kg	0,182	108	5. Shrimp, Crab, and others	Kg	0,048	26
3. Salted and dried fish	Kg	0,325	191				
D. M E A T							
1. Beef: a. Meat	Kg	0,035	69	5. Preserved meat	Kg	0,000	4
b. Others	Kg	0,017	35	6. Other meat	Kg	0,004	4
2. Buffalo beef: a. Meat	Kg	0,009	17	7. Chicked	Kg	0,009	104
b. Others	Kg	0,004	9	8. Other poultry	Kg	0,004	4
3. Mutton & Lamb : a. Meat	Kg	0,004	13				
b. Others	Kg	0,004	4				
4. Pork: a. Meat	Kg	0,013	17				
b. Others	Kg	0,009	9				
E. EGGS AND MILK							
1. Chicken egg	Piece	1.330	74	5. Canned milk	Kg	0,060	48
2. Other egg	"	0,760	48	6. Infant powder milk	Kg	0,009	17
3. Fresh liquid milk	Liter	0,013	4	7. Other powder milk	Kg	0,009	13
4. Preserved liquid milk	"	0,009	4				

ITEMS OF FOOD	Unit	URBAN + RURAL Quantity	Value (Rp)	ITEMS OF FOOD	Unit	URBAN + RURAL Quantity	Value(
F. VEGETABLES							
1. Spinach	Kg	0,420	39	9. Cassava leaves	Kg	0,300	22
2. Swamp cabbage	Kg	0,373	30	10. Aubergin	Kg	0,240	22
3. Cabbage	Kg	0,173	22	11. Bean sprout	Kg	0,060	9
4. Bean/Peas	Kg	0,065	9	12. Shallots	Kg	1,620	61
5. String bean	Kg	0,345	43	13. Garlic	Kg	0,178	26
6. Tomato	Kg	0,130	26	14. Red pepper	Kg	0,860	61
7. Carrot	Kg	0,022	4	15. Cayenne pepper	Kg	1,170	39
8. Cucumber	Kg	0,143	13				
G. NUTS/BEAN							
1. Peanut	Kg	0,061	30	6. Soyabean curd	Kg	0,380	74
2. Green bean	Kg	0,065	26	7. Mold treated soyabean cake	Kg	0,400	87
3. Red kidney bean	Kg	0,030	9	8. Fermented soyabean	Kg	0,020	0
4. Soyabean	Kg	0,013	4	9. Fermented peanut cake	Kg	0,040	4
5. Cow bean	Kg	0,009	4				
H. F R U I T S							
1. Orange	Kg	0,056	17	10. Banana	Kg	0,910	104
2. Manggo	Kg	0,026	4	11. Papaya	Kg	0,225	22
3. Apple	Kg	0,009	4	12. Watery roseapple	Kg	0,013	0
4. Avocado	Kg	0,022	4	13. Guava	Kg	0,040	
5. Rambutan (with stem)	Kg	0,140	22	14. Sapodillas	Kg	0,017	4
6. Lanzon	Kg	0,170	35	15. Starfruit (Carambola)	Kg	0,009	0
7. Durian	Kg	0,100	22	16. Spanish plum	Kg	0,022	4
8. Salak	Kg	0,013	4	17. Watermelon	Kg	0,013	0
9. Pine apple (with stem)	Kg	0,090	9				
I. MISCELLANEOUS FOOD ITEMS							
1. Salt	Ons	2,518	22	5. Fresh coconut	Piece	1,480	95
2. Pepper and spices	Ons	0,450	22	6. Vegetables cooking oil	Liter	0,355	165
3. Fish paste	Bottle	0,130	22	7. Butter	Ons	0,035	4
4. Soya sauce			26				

ITEMS OF FOOD	Unit	URBAN + RURAL Quantity	Value(Rp)	ITEMS OF FOOD	Unit	URBAN + RURAL Quantity	Value
8. Saffron and others	-	-	35	14. Chips	Ons	0,227	17
9. Brown sugar	Ons	1,577	39	15. Wheat noodle	Ons	0,364	13
10. Cane sugar	Ons	5,863	182	16. Rice noodle	Ons	0,069	4
11. T e a	Ons	0,480	48	17. Monosodium glutamate	Ons	0,150	26
12. Coffie	Ons	0,715	100				
13. Cocoa powder	Ons	0,009	0				
J. PREPARED FOOD							
1. Syrup	Botol	0,013	4	4. Prepared food and drink	-	-	238
2. Soft drink	Botol	0,087	9	5. Prepared food and drink from household entre prise	-	-	61
3. Bread, Biscuit, etc.	-	-	74				
K. ALCOHOLIC BEVERAGES							
1. B e e r	Botol	0,009	4				
L. TOBACCO, BETELNUT							
1. Cigarette	Packets	0,785	117	3. Tobacco	Ons	0,600	91
2. Glove cigarette	"	1,105	242	4. Betelnut	-	-	17

