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Report on the possibility

of

Small-Scale Industrial Development

in the

NETHERLANDS ANTILLES

Based on a mission

by

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UNIDO EXPERT
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INTRODUCTION

1. This mission had the objective of investigating the possibilities for developing new small-scale industries in the Netherlands Antilles, and also the possibility of expansion of existing ones, so as to create work for the unemployed, which represent approximately 23 % of the active labor force.

2. The problem of unemployment for women will be solved within the next few years. The labor intensive electronic industries .... now being installed on the islands by large international companies will employ practically all of them.

3. Male unemployment which was 64,6 % of the total in 1966 (7261 unemployed), is less easily soluble.

4. In the next few years new construction - both public and private - will create well paid jobs for at least two thousand (2.000) men constructing: highways, a large new market, water supply system, large new bridge over St. Anna's bay, various housing projects, new hotels and a large 180,000 ton capacity dry dock etc.

5. This pressing problem of unemployment is the main background for recommendations in this report.

6. The rapid promotion of the handicraft production of tourists souvenirs is needed. The market is growing daily, there is production ability in the unusual manual dexterity of the people. Only the backing of a centralized organization is lacking. Unfortunately there is no actual permanent handicraft production and therefore up-grading of handicrafts into small-scale production cannot be effected at present.

7. 14 feasibility studies of industries that could probably be installed here are presented in the annexes. These are mostly with imported raw materials, although bricks, and both the tanning of goat skins and goat leather products, as well as the sea-shell buttons etc., could be produced with local raw materials. Some items are for local consumption such as bricks, others are for export such as quality sea-shell buttons. Others could both be offered in the local market and for export, e.g. silk screen printing of textiles for instance that could be made into tourist wares.

8. On the subject of financial assistance, extension services, industrial estates, common services etc., the only logical overall solution, for such a small country as this, would be the formation of an "Antillean Development Corporation."

9. On the expansion of present industry as the internal market is so small, the potential possibilities offered by the Caribbean area are covered in detail.

INDUSTRIAL POSSIBILITIES

1. The country offers special advantages within the area for industrial development as the Netherlands Antilles are a stable community with a long tradition of generations of peaceful co-existence of many races.

2. The situation, however, is complicated by the very small internal market. The country has a population of only 213,000 inhabitants.

3. The islands have a strategic position in the Caribbean Sea. They possess big, deep, excellent bays and ports which have influenced their development as important shipping centres for the area. This advantageous situation could be used as a base for a well organized export of local products to cater to the needs of the small islands within the Caribbean Zone, which together have a population of over six and a half times that of the Netherlands Antilles.

4. It is significant that even with the very small home market some entrepreneurs in the Netherlands Antilles have been able to develop successfully some new industries. If they were given the opportunity to reach all the Caribbean markets one could expect further development. A sales corporation or some other form of marketing organization whether as a cooperative or a private venture is needed to concentrate with the least possible expense the export

efforts of the local industry. Such an organization could keep the local industrialists informed on possibilities in the various Caribbean markets.

5. The development of export industries is usually possible where one can utilize a special local advantage of the availability of certain high quality raw materials and/or the abundance of skilled labour or low-cost semi-skilled labour. In the case of the Netherlands Antilles high quality materials are lacking, although certain items such as the beautiful sea-shells can be used for handicrafts or some small industries. However, there is a large pool of unemployed that can be trained for skilled or semi-skilled jobs at relatively low cost. Some foreign industries, such as that of electronic components, are installing plants to exploit this advantage for foreign markets.

6. New inducements are being offered by the "National Ordinance for the Promotion of Industrial Establishments and Hotel Constructions". These include Tax Holidays, duty free import of raw materials etc. The islands may look forward to a gradual development of various new industries that could utilise the local able and cheaper labour. In this respect there may be interesting possibilities for some export industries based on imported raw materials and their transformation in the country for re-export. It should be mentioned that the local labour force is not accustomed to industrial conditions but could be trained without too much difficulty.

GENERAL POLICY TO PROMOTE SMALL-SCALE INDUSTRY

1. There are two possible approaches to the development of local industries. One can follow the policy of letting industries develop of themselves without special inducement and unregulated by the Government. The second possibility is for authorities to impose regulations to protect the local industries. In the latter case there may be two forms:

(1) A general provision of information available for all those who consider starting new industries. This could provide potential entrepreneurs with all the information regarding a number of plants on the islands producing the same articles, imports, local market possibilities, export prospects whether within the Caribbean area, Carifta, or world markets etc.

(2) A strong direct control. This would aim to regulate the number or type of industries set up on the islands. It is probable that some form of direction is necessary in such a small market. The following figures regarding certain types of small industries in the Netherlands Antilles indicate the problem. There are

25 Bakeries in Curaçao

6 Bakeries in Aruba

10 Beverage plants on the islands

17 Printers.

It is clear that less of these plants would be sufficient and would make it possible to work on more economic scales.

2. Some form of Government control is needed to discourage the proliferation of plants where the demand is already satisfied and the development of new plants cannot benefit anyone. However, care should be taken not to prevent the development of genuine enterprises where entrepreneurs are keen to set up plants that would provide better services at lower cost than those that exist.

COMMENTS AND SUGGESTIONS

1. The "National Ordinance" already referred to has been successful in providing inducements in the difficult conditions and this explains the experience of a number of small, quite modern plants who satisfied the local demands and a few even succeeded in exporting on a small scale within the Caribbean. However, the "Ordinance" referred to provides for rather stringent conditions so that these inducements are only available for enterprises fulfilling the following conditions:

Minimum Conditions the industrial applicants must fulfill "A" or "B"	In the islands of Curaçao & Aruba	In the other islands
A) - Minimum investment in Fls.	100,000.-	50,000.-
- or a -	- or -	- or -
B) - Minimum number of persons employed, of Dutch nationality, born in the Netherlands Antilles, provided that the total employment in the country will increase by at least the same number.	10	5

2. For small industries the requirements of the law are too high as regards capital and personnel, bearing in mind the very small size of the local population.

3. Mr. A. Neilson, the UN Small-scale Industry adviser (Trinidad & Tobago), who reported on the general situation regarding small scale industries in the Netherlands Antilles in 1966, mentioned the lack of incentives of promotion for the small handicrafts, namely those with less than 10 employees. After referring to the incentives by the law, he states:

4. "The promotional measures outlined above, prior to the very recent amendments, had little or no impact on the handicraft and small-scale industrial sectors; as no handicraft and very few small-scale enterprises could qualify. Indeed, the Ordinance may have had an inhibiting effect on

(a) Small-scale industry which could have supplied equipment that the Ordinance permitted new qualifying enterprises to import free of duty;

(b) The power to prohibit more than one enterprise in any new field, which did not operate to protect an undertaking which, on account of less than the minimum capital or number of employees, did not qualify for the concessions granted under the Ordinance. The new amendments do not completely remove these handicaps, as they will still affect handicrafts and small-scale enterprises with less than ten workers. The situation however, has been improved to the extent that relief from import duties on raw materials is now given, and a greater number of small-scale enterprises can qualify for the tax concessions".

5. As the situation exists today, very small industries with less than ten employees and under Fl. 100,000.- investment, get no protection of any kind. Bearing in mind the very limited market, it would be better for industrial development in general if these limits were eliminated altogether. With regard to industries set up for export, the positive inducements already exist since they benefit from a Tax Holiday and advantages of the free port zone. Also, an important factor is the associate membership of the Netherland Antilles of the European Common Market.

SUGGESTED MEASURES FOR INDUCEMENTS AND PROTECTION OF LOCAL INDUSTRIES

1. Considering the very small internal market, there is a case for providing some form of protection for entrepreneurs who pioneer the creation of a new industry. In developing a new industry the entrepreneur must create an internal market for his product in competition with imports and overcome the local resistance to nationally produced items. While working with unskilled labour, profits will be slow to come.

2. In light of these factors, undue fragmenting of the market by more than one factory undertaking the production of particular items should be avoided, if possible.

3. One solution would be to grant exclusivity to pioneer industries for a period of five years, but this idea should be approached cautiously with the Government always acting as a watch-dog to ensure that there is no abuse of special protection granted, nor any unwarranted stifling of private initiative that would in the long run act in the national economic interest.

4. Such authorised pioneer industries that were to be given special privileges or protection would also enjoy the general facilities available through the "National Ordinance for the Promotion of Industrial Establishments and Hotel Construction - 1953 and 1966". It is now suggested that the following additions are added to these ordinances to act as extra inducements for the promotion of small enterprises:

(1) The limitation of Article 1, on both capital investment and number of people employed and their nationality would not apply to these enterprises.

(2) They would have the right to duty free imports of all machinery (whether new or old), accessory equipment, tools, materials etc. needed for the installation, operation and maintenance of the factory.

All raw materials would be available duty free, including unfinished products and components for further processing.

The facility of duty free raw materials and unfinished parts or products for further processing is necessary to give the national industries a chance to compete, since imported finished products are available on the islands with almost insignificant import duties.

(3) Articles 2, 3, 4 and 5 would be left as they are.

(4) To Article 6, no. 1, an addition should be made, stating that any special privileges or exclusive rights granted to the small pioneer industry may at any time be revoked if there is a decision on the part of the Government that the continuation of the granting of these privileges would act against the national interest. It should also be understood from this amendment that any of the special privileges or protection would be forfeited if the enterprise concerned is not in full production and fulfilling its commitments in this respect, within a specified time.

This would apply if the enterprise concerned does not honour its commitment to produce at the specified level of production to satisfy an agreed percentage of local demand.

(5) Article 7 should be modified to make it clear that the ownership of an enterprise which has been the basis for the granting of special privileges or protection may be transferred to another group only if the person or group concerned accepts the obligation to fulfill all the conditions undertaken by the original owner(s) of the enterprise.

(6) Article 8 - 14 would remain as they are with Article 14a eliminated, since its provisions have already been covered in previous articles.

(7) Article 15 would not apply to the pioneer small industries.

(8) Articles 16 and 17 would remain as they are.

(9) Articles 18, 19 and 20 would remain as they are.

LIMITATION OF SPECIAL PRIVILEGES

1. In the case of industries where there are some special advantageous conditions on one or more of the islands, the policy of giving special protection and privileges should not apply. In these cases there would be no effort on the part of the Government to restrict the numbers of enterprises working in the field. Examples of such industries might be those to which the raw materials exist which could be processed commercially within the islands, such as bricks and tiles from local clay, aloë production and/or derivatives in Aruba and Bonaire. Another example might be the industries using by-products of slaughter houses.

2. Where special privileges or protection against local competition have been granted, the Government should maintain low import duties to ensure a healthy competition of imports from outside the country.

GOVERNMENT ROLE AS A PURCHASER

1. As in many developing countries the Government of the Netherlands Antilles is one of the biggest consumers of all types of products and merchandise. Most of the articles it uses at the moment are imported.

2. Industries setting up in the islands should have the right to expect that the Government as a major purchaser would favour national products over imported ones, provided the local item is comparative on the basis of quality and price. With the acute problem of unemployment in the islands and a limited market it would be reasonable to expect that the Government as a purchaser would give preference to the local products even if they are dearer than imported products, provided that they satisfy basic requirements in quality and that the price differential is not excessive. Some governments allow local products to have preference up to a 10 to 15 per cent differential. In this respect it would act as an incentive to would-be entrepreneurs if there was a clear statement that the Government would favour local industries in its purchases and that in such cases the Government Office concerned is not able to purchase a local product because of inferior quality. It should state clearly the reasons why it continues to favour imported products and what conditions it requires to be fulfilled to change over to local products.

3. It would now be out of place to suggest that in further legal provisions or ordinances designed to provide incentives and protection to local industries - both existing and new - a statement on Government policy regarding preference for local purchases should be included.

JOB SUBSIDIES

1. As stated previously, unemployment is a vexing problem in the Netherlands Antilles. 14 ½ per cent of the population are classified as unemployed. Unemployment subsidies have been paid and, according to the experience in other countries, such payments, once they are started, are difficult to change.

2. Among those who are classified as unemployed there are people who could and would work if given a chance. It is worth considering as a means of giving people who have been a long time unemployed a chance to start a productive life through paying "job subsidies" to employers through the diversion of funds which are at the moment paid to the unemployed. These "job subsidies" could be paid to the employer on the basis of every new job created either by a new industry or by an existing one.

FOREIGN MARKET AND EXPORT POSSIBILITIES

1. As stated in this report several times, the Netherlands Antilles have a minuscule internal market and thought must therefore be centered on possibilities of expanding it to foreign markets, i.e. exporting. The islands, especially Curaçao, have large deep natural bays and as a consequence Willemstad (Curaçao) has grown into one of the world's most important oil bunkering stations. Besides this it is a large trans-shipment centre for distributing foreign merchandise throughout the area. There is also a Free Zone in the port. These facilities make it possible to attract foreign industrial enterprises to set up branches that would cover not only the local, but also the present and future Caribbean market. Even more important, such enterprises could take advantage of the associate membership that the Netherlands Antilles enjoy of the European Common Market. Already one Colombian small industry has a plant working in the Free Zone of the port and there are plans for some Venezuelan industries to move in. A large international rum factory has recently inaugurated a plant on the St. Martin island, mainly for export to the E.E.C.; the raw material will be sugar cane from the neighbouring islands of the Caribbean.

2. There is a long tradition of a dry docks and ship repair work. A new dry dock with a capacity of 120,000 tons is being built.

3. Another source of economic activities is tourism. Below are the figures showing the total number of visitors to these islands for the period 1959 to 1965:

Island	1959	1960	1961	1962	1963	1964	1965
Aruba	21,386	28,329	26,980	26,531	30,790	36,499	40,174
Bonaire	1,350	1,485	1,575	1,890	2,317	5,157	5,887
Curaçao	65,644	75,991	58,339	65,099	74,354	86,988	97,440
Yearly totals	88,380	105,805	86,894	93,520	107,471	128,644	143,501

The above figures are even more remarkable in that up to 1965 there was only one modern hotel on the islands with 124 rooms. Since then 10 new modern resort type hotels have been built with a total of over 1,100 rooms. This represents an 800 per cent increase over the last three years. Although at the time of writing figures from 1966 on are not available, it is known that there has been a considerable increase in tourism over the last three years.

4. For small industries in the Netherland Antilles the main export opportunities lie within the Caribbean area. Larger industries - mostly foreign owned - can enjoy a wider market. US electronic industries already have their eyes on using the islands as a base for wider export markets.

5. Definite information is not available at the moment on the export possibilities in the Caribbean area, but they are certainly worth investigating. The country as an island of the Caribbean

could become valuable export outlets for the Netherlands Antilles' industries. However, to achieve this, a market organization is needed and money will have to be invested in promoting the sales of these products within the area. It will take some time. To date marketing efforts of Netherlands Antilles industrialists within the Caribbean have been very haphazard, but even under these conditions some individual successes have been achieved.

6. There is need for a quick market survey of the Caribbean area. It is necessary to obtain more information on

(a) Types and quality of products in demand in the different islands based on a sampling study of the various strata of the population.

(b) Volume and value of imported products of different types, countries of origin with some indication of the favourite trade names and how incentives have effected the situation.

(c) Wholesale and retail selling prices of goods, terms of sale, selling media, agencies, promotion efforts etc.

7. A further possibility might be the creation of a private organisation or cooperative to centralize and co-ordinate all the export efforts of the industries of the Netherlands Antilles.

8. The following are the population figures of the different islands of the Caribbean which indicate the value of the whole area as a market:

U.K. Commonwealth Islands

	Population	
Antigua	60,000	
Bahamas	140,000	
Bermuda	50,000	
Cayman Islands	9,000	) When - and if - the U.K.
Dominica	68,000	) enters the European
Grenada	97,000	) Common Market all these
Montserrat	14,000	) Islands with over 700,000
St. Kitts, Nevis, Anguilla	61,000	) people will probably be
St. Lucia	103,000	) within the marketing
St. Vincent	90,000	) area of the U.A.
Caicos Island & Parks	6,000	)
UK-Virgin Islands	9,000	
U.K. total	707,000	

French

Guadeloupe	319,000
St. Pierre & Miquelon	5,000
Martinique	327,000
French total	651,000

American	Population
UF VIRGIN ISLANDS	
St. Croix	20,000
St. John	1,000
St. Thomas	24,000
Small American Islands	45,000

[illegible]	
U.K.-Islands (15?)	707,000
French-Islands (4?)	657,000
American-Islands (3)	45,000
Small Islands Total	1,000,000

Big Islands (Independent (x))

Barbados	245,000
Cuba	7,833,000
Dominican Republic	3,750,000
Haiti	4,485,000
Jamaica	1,839,000
Puerto Rico (x)	2,008,000
Trinidad & Tobago	1,000,000
Big Islands Total	21,820,000

The figures show that there are considerable possibilities in the Caribbean market for the products of the Netherlands Antilles' industry.

(x) - U.S.A.

9. Of all the islands mentioned above, only the four French islands with about three times the population of the Netherlands Antilles (the French possessions' population in the area is 651,000) are also associates of the European Common Market and are therefore freely accessible to Netherlands Antilles products. All the other islands are restricted through custom barriers. For the future, however, things may change if the U.K. and the Commonwealth islands will become associated in some way with the Common Market, which will then bring them access to a new wider market.

10. The possibilities are there but it will be wrong to be too optimistic in the near future. It will need a great deal of time, organization and investment to open these markets to manufacturing products of the Netherlands Antilles. There are, however, some hopeful cases, such as that of the Curaçao industry, that has been promoting its sales within the Caribbean area and has now reached the point through different sales arrangements with the various islands, that about 60 per cent of the production is being exported.

11. With due attention given to such factors as quality, price and a minimum volume to ensure meeting orders as they grow in the course of time, other industries could emulate this example.

TRANSPORT WITHIN THE CARIBBEAN

1. An improved shipping and freight service within the Caribbean area would be beneficial to all the islands. The Netherlands Antilles could import low-priced food items from many islands, including the Dominican Republic, Guadeloupe, Martinique and even the Bahamas. Some items now imported from the US could be brought at lower cost from Puerto Rico. Better organised incoming freight and a larger volume would permit improvements in the organization of export freight which would give the local industry a chance to send their products to the other islands at much lower freight rates.

2. It may be that a solution to be considered is that of the formation of a local shipping company along with two or three vessels of about 2,000 to 3,000 tons capacity each. These ships could operate profitably carrying cargoes between the islands at lower freight rates than are possible with the present small boats.

3. For the present, the Netherlands Antilles are for all practical purposes isolated from the rest of the Caribbean islands. Ship connections are virtually non-existent and, or course, with this situation a lack of commercial contacts is due to a great scarcity of transport facilities at an economic scale.