Appendix 1.3

AVERAGE PER CAPITA MONTHLY EXPENDITURE OF NON FOOD ITEMS BY MONTHLY PER CAPITA EXPENDITURES CLASSES (IN RUPIAH)

EXPENDITURE ITEMS	Average per capita	EXPENDITURE ITEMS	Average per capita
A. HOUSING, FUEL, LIGHT AND WATER			
1. Imputed rent	479	8. Petrol, lubricant, repair and maintenance for generator	14
2. R e n t	61	9. Charcoal	6
3. Maintenace cost	64	10. Firewood	126
4. Electricity	48	11. Water	23
5. G a s	1		
6. Elpiji	2		
7. Kerosene	162		
B. MISCELLANEOUS GOODS AND SERVICES			
1. Toiletsoap, tooth paste, tooth brush and shampo	82	6. Educational fee	137
2. Cosmetic articles	36	7. Non formal educational costs, news-paper, magazines, etc.	26
3. Household medisines	34	8. Transport expenses	84
4. Doctor, nurse and others	69	9. Movie, theatre, sport, etc.	30
5. Traditional health cost	10	10. Domestic servans	32
C. CLOTHING, FOOTWEAR AND HEADWEAR			
1. Readymade clothes	182	4. Footwear	52
2. Clothes material	57	5. Headwear	10
3. Charges for making garments/ for repairs	24	6. Laundry soap/powder	87
D. DURABLE GOODS			
1. Furniture, household equipment,	78	4. Watch, clock, camera, umbrella, bag, doll etc.	20
2. Utensils and dishes	41	5. Jewelry	30
3. Furniture equipment and utinsils repairs	10	6. Entertainment and sport	45
		7. Vechicle	87
E. TAXES AND PARTIES			
1. Consumption taxes and insurance premiums	61	2. Parties and ceremonies	180

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PROJECT FINANCING.

Commercial loans on the open market are available, but interest rates are high (up to over 30 %) and security requirements are quite strict.
Government loans available to small scale industry are available on relatively soft terms, the security requirements are reasonable, and most projects we may embark on will qualify for consideration.

The loans are administered from the Bank of Indonesia through several government; semi government; and private banks.
Of these, the most important are the following:

- Bank Pembangunan Indonesia, Jln. Gondangdia Lama 2-4, Jakarta. Priority: Industries, 21 branches.
- Bank Negara Indonesia 1946, Jln. Lada 1, Jakarta. Priority: Industries
- Bank Rakyat Indonesia, Jln. Veteran 8, Jakarta Industry as second priority.

(All state owned banks plus 47 private national banks have been assigned as KIK - KMKP executing banks).

Any of these banks can be approached, dependant on branch location, past relation-ships, and attitude towards the financing of the project and the entrepreneur.

The lending conditions are stipulated by Bank Indonesia and the loans re divided into 3 categories as follows:

..../2...

Loan Type.	Maximum Loan	Finance Scheme	Rate of Interest.	Required security	Expenses	Special Conditions
KIK small investment loan and KMKP permanent working capital Loan for small scale industry.	Rp. 15 million	The bank finances 100 % of the requirements.	KIK = 10,5 % KMKP = 12 %	Project itself only.	No charges except interest.	Reserved for 100 % indigenous small scale industries. Lending only to projects already in operation.
Fesibility loan.	Maximum loan Rp 75 million. Maximum total project = Rp. 100 million.	Sponsor minimum 10% of total requirements. Up to 90% from the Bank (max.).	Fixed investments = 10,5%. Working capital = 13,5 %.	The assets of the project + independant security for max. 50% of the loan.	No charges. The bank undertakes the feasibility study.	No joint venture permit. But a maximum of 50% participation from non-Indonesian residents is allowed.
Large scale loan.	Unlimited.	Sponsor 25-35%, but for joint ventures maximum 25% financing from the bank.	Loan up to 200 million = 12%, Larger loan = 13,5%, Export loans = 9%, soft loans 6%.	Minimum 150% of the required loan including tangible assets of the project.	The bank will charge a feasibility study fee provided the project becomes viable.	Restricted to limited liability companies.