4. A preliminary consideration of this problem of exporting shows the main factors to be:

(a) lack of reliable cheap shipping facilities;

(b) lack of marketing channels to establish the necessary contacts and feedback information;

(c) lack of low cost banking facilities to finance export operations;

(d) lack of any special export incentives besides those limited ones existent in the present laws for the promotion of new industries.

5. To counter the above difficulties, there is need for urgent Government action to create an organization to carry out the necessary measures to change the situation

DUMPING

It would be advisable for the Government of the Netherlands Antilles to take steps to ensure that the local industry is protected against the unfair competition of merchandise dumped at prices below the accepted international level.

FORMATION OF AN ANTILLEAN DEVELOPMENT CORPORATION

1. There is need for a central autonomous organization for all the islands to prepare and direct in a co-ordinated fashion development programmes within all the islands. This is necessary even if there is some opposition to the creation of such an organization through the desire of the smaller islands to have autonomy in development matters. The smallness of the whole area and even more so of its population calls for integrated development under one central organization. Any other solution would cause wastage in the use of the limited professional manpower available.

2. What is needed is an Antillean Development Corporation which would concern itself with the following functions:

(a) Investigate and study in detail with its technical personnel the practical possibilities of all proposals for economic development;

(b) Undertake on behalf of the Government the negotiation of financing, whether local, private or foreign, for carrying through practical project development;

(c) Establish a Foreign Trade Department within the Corporation that would undertake the centralized role for the promotion of exports already mentioned in the section on export possibilities.

3. For the lack of a central organization of this type many practical possibilities are not implemented. It would be necessary also for the Corporation to have its own financial resources which would

(i) provide financial assistance as an incentive to the establishment of those industries that have priority in development programmes;

(ii) obtain special governmental assistance towards the development of specific industries;

4. Industrial Estates

The Corporation would have the task of developing industrial estates to provide adequate physical facilities for the development of industries. This may also include further development of the Free Port Zone into a full industrial estate.

5. Skilled manpower

The Development Corporation would have to deal with the problem of attracting suitable skills which would be necessary for the development of industry. Such skilled personnel might have to be brought into the country by easing the immigration restrictions as the needs arise so that the opportunity is given for local workers to receive suitable training.

6. Co-ordination

The experience of the Development Corporation along the lines mentioned above would contribute to co-ordinate the economic efforts of the various economic boards of the different islands. In this way priorities could be fixed, based on technical criteria and the availability of financial means.

7. Organisation of Board

The Development Corporation should follow the practice of other countries by being directed by a Board of Directors in which are represented all the major economic, political and social groupings within the islands so that the development programmes would cover, as far as possible, the needs and aspirations of the various sectors of the community.

FEASIBILITY STUDIES

1. In the appendix attached a number of feasibility studies are presented, covering several possibilities for the development of small-scale industries in the Netherlands Antilles. They correspond to industries not existent at present in the islands. In some cases they could be developed to cover both local needs and also exports to the Caribbean area. These studies do not cover new industries which, although not existing at the moment, are known to be under serious consideration by local entrepreneurs.

2. The studies do not include such industries which can only be developed commercially on a larger scale which would be outside the terms of reference of the mission, not having any real basis for development within the local market or even within the whole Caribbean market. Examples of such industries would be the manufacture of construction materials, roofing materials etc. which are imported into the country with very low duty.

MODEL OF FEASIBILITY STUDIES

1. As a model or pattern to follow by an entrepreneur or his industrial associate, when making final calculations to determine with precise up-to-date quotations for machinery, equipment, raw materials etc. the commercial possibilities of a given production, I have dedicated a detailed study, under "Construction Materials Industries" to "Brick Making in Semi-Mechanized Plants". There I have compared detailed costs for various volumes of production resulting from working the plants one eight hour shift per day, and two and three shifts per day.

2. Estimates indicate that cost of production is adversely affected by high local labour costs. Yet, the idea of a semi-mechanized plant was conceived as the means to give greater employment. According to size of installation and volume of production this would give work to about 50 men and possibly close to a hundred, depending on the extent to which production could be developed.

3. On the other hand, competitive concrete blocks, which are now the standard construction material here, are well entrenched with several plants, even some fully mechanized, producing all that is needed at competitive prices. As six bricks would about replace one concrete block, the cost of them (six) although being less than for one concrete block, there would be the added expense of the mortar to join them and, of course, more bricklayers' time would be required.

4. As a final comment on the importance of preparing development plans for in advance, as for instance in this case of the bricks, if their possible use would have been decided with ample time, the Government could have investigated thoroughly their relative advantages, weighing specially the fact that its use gives rise to a considerable number of well paid jobs for men, and even consider whether it would have been convenient to stipulate that a percentage of the "Government Housing Projects" be built with bricks instead of concrete blocks, or offer such other sensible inducements, as giving the industry a subsidy for every new job it opens, which in the long run would replace the expense of unemployment subsidies for the investment in job subsidies.

ANNEX I

List of the Feasibility Studies Presented Here

Description	No. Employed	Total Capital Requirements Fl./
Construction Materials		
1) - Clay Bricks (12,000,000 in 1 shift)	(79)	(449,200.-)
2) - " " (6,000,000 in 1 ")	49	242,600.-
3) - " " (12,000,000 in 2 "	(79)	(362,660.-)
4) - Asphalt Floor Tiles	13	179,200.-
5) - Rubber Floor Tiles	13	155,500.-
6) - Shredded Wood & Cement Blocks for Walls & Ceilings	40	152,500.-
7) - Wire Nails	3	45,560.-
Miscellaneous Products		
8) - Broom Factory	11	53,400.-
9) - Buttons (Quality Sea-Shell Buttons)	38	263,500.-
10) - Ceramics (Small Ceramic Shop)	4	19,390.-
11) - Electro Plating	2	19,200.-
12) - Fish Drying & Salting	21	168,450.-
13) - Gloves (Working Gloves)	3	2,308.-
14) - Ladies Leather Handbag etc.	5	25,400.-
15) - Leather Tanning	6	56,100.-
16) - Silk Screen Printing of Textiles	13	159,500.-
Totals	221	1,543,108.-

A total of 16 estimates are presented but 3 correspond to brick, so the actual number of different industries studied is reduced to 14. They would give employment to about 221 people, mostly men and the total capital Requirements (Fixed Capital plus Working Capital) amounts to Fl/1.543,108.- which represents a total capital average investment of some Fl. 7,000.- for everyperson employed, which is quite low.

note: - Figures of No. Employed & Total Capital Requirements in ( ) not considered, as they correspond to volumes of production far above present possibilities.

BASIS
FOR THE
GENERAL FEASIBILITY STUDIES OF SOME INDUSTRIES

WORKING CONDITIONS

1) - To cover all contingencies we will calculate as gross productive working time, 50 weeks per year, and 45 hours per week. This makes 2,250 hours per year. From this we must deduct 100 hours corresponding to the year's holidays and 150 as unavoidable loss due to personal delays, etc., which gives the actual net effective working time of 2,000 hours per year.

2) - Hourly wages are charged for the whole 52 weeks of the year, including vacations, that is, for 2340 hours at the normal rate, adding the following social charges.

	6%	- health insurance,
	3½%	- average accident insurance,
	3½%	- old age insurance
Social costs	13 %	in all

HOURLY WAGES

Type of Workers	Base	Incl. social costs
Foremen	3.50	3.95
Specialised workers	1.70	1.92
Skilled workers - men	1.45	1.64
Skilled workers - women	0.94	1.06
Semi-skilled - men	1.30	1.47
Semi-skilled - women	0.74	0.84
Unskilled - men	1.—	1.13
Unskilled women	0.55	0.62
Apprentices - men	0.80	0.90
Apprentices - women	0.45	0.51

EMPLOYEES' MONTHLY SALARIES

	Base	Incl. social charges
Manager	Fl. 1.500.—	Fl. 1.695.—
Assist. Manager	1.000.—	1.130.—
Bookkeeper	400.—	452.—
Assist.Bookkeeper	250.—	283.—
Typist	200.—	226.—

4) - It is assumed that new industries will have the full benefit of the 10 (ten) year tax holiday and duty free importation of all machinery, equipment, accesories, transport tion elements, and raw materials when necessary .

5) - Heavy machinery is calculated 15 (fifteen) per cent higher than USA installed costs, in order to cover transportation charges and expenses down to the factory site. Other elements, accessories, etc., are charged 10% as they are less difficult to handle and have no installation cost to cover. On the other hand machinery and equipment costs, etc., are based on USA prices which are higher than most European.

6) - The above percentages are half of thos normally added in underdeveloped countries, that usually lack infrastructure facilities, which is not the case in Netherlands Antilles.

CONSTRUCTION MATERIALS INDUSTRIES

1) - Undoubtedly it would seem that the first priority in the development of small and medium size industries in the Netherlands Antilles should be given to the "construction materials."

2) - There is a great shortage of housing facilities, according to the "Curaçao Ten Year Plan 1962 - 1971", by 1972, a total of about 7,300 new dwellings will be needed. In Aruba the official plans include 650 new houses. In all a minimum of 8,000 new houses will be required in the next few years. With such volume of potential demand, which for a small community as this is quite big, considering present methods of individual construction, the introduction of brick-making in an industrial scale, would not interfere with the normal production of concete blocks which should not be left aside even if it were possible, because they have developed a market for their product, have a considerable investment in equipment and give work to quite a number of men. Consequently, bricks would be a complementary production to take the extra demand of this construction material above the actual installed capacity of the concrete blocks industry, which would gradually develop into greater and greater demand through the years. As there is always a natural resistance to accept a new product, brick houses should be specified in a proportionate part of public bids for the new housing development.

The high natural growth of the population makes the shortage even more acute, and consequently the construction materials industries become all the more important for the country, as they represent some of the possibilities of at least small industrial mass production for the local market. Taking advantage of small semi-mechanized plants would

also create work for a considerable number of people, especially men, which represent the biggest percentage of the unemployed and that as family heads and wage earners should be given first consideration. Job seekers in 1966 were: 7,261 men (64.6%) and 3,983 women (35.4%).

COMMON BRICKS

3) - Up to now in Netherlands Antilles the main and almost exclusive building material has been concrete blocks, they are easy to make and may be even made right at the construction site in mass production or in small way, with simple hand-operated elements that have been developed for low cost housing. They do not need fuel for firing. The only drawback is the cost of cement which is imported, and as such draws on foreign exchange.

4) - Another possibility is brickmaking. Clay deposits are found in the three main islands. They should be investigated for their brick-making possibilities.

5) - Brick buildings are not common in this country, but people have made bricks, at various times from local clay, following the old practices, and without any special investigation as to the clay's qualities. Informants state that the resulting bricks were of good quality, but it seems there was no market, no demand at that time, so the industries did not prosper.

6) - Brick should be the cheapest construction material as it would be made in large quantities in a central semi-mechanized plant.

7) - Plants have been calculated where extraction and preparation of the clay are mechanized; then from molding the bricks until they are finished, all work is done preferably by hand.

This reduces capital investment by eliminating the costly automatic molding machine and permits the employment of about eighty people, mostly unskilled and semi-skilled.

8) - Because of the importance of this production, three possibilities have been calculated. A plant to produce 12,000,000 bricks a year, working one shift/day, 45 hours/week, 50 weeks per year, would probably be too big, as in only one shift/day it would produce enough bricks to build between 1,000 to 1,500 small houses depending on size.
An extra shift would duplicate production and reduce cost, as it would cut overhead expenses, but 24,000,000 bricks/year would be too much.

9) - The second plant would be half-size to produce 6,000,000 bricks per year. This has a much lower capital investment, but it is figured that, working two eight-hour shifts per day, it would also produce 12,000,000 bricks/year.

10) - The third is figured working this same 6,000,000 plant three shifts per day, that is 135 hours per week, 50 weeks per year, to produce 18,000,000 bricks per year. Although it would have to increase its installations shed, drying tunnels, firing kilns etc., the total capital investment would be lower than for the 12,000,000 (one shift) plant and consequently the percentage of profit for the same selling price would be higher.

11) - When brickmaking is finally introduced here, many advantages will be evident. Small demand in various parts could even be satisfied by handmade bricks, at low cost, by the home builders themselves with little outside help, and without any special equipment besides molds, as even the firing kilns are replaced by piling

the raw sun dried bricks, covered by a thin layer of clay. The only assistance these brickmakers would need would be advice on where to find the best type of clay for their bricks.

12) - This estimate for semi-mechanized brick-making plants is based on U.S. Government "I.C.A." figures corresponding to for a mechanized plant, eliminating the costly "Automatic Brick Molding Machine", as the molding would be done by hand, reducing capital investment and increasing employment of semi-skilled and unskilled local labour.

13) - The brick estimated here is similar to the common red brick used in the United States, which has a size of 8" x 3-3/4" x 2¼".

14) - Production is limited to one size to minimize the initial cost.

15) - There are seven basic operations to manufacture brick by the soft mud process: Mining (winning), preparation of clay, pugging, molding, drying, firing (burning) and inspection.

16) - Mining is the operation of digging the raw materials from the earth with power shovels and delivering it with dump trucks to the plant site.

17) - Preparation consists in removing foreign materials and processing it into a satisfactory plastic condition for molding. This is done with two machines: The granulator that breaks it down and the disintegrator that pulverizes it.

18) - In pugging operation water is added, approximately one liter for every 5 kilos of clay or shale.

19) - When the raw material has been through the pug mill, it is moved into the molding section.

20) - Drying is the operation of removing excess moisture, prior to firing, it will take from 28 to 48 hours in a waste heat drying tunnel.

21) - Firing or burning, refers to the kiln operation, in which the bricks are heated practically to the fusion point.

22) - Inspection verifies quality: form color and uniformity of texture.

MANUFACTURING COSTS

23) - Direct Materials

Clay: Total gross brick production 12,700,000 bricks per year, at 2 3/4 kilos of raw clay per brick, gives some 35,000 metric tons of raw clay per year. Clay it's assumed will be extracted from free public land deposits at the cost of extraction and short transport tion, which will mean, besides operators Diesel, the oil for fuel of power shovels and dump trucks, and the corresponding spare parts and tires for them estimated in all at Fl. 15,000,— per year.

Water: Approximately one liter per 5 kilos of clay makes a yearly total of 7,000 mts/3 at Fl. 1.51/mt/3, gives a yearly cost of Fl.10.570,—.

Parting sand: An important ingredient for sanding brick molds, at 45 kilos per 1.000 bricks, gives some 570 tons per year, at about Fl. 7.20/ton delivered equals Fl. 4.100.— per year.

Total cost of direct materials:

Clay	Fl.	15,000.—
Water	"	10,570.—
Parting sand	"	4,100.—
Total Direct Materials	Fl.	29,670.—

24) - **Production Tools and Equipment:** - The following is a list of the machinery and equipment required in clay mining and in the semi-mechanized production of 12,000,000 bricks per year, with a total installed American cost of Fl. 352,000.—. Other quotations could be obtained through local foreign consulates. An interesting possibility would be to investigate second hand or rebuilt machinery from reliable firms, that specialize on them and guarantee their good working conditions. I would not recommend buying second hand transportation equipment, but heavy stationary machinery yes, for instance in this case the granulator, the disintegrator and the pug mill. Such firms are listed in the "Thomas Register of American Manufacturers."

DESCRIPTION	UNITS REQUIRED
Power shovel, 2/4 yard capacity self propelled with motor	1
Dump truck, 4-ton capacity	3
Granulator	1
Disintegrator and 2 roll crusher, including 21' connecting conveyor	1
Pug mill	1
Double brick wooden molds, for hand molding	70
Tunnel dryers, 110' long x 4' wide x 6¾" high above tracks with recirculation air facilities 440 sq. ft. surface made of common brick or strips of wood covered inside and outside with clay mud, for they are just low temperature dryers.	6
Cars for drying tunnel, 30" long x 45½" wide x 60" high	145
Pallets, 36" long x 11" wide x 3/4" thick with 1" air spaces - 14 gauge galvanised sheet steel	12, 760
Kilns, 30' inside diam. 30,000 bricks capacity. Locally made with imported refractory bricks	7
Conveyors, belt conveyors connecting raw material supply granulator, disintegrator, roll crushers, and pug mill	30 mts.

Note: - 10% has been added on all imported common items to cover transport and other expenses, etc.
15% has been added to the cost of heavy machines for higher cost of installation, transport etc.
All the original prices of this study include cost of installation in USA so the 10% and 15% added is ample.

25) - Other Tools & Equipment - such as wheel barrows, hand tools of all kinds, factory supplies, maintenance equipment etc. with a total estimated cost of Fl. 8.000.—.

26) - Office Equipment, Furniture etc. with a total estimated cost of Fl. 1,650.—

PLANT SITE

27) - To provide space for brick storage and for eventual expansion a site of level, well drained land having suitable clay or shale material, comprising at least 10 hectares would be desirable. The site should include the clay deposit and be as advantageously located as possible with respect to transportation, power, water, fuel, labour and markets. The value of the land is estimated at Fl.10.000.— considering that it will be barren land away from the city, probably a Government grant.

If possible, the plant itself should be located close to a hillside with a road above the plant. In this way, the materials can flow by gravity into the storage bins and feed down into the processes. Where this is not possible, the raw materials can be elevated from ground level by a mechanical conveyor to the granulator and disintegrator.

BUILDINGS

28) - About 1,100 square meters of total floor space.

The processing and forming sections will need a shed of 1,000 sq. meters of very light and low cost construction, with concrete floor but no side walls.

1,000 meters/2 x Fl. 35,— mt/2	Fl.	35.000.—
Warehouse, office etc., also of light construction 120 mt2 x Fl.50,—	"	6.000.—
Grading of yard	"	1.000.—
Total cost	Fl.	42.000.—

29) - POWER - About 40,000 K/H per year at Fl. 0.09 will cost Fl.3,600.—

30) - FUEL - About 2,400 metric tons of fuel oil per year delivered at the plant, at a cost of Fl. 30.—/ton. Total Fl.72,000.—.

31) - MOLDING OF RAW BRICKS - There are usually two types of wooden moulds for cutting bricks by hand: the double and the triple, we will use here the former

Each moulder works with two helpers and it is estimated that paid at piece rate with his two helpers, would mould 360 bricks per hour (using double mold) so in 2,000 actual working or producing hours, estimated for the whole year, would mould 720,000 bricks. To mould 12,700,000 bricks gross production per year, there will be needed 18 moulders and 36 helpers.