There will for all loans be allowed a grace period of maximum 3 years, normally limited to the expected construction time + 3 - 6 months. Interests will be added to the capital during the grace period. Thereafter the loans will be repaid over 5 - 10 years (individually judged) in 3 - monthly equal installments + accrued interests.

Jakarta 25th April, 1983.

Björn Eidsvig,
Industrial Engineer UNIDO.

Appendix 2

INSURANCES.

The rates of operation insurance is normalized by the Government for all insurance companies in Indonesia, even if payment conditions and judgements may wary.

The rate of insurance is extensively dependant on the building construction, divided in 5 classes as follows:

S : Concrete, or 24 cm brickwall, concrete floor and roof, fire protected floor openings.

I : Hard roof, non combustible covered, fire resisting external walls, or single storey steel skeleton covered with non combustible materials.

II : Hard roof, non combustible external walls or Wood skeletons with stone or glass fillings.

III : Hard roof and external wood walls, or open sides.

IV : As III but under a soft roof. Surcharge 80 % to preminium rates indicated for class III.

The general insurance as indicated in the continuation covers damages to what ever is insured of building, machinery, raw materials and products, and insures against:

- Fire and explosion
- Damages by riot, strike, malicious damage, vehicle impact, smoke.
- Earth quake, Vulcano eruption
- Wind and Water damage
- Clearance and loss of profit.

The rates of insurance for some selected industries are as follows:

Type of project or product:	Rate of Annual insurance preminium in ‰ of Insurance value.			
	Class S	Class I	Class II	ClassII
Mineral products etc.:				
Open mines, Lime and plasterwork	1	1	1,5	2
Ceramic works, pottery concrete slabs, Asbestos work	1,1	1,5	2,3	3,1
Stone & Sand excavation	1,55	2,1	3,1	4,1
Iron foundries	2	2,7	4	5,4
Glass works	3	4	6	7,9
Tar coated chippings and other asphalting	7,3	9,7	14,55	19,4
Mechanical engineering:				
General	1,0	1,2	1,8	2,4
Electronic Assembly	1,6	2,1	3,15	4,2
Galvanizing	2,25	3	4,5	6
Electrical equipment working	2,5	3,3	5	6,6
Motor vehicle repair shops	4,5	6,0	9,0	12,0
Chemical Products:				
Soaps, detergents, polishes,	1,6	2,15	3,2	4,3
drugs and pharmacies	1,9	2,25	3,8	5,1
Film working	2,25	3,-	4,5	6,0
Chemical products, general	2,85	3,8	5,7	7,6
Paint and varnishes	2,6	3,5	5,3	7,1
Candles and wax products, starches	3,3	4,35	6,5	8,7
Saws, if open fire or solvents used	10,8	11,9	14,0	16,2
Insecticides	4,1	5,5	8,3	11,0
Plastic products working	4,9	6,5	9,75	13
Matches, fire works, explosives	7,5	10	15	20
Foam Plastics	11,3	15,1	22,7	30,2
Peroxides manufacture and use	12	16	24	32

Appendix 3.2.

Type project or Product:	Class			
	S	I	II	III
Textiles and Garments:				
Weawing and spinning syntetic	1	1,4	2,1	2,8
- " - mixed products	2,4	3.3	4,9	6.5
Mixed textile manufacturing, syntetic	1,9	2,5	3,75	5
- " - mixed products	6,7	8.9	13,4	17,8
Garment making	2,2	2,9	4,4	5,8
Ropes, strings, sacks. Laundry and pressing	3,8	5	7,5	10,0
Knitting	4,9	6,5	9,8	13,1
Batik work	5,6	7,5	11,3	15
Textile waste processing	10,5	14	21	28
Cotton wool and Kapok processing	11,3	15	22,5	30
Paper, Leather, Rubber:				
Book binding and printing	1	1	1,5	2
Rubber products	1,3	1,8	2,6	3,5
Paper products	2,3	3,1	4,7	6,2
Shoes	3,6	4,8	7,1	9,5
Leather products	4,2	5,6	8,4	11,2
Straw products	5,6	7,5	11,2	15,0
Leather tanning and foam rubber production	6,4	8,5	12,8	17
Wood products:				
Brooms and brushes	3,8	5,1	7,65	10,2
Furniture	4,4	5,8	8,7	11,6
Saw mills	7,5	10	15	20
Food products:				
Dairies	1,0	1,3	1,9	2,5
Preserves	1,8	2,4	3,6	4,8
Bihun, mie, feed mills, sweets, and others	2,2	2,9	4,3	5,8
Bakeries	2,6	3,4	5,1	6,9
Drying Installations	5,3	7,1	10,7	14,2