32) - DIRECT LABOR COST OF PRODUCTION WORKERS

(Paying the whole 52 weeks x 45 hours = 2,340 hrs/year)

WORKS	NO:	HOURLY RATE/FL	ANNUAL ESTIMATED COST/FL
Quarry workers -			
1 - power shovel operator	1	1.92	4.493.—
1 - helper	1	1.13	2.644.—
Dump truck drivers	3	1.92	13.479.—
Molders	18	1.47	61.916.—
Helpers(young laborers)	36	1.13	95.184.—
General plant laborers including apprentices	8	1.05	19.656.—

Second shift tending dryers and kilns	2	1.13	5.28 .—
Third shift tending dryers and kilns	2	1.13	5.28 .—
Weekend men tending dryers and kilns	2	1.13	4.232.—

Note:

Total one shift workers, plus the men tending the dryers and kilns during the two night shift periods and the watchmen during weekends	73	Fl.212.180.—

33) - INDIRECT LABOR INCLUDING EMPLOYEES

		YEARLY COST INCLUDING 13% SOCIAL COST
Manager	1	Fl. 20.340.—
Foreman	1	9.244.—
Maintenance man	1	4.493.—
Bookkeeper	1	5.424.—
Secretary & Clerk	2	5.424.—
Total Indirect Labor	6	Fl. 44.925.—

34) - DEPRECIATION

	Cost	Years of life	Depreciation per year
Buildings	42,000.—	20	2,100.—
a) Production tools and equipment without the dump trucks	352,000.—	20	17,600.—
Dump trucks	22,800.—	5	4,560.—
Other tools and equipment	8,000.—	10	800.—
Furniture & fixtures etc.	1,650.—	10	165.—
Total cost of Depreciation per year			Fl. 25, 25.—

a) - Heavy built, simple machinery should last over 20 years.

35) - SUPPLIES

Lubricants	Fl. 900.—
Hand tools	1,000.—
Maintenance materials	3,500.—
Office supplies	600.—
Maintenance of dump trucks	4,000.—
Total cost of supplies	Fl.10,000.—

36) - MANUFACTURING OVERHEAD

Depreciation	Fl.25,225.—
Indirect labor	44,925.—
Supplies	10,000.—
Power	3,600.—
Fuel Oil	72,000.—
Total	Fl.155,750.—

37) - FIXED INVESTMENT

Land - 10 Has of barren land in Government grant, including clay deposits	Fl.10,000.—
Buildings	42,000.—
Production tools and equipment	352,000.—
Other tools and equipment	8,000.—
Office equipment, furniture etc.	1,650.—
Total Fixed Investment	Fl413,650.—

38) - WORKING CAPITAL

Direct materials (30 days)	Fl. 2,470.—
Direct labor (30 days)	17,680.—
Manufacturing overhead(30 days)	12,980.—
Reserve for sales collection	2,500.—
Working capital	Fl.35,630.—

39) - CAPITAL REQUIREMENTS

Fixed investment	Fl.	413,650.—
Working capital		35,630.—
Total Capital Requirements	Fl.	449,280.—

40) - Comparison of Total Capital Requirements with mechanized plant; that would be required in the USA.

Mechanized Plant - USA	Fl.	975,000.—	100%
Semi-Mechanized Plant - USA		449,280.—	46%
Reduction in Investment - NA			54%

41) - RECAPITULATION OF YEARLY COSTS, SALES & PROFITS

(Semi-mechanized plant - 12,000,000 bricks/year - 1 shift/day)

Manufacturing Costs

Direct Materials	Fl.	29,670.—
Direct Labor		212,180.—
Manufacturing Overhead		155,750.—
Total Manufacturing Costs	Fl.	397,600.—

Other Administrative Expenses

Interest on loans	Fl.	2,000.—
Insurance (Fire) 2 1/4% o on Fl. 413,650.—		930.—
Legal and auditing		2,000.—
Unforeseen Expenses		10,000.—
Interest-5% on Fixed Investment, Fl.413,650 during the year of construction until plant starts working written off in four years		5,170.—
Other administrative Expenses	Fl.	20,100.—

Resumé of Costs

Manufacturing costs	Fl.	397,600.—
Other administrative expenses		20,100.—
Total cost of 12,000,000 bricks produced in one year, in a semi-mechanized plant, working only		

one eight hour shift per day	Fl. 417,700.—
Profits before taxes[a]	62,300.—
Total sales at Fl. 40,—/1000 bricks	Fl. 480,000.—
Percentage of net profits on total capital investment of Fl. 449,280.—	13,7%

42) - COMMENTS

Working only one 8 hour shift per day, this plant has a high production cost, but doubling production that is, working two shifts per day, would be too much (24,000,000 bricks/year) production, besides it would interfere with the normal production of the concrete block industry, that is already well established, serving the present demand.

a) - It is assumed that this industry will pay no taxes, as it was considering that the "Government Housing Projects", will mean the added construction of 1,500 to 2,000 extra houses per year, a plant with half the above capacity per shift that is 6,000,000 bricks per year could fill the bill at slightly lower cost and a better percentage of profit, working only two eight hours shifts per day, (12,000,000 bricks/year) leaving the extra capacity as a reserve, that is the third 8 hour shift, if the housing programmes were extended. So I have figured on a plant that size that is to produce six million (6,000,000) bricks per each eight hour shift per day, and on that basis have made detailed calculations for it working two shifts per day (12,000,000/year) and final comparable figures for the one and the three shifts.

43) - Yet the commercial results of this smaller plant are not encouraging because I have been told that even this smaller volume of production would probably be yet too big for local needs, although with the

initiation of the "Government Housing Projects", demand will grow many times over what has been normal up to now. The following is the approximate number of houses, depending on the model, that could be built per year with the different production of bricks, size 3" x 3 3/4" x 2 1/4".

Production per year	No. shifts/ day	Estimated No. of houses/year
6,000,000	one	500 to 750
12,000,000	two	1,000 to 1,500
18,000,000	three	1,500 to 2,250

a) - selected for being a male intensive employer, that is, to create men's jobs.

44) - To compete with concrete blocks which are sold to house builders at about Fl. 0,45 the 40 x 20 x 20 cms size and Fl. 0,32 the 40 x 20 x 10 cms size.

Taking the last for a general comparison, we have that six bricks, considering mortar thickness, would replace one concrete block of 40 x 20 x 10 cms., which at a cost of Fl. 0,045 each would mean a comparable cost of Fl. 0,27, but the difference of Fl. 0,05 would have to cover the extra cost of labor and mortar which sum would probably be rather low. A solution to the above situation would be what I am suggesting elsewhere in this report to promote men intensive employer industries, by diverting gradually a part of present unemployment subsidies, which are reaching a high figure (about Fl. 2,000,000,— for 1968) to subsidize new jobs created by new productive activities. For instance, if this industry were to receive Fl. 1,000,— per year, for each person employed, the respective cost of total labor (direct and indirect) would be reduced in each plant as follows:

One shift - 6,000,000/year by Fl. 49,000,—
Two " -12,000,000/year by Fl. 79,000,—
Three " -18,000,000/year by Fl. 118,000,—

Consequently the final total cost of production and percentages of theoretical profits (see - "Recapitulation of Yearly Costs, Sales and Profits" in paragraph No: 64 would be:

Items	Production per year 6,000,000.—	12,000,000.—	18,000,000
Estimated cost of total production	250,600.—	409,240.—	570,790.-
Subsidy reduction	49,000.—	79,000.—	118,000.—
Reduced Total Cost of Production	201,400.—	330,240.—	452,790.-

45) - Theoretical Profits on Capital Requirements at a Reduced Cost of Production

	6,000,000	12,000,000 & 18,000,000
When selling at Fl. 40,—/1,000	Fl. 38,600.— (16%)	(For these two other plants)
Selling at Fl.45,—/1.000	68,600.— (28,3%)	(the corresponding figures would not be commercial)

Figures in ( ) indicate % of profits on Total Capital Requirements.

46) - The practical result would be, that the small plant, working one shift/day producing 6,000,000 bricks/year could make a profit and probably compete at a selling price of Fl. 40,—/1,000 as the six bricks required to replace one block would cost Fl. 0,24 leaving a margin of Fl.0,08 to cover the extra cost.

47) - Unhappily this man-intensive employing production, has naturally no practical export possibilities, that for other types of industries would help to expand the meager internal market.

48) - COST ESTIMATE FOR SMALL BRICK, SEMI-MECHANIZED PLANT, (6,000,000 Bricks/Shift) to produce 12,000,000 Bricks/ year) WORKING TWO(2) SHIFTS EIGHT HOUR SHIFT PER DAY

Direct Materials	Fl.	29,670.—
Production Tools & Equipment		266,000.—
Other Tools and Equipment		8,000.—
Office Equipment Furniture etc.		1,650.—
Land		10,000.—
Buildings		42,000.—
Power and Fuel		73,400.—
Direct labor- In relation to the 12,000,000 plant will diminish in 2 men as the second shift of tenders for dryers and kilns would not be needed		206,832.—
Indirect labor - In relation to the 12,000,000 plant will increase to supervise second shift:		52,425.—
1 - Assistant Foreman in charge		
1 - Assistance Maintenance man		

49) - DEPRECIATION

	Value Fl.	Year's Life	Cost/ Year
Buildings	42,000.—	20	2,100.—
Prod. Tools & Equipment (without dump trucks)	254,800.—	20	12,740.—
Dump trucks	11,200.—	5	2,240.—
Other tools & equipment	8,000.—	10	800.—
Furniture & Fixture	1,650.—	10	165.—
Total			Fl. 18,045.—

50) - SUPPLIES Fl. 10,000.—

51) - MANUFACTURING OVERHEAD	%	Fl.
Depreciation	11,8	18,045.—
Indirect Labor	34,-	52,425.—
Supplies	6,5	10,000.—
Power & Fuel	47,7	73,400.—
Manufacturing overhead	100,-	153,870.—

52) - CAPITAL

Fixed Investment

Land	Fl. 10,000.—
Buildings	42,000.—
Production Tools & Equipment	266,000.—
Other Tools & Equipment	8,000.—
Office Equipment, furniture etc.	1,650.—
Total Fixed Investment	Fl. 327,650.—

53) - WORKING CAPITAL

Direct Materials (30 days)	Fl. 2,470.—
Direct Labor (30 days)	17,240.—
Manufacturing Overhead (30 days)	12,800.—
Reserve for sales collection	2,500.—
Working Capital	Fl. 35,010.—

54) - CAPITAL REQUIREMENTS

Fixed Investment	Fl.327,650.—
Working Capital	35,010.—
Total Capital Requirements	Fl.362,660.—

55) - Comparison of this total capital requirements with those of the mechanized plant that would be needed in the USA producing 12,000,000 bricks/year working one eight (8 hr) shift per day.

Mechanized plant - USA	Fl.975,000.—	100 %
Semi-mechanized plant - NA	362,660.—	37.2%
Reduction in Investment in -NA		62.8%

56) - RECAPITULATION OF YEARLY COSTS, SALES & PROFITS

(semi-mechanized plant - working two (2x8 hr/day) eight hour shifts per day to produce 12,000,000 bricks per year).

MANUFACTURING COSTS	%	Fl.
Direct Materials	7.6	29,670.—
Direct Labor	53.-	206,890.—
Manufacturing Overhead	39.4	153,870.—
Total Manufacturing Costs	100.—	390,430.—

OTHER ADMINISTRATIVE EXPENSES

Interest on loans	Fl. 2,000.—
Insurance (Fire) - 2 1/4°/oo on Fl. 317,650.—	715.—
Legal & Auditing	2,000.—
Unforeseen Expenses	10,000.-
Interest - 5 % on Fixed Investment of Fl. 327,650.— during the year of construction until the plant starts working, written off in four years	4,095.—
Other Administrative Expenses	Fl. 18,810.—

57) - RESUME OF COSTS

Manufacturing Costs	Fl.390,430.—
Other Administrative Costs	18,810,—
Total cost of 12,000,000 bricks produced in one year, in a semi-mechanized plant, working two (2x8) hours shift/day	Fl.409,240.—

58) - PROFIT BEFORE TAXES (a) Fl.130,760.—

Total sales value of 12,000,000 bricks at Fl. 45,—/1,000 bricks Fl.540,000.—

59) - Percentage of Net Profits on total capital requirements of Fl. 362,660.— 36.-%

60) - RELATIVE COST OF LABOR TO TOTAL COST

	Fl.
Direct Labor	206,890.—
Indirect Labor	52,425.—
Total Cost of Direct & Indirect Labor	259,315.—

61) - Direct & Indirect Labor represents 63,3% of total cost

a) It is assumed that this industry will pay no taxes, as itwas selected for being a male intensive employer.

62) - SEMI-MECHANISED CLAY BRICK MANUFACTURING PLANT

Comparative figures, when working one, two and three eight hour shifts per day, to produce respectively: 6,000,000 - 12,000,000 and 18,000,000 - bricks per year.

	Bricks per year		
Various Items on NA Florines	6,000,000 1 shift	12,000,000 2 shifts	18,000,000 3 shifts
Direct Materials	15,000m	29,670	44,500
Production Tools & Equipment	172,000	266,000	350,000
Other Tools & Equipment	8,000	8,000	8,000
Office Equipment, Furniture	1,650	1,650	1,650
Land	10,000	10,000	10,000
Buildings	30,000	42,000	54,600
Power & Fuel	37,000	37,400	105,000
Direct Labor	124,000	206,692	302,000
Indirect Labor	45,000	52,425	60,000
Depreciation	12,300	18,045	23,860
Supplies	7,000	10,000	12,200
Manufacturing Overhead	101,300	153,870	201,000
Reserve for sales collection	1,000	2,500	3,750

63) - CAPITAL REQUIREMENTS

Fixed Investment:	Fl.	221,600	327,650	424,200
In land, buildings, production tools, equipment other tools and equipment and office equipment etc.				
Working Capital:	Fl.	21,000.—	35,010.—	49,380.—
One month cost of Direct Materials, Direct Labor, Manufacturing Overhead and a Reserve for Sales Collection				
Total Capital Requirements	Fl.	242,600.—	362,660.—	473,580.—

Total Capital Requirements per (1,000) thousand brick production	Fl. 40,42	30,22	26,31

64) - RECAPITULATION OF YEARLY COSTS, S.A.L. & PROFITS IN FL.

	Bricks per year		
	6,000,000 (one shift)	12,000,000 (two shifts)	18,000,000 (three shifts)
Manufacturing Costs: Fl.	240,300	390,430	
Direct materials, direct labor and manufacturing overhead			
Other Administrative Expenses	10,300	18,810	
Interest on loans, fire insurance, legal & auditing unforeseen expenses and interest (5%) on idle fixed investment during one year construction.			
Total cost of production	250,600.—	40 ,240.—	570,790.—
Theoretical profits before taxes (a)	19,400.—	130,760.—	239,210

(a) it is assumed that this industry will pay no taxes, as it was selected for being a male intensive employer

Theoretical sales value at Fl. 45.— per 1,000 bricks	270,000.—	540,000.—	810,000.—
Theoretical % of profits on total capital requirements	8.-%	35.0%	50.5%

ASPHALT FLOOR TILES

1) - This plant would produce one and a half million of 9" x 9" floor tiles per year, working an 8 hour shift per day. This production would be enough to cover about 78,000 meters/2 of floor and on the basis of about 140 mts/2 of flooring per house, would be enough for some 560 houses.

2) - This production would substitute some of the cheaper imported flooring materials presently used.

COST CALCULATIONS

3) - Fixed Capital

Land - 2,000 mts/2	Fl.	10,000.—
Buildings, 450 mts/2		22,500.—
Production Tools & Equipment		104,500.—
Principal items: - internal mixer, sheeting mill, calendar, cutting press, compounding equipment, laboratory equipment, boiler.		
Other tools & equipment		2,300.—
furniture & fixtures etc.		900.—
Total fixed capital	Fl.	140,200.—

4) - WORKING CAPITAL

Direct materials, direct labor and manufacturing overhead (all 60 days).	Fl.	34,400.—
Administrative costs: - including - bank interests, insurance, legal & audit, unforeseen expenses, interest (5%) on idle capital during construction, selling costs,		

training of workers (all 30 days)	Fl. 5,600.—
working capital	Fl. 40,000.—

5) - TOTAL CAPITAL REQUIREMENTS

Fixed capital plus working capital	Fl.179,200.—

6)- RECAPITULATION OF COSTS, SALES & PROFITS

Direct materials	Fl.116,700.—
Direct labor	33,600.—
Manufacturing overhead	67,200.—
Total manufacturing cost	217,500.—
Administrative costs	67,200.—
Total cost of the manufactured products	284,700.—
gross profits, before taxes	45,300.—
(a) estimated sales value of prod.	Fl.330,000.—

a) it is assumed that the industry will be tax free

7) - This would be another construction materials possibility. However, as in all construction material possibilities here, if it has no special support in the future execution of government housing projects, such as giving preference to bids offering to produce locally some new construction materials, it will have not a chance, as up to now the normal market provided by house constructions, has been very erratic.

8) - To illustrate roughly how cost figures have been assembled, some further information is given here.

9) - VARIOUS COST FIGURES

a) direct materials, resin asphalt, fibre filler, pigment, gel, plasticizer and packing cartons	Fl.	116,700.—

b) - SUPPLIES

Lubricants, hand tools, maintenance materials repair parts & office supplies etc.	4,500.—

e) - Electric power Fl. 12,000.—

d) - Fuel, for calendar operation and heating 400.—

e) - Water 1,000.—

f) - Direct labor, semi-skilled

men - 9 x Fl. 1,47 hr. 31,000.—

laborer- 1 x Fl. 1,13 hr 2,600.—

10 Total Fl. 33,600.—

g) - Indirect labor

1 - manager who must be technical man Fl. 20,000.—

1 - foreman 9,000.—

1 - office 2,700.—

3 Total 31,700.—

h) - Depreciation

	Value Fl.	Year's life	Cost/year
Building	22,500.—	20	Fl. 1,125.—
Prod.Tools & equipmt.	104,500.—	20	5,225.—
Other tools & equipmt.	2,300.—	10	230.—
furniture & fixture	900.—	10	90.—
Depreciation Cost/year			Fl. 6,670.—

1) - MANUFACTURING OVERHEAD

Depreciation, indirect labor, power and light, water, fuel and supplies Fl.67,200.—

RUBBER FLOOR TILES

1) - Standard type vulcanized rubber floor tiles 9" x 9", with a total annual production in one shift/day of one million tiles/year (about 52,000 mt^2) enough to cover 140 mts^2 of floor in 370 houses.

2) - This production, or a similar one, would substitute some of the imported flooring materials at present in use here.