Appendix 4.

List of some of the Manufacturers Association's telephone numbers in Jakarta.

Association of manufacturers for the following product(s)	Telephone Jakarta
Milk	480 230
Ice	344 513
Glucose, Maltose, Fructose, Sugar	345 136
Sweets & Konfectioneries	345 136
Glutamate & Glutamic Acid	643 183
Food general	333 640
Clove Sigaretters	323 481
Sigarettes, general	341 784
Canned food	811 335
Ice cream	631 907
Bakeries & Bisquits	679 272
Foods and drinks	546 551
Cooking Oil	596 879
Cold Storage	790 459
Animal feed	775 264
Food processing	480 230
Salt (Jln. Kabel Pendek 25)	
Sacharine, Sodium Cyclamate, Citric Acid, Calcium Citrate	643 183
Textile, general	582 809
Spinning	581 560
Texture Yarn	775 620
Weaving	374 694
Finished textile products	331 407
Batik	583 020
Syntetic Fibres	587 349
Knitting	775 620
Jute Bags	350 211
Buttons and Zippers	331 708
Leather industries	512 715
Leather shoes	826 585
Leather tanning	622 260
Leather handicrafts, making and collecting	350 099
Corrugated Card board	636 608
Fine Packaging	356 267-8
Plastics	364 800
Plastic bags	591 269

Association of Manufacturers for the following product	Telephone Jakarta
Plastic pipes	672 128
Rubber	360 409
Recording	657 851
Detergents	375 408
Pulp and paper	326 084
Rubber	346 811
Artificail leather	320 414
Matches	344 309
Video	627 382
Video casettes	627 382
Toth paste	826 645
Paint	352 531
Gas	826 610
Packaging	356 267
Rubber shoes	591 534
Regeneration of lubrication oils	661 443
Audiotape manufacture	610 440
Plastic Industries	662 322
Latex and foam rubber	322 909
Rubber goods	675 993
Melamine sheets	336 791
Video Cassette recording	627 384
Formalin & Termosetting	584 239
Stationery and Writing equipment	673 016-7
Printing Ink manufacturing	793 926
Glue	344 507
Essencial oils	
Photographic printing Reproduction	
Bicycle manufacturers	344 359
Electrical equipment	772 943
Electronic & electric equipment	365 695
Motorcycles	583 825
Vehicle equipment	326 308
Agricultural Machinery and equipment	377 008
Automative Batteries	690 568
Electrical Cables	621 243
Aluminium extrusion	356 625
Dry ce l batteries	326 958
Motocar assemblers general agents	321 375

Appendix 4.2

Association of manufacturers for the following products)	Telephone Jakarta
Galvanized Iron sheets	321 708 Ext. 2727
Tin Can manufacture	352 811
Electroplating	676 092
Vehicle body building	323 008 ext 570
Machine Manufacturers	611 739 (John Takili)
Equipment for/of metal, electrical, engines, and transportation	583 825
Nails	341 994
Wire	341 994
Aluminium sheets, Jln. Ir. Juanda no. 3	
Steel	321 708 Ext. 2725
Kerosene pressure lamps	424 81 Surabaya
Steel office equipment	353 451 674 406
Grafic Industry	813 199
Office Machinery	357 945
Plywood manufacture	584 506
Wood products	483 056
Saw millers	320 408
Asbest Cement	370 108
Ceramic Industries	675 519
Glass and plane glass	343 960
Rattan	349 157
Roofing tiles	812 093
Wood preserving	800 640
Metall and plastic toys	679 694
Optic	351 308
Watches assembly	346 071 - 79
Coordinator of manufacture's Organizations:	Jln. Hokey 26, Senayan Jakarta.