3) - COST CALCULATIONS

Fixed capital

Land - 2,000 mts^2	Fl.	10,000.—
Building 18 x 25 mts^2 = 450 mts^2 x Fl.		22,500.—
Production tools and equipment, two roll mix mill with apron, sheeting mill handcutter, curing press, compounding equipment, laboratory, cutting machine.		74,500.—
Other tools & equipment		4,600.—
Furniture & fixtures etc.		900.—
Total fixed capital	Fl.	112,500.—

4) - WORKING CAPITAL

Direct materials, direct labor Manufacturing overhead (all 60 days)	Fl.	38,400.—
Administrative costs: including: bank interests, insurance, legal and auditing, unforeseen xpenses, interest (5%) on idle capital during construction selling costs, training of workers (all 30 days)		4,600.—
Working capital	Fl.	43,000.—

5) - TOTAL CAPITAL REQUIREMENTS

Fixed capital plus working capital	Fl.	155,500.—

6) - RECAPITULATION OF COSTS, SALES & PROFIT

Direct materials	Fl.	144,300.—
Direct labor		33,600.—
Manufacturing overhead		52,500.—
Total manufacturing costs	Fl.	230,400.—
Administrative costs		55,200.—

Total cost of the manufactured product	Fl.	285,600.—
Gross profits, before taxes (a)		46,400.—
Estimated sales value of production	Fl.	332,000.—

7) - This would be another construction materials possibility. However, as in all construction material possibilities here, if it has no special support in the future execution of government housing projects, such as giving preference to bids offering to produce locally some new construction materials, it will have not a chance as up to now the normal market provided by house constructions, has been very erratic.

8) - To illustrate roughly how cost figures have been assembled, some further information is given here.

a) it is assumed that the industry will be tax free.

9) - VARIOUS COST FIGURES

A) Direct Materials Rubber(smoked) sheets, zinc oxide, whiting, clay, mineral oil, steeric acid, color, sulfur, accelerator, hard wax and packing cartons.		Fl.	144,300
B) Supplies Lubricants, hand tools, maintenance materials, repair parts & office supplies etc.			4,000.—
C) Electric Power			10,000.—
D) Fuel for heating & processing rolls			400.—
E) Water			1,000.—
F) Direct Labor			
Semi-skilled men - 9 x Fl/1.47/hr			31,000.—
Laborer 1 x 1.13/hr			2,600.—
10	Total	Fl.	33,600.—
G) Indirect Labor			
Manager who must be technician	1	Fl.	20,000.—
Foreman	1		9,000.—
Office	1		2,700
	3	Fl.	31,700.—

H) Depreciation	Value Fl	Year's life	Cost/year
Building	22,500.—	20	Fl. 1,100.—
Prod. Tools and Equip.	74,500.—	20	" 3,700.—
Other Tools and Equip.	4,600.—	10	" 460.—
Furniture and Fixtures	900.—	10	" 90.—
Depreciation cost/year			Fl. 5,350.—

I) Manufacturing Overhead — Fl. 52,500.—

Depreciation, Indirect Labor, Power and Light, Water, Fuel and Supplies.

SHREDDED WOOD AND CEMENT BOARDS FOR WALLS AND CEILINGS

1) - This construction material is widely used and it would be easy to make here as its main raw materials are shreds of wood made with very simple machines, shreds which are immersed and soaked in a light cement mixture and lightly pressed into boards until cement settles. They are usually made in boards of about one meter/^{2} (2 meters long by 0,50 meters wide) and in thickness of 1", 2" and 3", the latter to be used direotly as partition walls nailed or screwed to uprights.

This material has the great advantages of being fire proof, sound and heat proof and most important in the tropics, termite proof.

2) - This industry has the added attraction that it is a man-intensive employer, with 35 workers as direct labor and 5 as the indirect.

3) - Estimate of capital and Costs etc.

Production Tools and Equipment	Fl. 41,000.—
Other " " "	3,500.—
Furniture and Fixtures, etc.	500.—

DIRECT LABOUR

	Number	Fl/hr	Estimated Annual Cost	
Operators - skilled	5	1.64	Fl.	19,200.—
Operators - semi-skilled	20	1.47		68,800.—
Material Handlers	10	1.13		26,000.—
	35 men		Fl.	114,000.—

INDIRECT LABOR

Description	No. Needed		Estimated Annual Cost
Manager	1	Fl.	20,300.—
Foreman	1		,200.—
Maintenance	1		4,500.—
Bookkeeper	1		5,400.—
Secretary	1		2,700.—
	5	Fl.	42,100.—

SUPPLIES

Estimated Annual Cost Fl. 1,500.—

Oil and grease, factory maintenance and repairs and office supplies

DIRECT MATERIALS

Cement, wood & additives	Fl.	80,000.—
Land: about 4,000 mts^2 cut in the country, close to a highway:	Fl.	20,000.—
Buildings - simple sheds mostly without side walls, but with concrete floors.		
1,000 mts^2 x Fl./40.—	Fl.	40,000.—
Power and light		,000.—
Water		2,000.—

DEPRECIATION

Item		Estimated Cost	Year's Life	Cost per year
Building	Fl.	40,000.—	20	Fl. 2,000.—
Production tools and equipmt.		41,000.—	20	2,000.—
Other tools and equipmt.		3,500.—	10	350.—
Furniture & fixtures etc.		500.—	10	50.—
				Fl. 4,400.—

Manufacturing Overhead

Depreciation, Indirect Labour, Power and Light Fl. 56,000.—
Water and Supplies.

FIXED ASSETS

Land		Fl. 20,000.-
Building		40,000.-
Production Tools and Equipment		41,000.-
Other tools and equipment		3,500.-
Furniture and Fixtures etc.		500.-
	Total	Fl.105,000.-

WORKING CAPITAL

Direct Materials (Imported)	60 days	Fl. 13,300.-
Direct Labour	30 days	9,500.-
Manufacturing overhead	30 days	4,700.-
Various		[illegible]0,000.-
	Total	Fl. 47,500.-

CAPITAL REQUIREMENTS

Fixed Assets	Fl. 105,000.-
Working Capital	47,500.-
Total Capital Requirements	Fl. 152,500.-

RECAPITULATION OF COSTS, SALES AND PROFITS

Direct Material	Fl. 30,000.-
Direct Labour	114,000.-
Manufacturing Overhead	56,000.-
Total Manufacturing Costs	Fl. 250,000.-

Interest on Loans, Insurance, Legal, Auditing, Unforeseen Expense and 5 % Interest on fixed assets during - one year construction and written off in 4 years

Administrative Costs	Fl. 25,000.-
Sales commissions, etc.	Fl. 25,000.-

TOTAL COSTS	Fl.	300,000.—
Profit before taxes (about 33%) on total capital requirements		50,000.—
	Fl.	350,000.—

Estimated Anhual Gross Sales, based on a production of about 130,000 mts/^{2} of boards/year. Roughly enough to provide ceiling and interior partition walls for about 500 small houses of some 140 mts/^{2} surface.

WIRE NAILS

1) - Wire nails will be required in considerable quantities. Their manufacture is simple using the proper automatic machines. It is a production that should be best combined with a machine shop or similar industry that has available a general repair mechanic to do the maintenance work.

2) - Although wooden constructions are expected in the future to diminish, nail demands will undoubtedly increase considerably as soon as present building plans get underway.

3) - The general information has been obtained from the ICA United States Government Study for a plant with 2 automatic nail machines and a capacity of 500 short tons per year. This plant would be too big for present demands so we will consider using only one (1) nail machine to produce about 250 tons of the types of greater use.

4) - ESTIMATE OF CAPITAL COSTS, ETC.

	Estimated Installed Price
1- nail machine, 1- nail die grinder, 1- nail tumbler, 1- scale, dies, steel containers etc.	Fl. 10,700.—
OTHER TOOLS AND EQUIPMENT	Fl. 3,100.—
FURNITURE AND FIXTURES ETC.	Fl. 400.—

DIRECT LABOR

	Number	Hourly Rate	Estimated Annual Cost
Operators (skilled)	1	1.92	4,500.—
Material Handlers	1	1.13	2,600.—
Total	2		Fl. 7,100.—

INDIRECT LABOR

	Number	Estimated Annual Cost
Manager (part time)	1	4,000.—
Maintenance (same as main industry) no charge		
Total		Fl. 4,000.—

SUPPLIES

Items	Estimated Annual Cost
Oil and grease and handtools, factory maintenance and repairs, dies, office supplies.	
Supplies, total cost	Fl. 1,500.—

DIRECT MATERIALS

[redacted] 250 Tons and strong wooden boxes for packing Fl. 80,560.—

PLANT SITE - A space of about 120 mt2 within the building of a larger industry x Fl.60.- Fl. 7,200.—

[redacted] Fl. 600.—

[redacted] Fl. 100.—

DEPRECIATION

Item	Estimate Cost	Year's Life	Estimated per year
Building	Fl. 7,200	20	Fl. 360.—
Production tools and equipment	" 19,700	20	" 1,000.—
Other tools and equipment	" 3,100	10	" 300.—
Furniture and Fixtures	" 400	10	" 40.—
Total			Fl. 1,700.—

MANUFACTURING OVERHEAD

Item	Estimated
Depreciation, Indirect Labor, Power, Water Supplies	
Total	Fl. 7,900.—

CAPITAL REQUIREMENTS

Fixed Assets

Land & Building	Fl. 7,200.—
Production Tools and Equipment	" 19,700.—
Other Tools and Equipment	" 3,100.—
Furniture and Fixtures	" 400.—
Total	Fl. 30.400.—

WORKING CAPITAL

Direct Materials	60 days	Fl. 13,400.—
Direct Labor	30 days	" 600.—
Manufacturing overhead	30 days	" 660.—
Various		" 500.—
Total		Fl. 15,160.—

CAPITAL REQUIREMENTS

Fixed Assets	Fl. 30,400.—
Working Capital	" 15,160.—
Total Capital Requirements	Fl. 45,560.—

RECAPITULATION OF COSTS, SALES AND PROFITS

	Estimated
Direct Material	Fl. 80,560.—
Direct Labor	" 7,100.—
Manufacturing Overhead	" 7,900.—
Total Manufacturing Costs	Fl. 95,560.—
Interest on Loans, Insurance, Legal Auditing, Unforeseen Expense, 5% interest on fixed assets - One year construction and written off in four years, and various.	
Total Administrative Costs	Fl. 7,000.—
Total Cost	Fl. 102,560.—
Profits before taxes	Fl. 14.060.—
Estimated Annual Gross Sales at the price of Fl. 490.— per ton, 250 tons less 5% for losses.	Fl. 116,620.—

BROOM FACTORY

Producing 150,000 brooms/year, working one 8hr shift/day

1)-This production has been suggested many times for local development, however the fundamental problem is as usual, the insignificant internal market, and as a consequence there is the following situtuation:

a)- Internal consumption could not absorb the normal production of a mechanized plant even of the smallest proportions, as yearly output would be many times over local demand.

b)- If we were to try to reduce production to the local level of demand, by replacing some machines for hand labor, as it is done in many underdeveloped countries, there would be no saving, on the contrary, as we would be facing the same situation that appears in the brick feasibility study, unit costs would go up to the point where its price would not be competitive at all, as labor commands here a rather high wage.

c)- Consequently, this industry is in the fringe between a small mechanized plant with a reduced number of workers, or another with more workers in a labor intensive production, with the result that in the first case there would be a too large volume of production, but with a lower unit cost, and in the second, with a lower volume, costs would increase and would not be competitive.

d)- So the only practical possibility in the long run, would be simple mechanized plant provided that, besides the local market, export possibilities let us say within the Caribbean area, are developed sufficiently, to take excess

2)- This would suggest further, the fundamental importance that the unfolding of the Caribbean markets, would have for some local industries and for the basic industrial development of the Netherlands Antilles.

3)- Broom making could be a type of small industry, that might be called "Import-Export" industry, because it would import all of its raw materials and export 80% or 90% of its production. Consequently its best location would be at the "Free-Port-Zone", where it could rent a place at the small "Industrial Park", that the Government is planning there, with a saving in space cost and transportation, since foreign raw materials would be received there with the minimum cost and most of the brooms, the finished product, could be exported with equal ease.

COST CALCULATION

4)- **Fixed Capital**

Land - (Free-Port-Zone)

Building - about 230 mts^2 of simple shed rented from the Free-Port-Zone

Production Tools & Equipment
Principal items: stitcher, winder, hand clipper, bundle cutter, scraper or seeder, hand tools, tables, boens and rackets, etc. Fl. 12,500.—

Furniture & Fixtures etc. " 1,500.—

Total Fixed Capital Fl. 14,000.—

5)- **WORKING CAPITAL**

60 days of - Direct Materials, Direct Labor, Mfg Overhead	Fl. 35,700.—
30 days of Administrative Costs, Contingencies, Sales Costs,	" 3,700.—
Training Costs	
Total Working Capital	Fl. 39,400.—

6)- **TOTAL CAPITAL REQUIREMENTS**

Fixed Capital	Fl. 14,000.—
Working Capital	" 39,400.—
Total Capital Requirements	Fl. 53,400.—

7)- **RECAPITULATION OF COSTS, SALES & PROFITS**

Direct Materials	Fl. 153,000.—
Direct Labor	" 23,700.—
Manufacturing Overhead	" 37,100.—
Total Manufacturing Costs	Fl. 213,800.—
Administrative and other Miscellaneous Expenses	Fl. 43,700.—
Total Annual Cost	Fl. 257,500.—
Gross Profits Before Taxes (a)	" 27,500.—
Estimated Annual Sales Revenue	Fl. 285,000.—

a) - It is assumed it will be tax free.

8)- To illustrate roughly how cost figures have been assembled, further information is given here:

9)- VARIOUS COST FIGURES

a)- Direct Materials

Broom corn (x) about 100 mt/tons	Fl.	115,000.—
Handles 150,000 pieces	"	31,500.—
Wire 5,000 kilos	"	4,200.—
Tables, paint dye & packing	"	2,300.—
Total	Fl.	153,000.—

b)- Supplies

Lubricants & Tools Maintenance & Repair Parts, Office Supplies	"	2,500.—

c)- Land & Building, rented in the Government projected "Industrial Park" at the "Free-Port-Zone" " 3,700.—

d)- Power & Light " 700.—

e)- Fuel " 250.—

f)- Water " 4,600.—

g)- Direct Labor (one shift operation)

3 - Skilled workers Fl/1.64/hr	"	11,500.—
2 - Semi skilled " Fl/1.47/hr	"	6,900.—
2 - Unskilled " Fl/1.13/hr	"	5,300.—
7 - Workers	Fl.	23,700.—

h)- Indirect Labor

1 - Foreman- Manager	"	15,000.—
1 - Maintenance Mechanic (a)	"	1,500.—
1 - Bookkeeper	"	5,400.—
1 - Office	"	2,700.—
4 Total	Fl.	24,600.—

(x)- It might be replaced by synthetic material.

(a)- It would benefit from the general service of a maintenance mechanic offered by the "Industrial Park" at low cost.

i)- Depreciation	Value/Fl.	Year's life	Cost/year
Prod. Tools & Equip.	12,500.—	20	Fl. 630.—
Furniture & Fixtures	1,500.—	10	Fl. 150.—
	Total		Fl. 780.—

j)- Manufacturing Overhead

Depreciation	Fl.	780.—
Indirect Labor	"	24,600.—
Land & Building Rent (x)	"	3,700.—
Fuel	"	220.—
Power & Light	"	700.—
Water	"	4,600.—
Supplies	"	2,500.—
Total	Fl.	37,100.—

k)- Administrative Costs & Miscellaneous Expenses.

Bank interests	Fl.	5,000.—
Insurance	"	100.—
Legal & Auditing	"	2,900.—
Sales Commissions & discounts	"	25,000.—
Unforeseen Expenses	"	10,000.—
5% on fixed capital during installation - one year	"	700.—
Total	Fl.	43,700.—

(x) at "Free Port Zone" - Industrial Park

QUALITY SHELL BUTTONS PLANT

Producing 150,000 Gross/year, working one 8 hr/shift/day

1)- This would be a unique industry for the Netherlands Antilles, because it would be one of the few that could use local raw material, as sea-shells abound in these islands, specially in Aruba, Bonaire and the Windwards Islands.

2)- To compete with the cheap plastic buttons, this production should concentrate on quality and fancy types, for use in quality clothing.

This of course, will mean marketing problems, and unless an export selling outlet is arranged before hand, the whole idea would fail. Consequently, this would be exclusively an export industry, to world markets, and no mean industry at that, as the total sales value in this estimate would reach to about Fl/ 580,000.—/year, yet at a low enough wholesale price of Fl/ 3.87 per gross or (ƒ $32^{1}/4$/dz) thirty two and a quarter cents per dozen, which is very low for a "quality button.

3)- Although, under the present set up in this country, this would be a problem industry, because it is practically exclusively an export industry (a), the fact that the N.A. have ample raw materials (sea-shells) makes it doubly interesting, as besides the 38 people it could give actual employment at the plant, there would be a large number of others, mostly women and children, earning extra money be gathering large quantities of sea shells from the beaches.

4)- This industry, on the other hand, once established, would create the opportunity that people while collecting all kinds of sea-shells for a button factory, they would, without any great extra effort, pick up many special types of beautiful shells, of all sorts of forms, colors and sizes, that abound here, and that should be the base of a handicraft proposition, by cleaning and packing them in neatly presented special small show-boxes, with if possible their latin and papiamento names underneath. We have seen in the local stores that these shell show-boxes, have a considerable attraction for tourists, most of them at a loss of what kind of souvenirs to carry home to the family children.

5)- This, of course, would be besides another type of profitable handicraft, which is working on the big, unusually beautiful conchs or "caracos" that, when offered whole and clean, command a high price.

COST CALCULATIONS

6)- **Fixed Capital**

Land - about 600 mts/^{2}	Fl.	6,000.—
Building - about 200 mts/^{2} one story with overhead storage.	"	20,000.—
Production Tools & Equipment Ocean pearl cutting lathes (20), blank splitting devices (2) classifying machine, convex grinders (3), polishing machines (2), automatic facing and drilling machines (3), buffing churn, button sorting machine, plate feeders (6), small fisheye, etc	"	130,000.—
Other Tools & Equipment	"	10,300.—
Furniture & Fixtures etc.	"	1,700.—
Total Fixed Capital	Fl.	168,000.—

7)- **WORKING CAPITAL**

60 days of Direct Materials, Direct Labor and Mgf. Overhead	Fl.	67,500.—
30 days of Administrative costs, Contingencies, sales costs & other miscellaneous expenses.	"	8,000.—
Training Costs	"	20,000.—
Total Working Capital	Fl.	95,500.—
Total Fixed Capital	"	168,000.—
8)- TOTAL CAPITAL REQUIREMENTS	"	263,500.—

9)- **RECAPITULATION OF COSTS, SALES & PROFITS**

Direct Materials	Fl.	225,000.—
Direct Labor	"	106,000.—
Manufacturing Overhead	"	73,4000.—
Total Manufacturing Cost	Fl.	404,400.—
Administrative & other miscellaneous expenses	"	95,600.—
Total Annual Cost	Fl.	500,000.—
Gross Profits before Taxes (a)	"	80,000.—
Estimated Annual Sales Revenue	Fl.	580,000.—

a)- It is assumed it will be tax free.

10)- To illustrate roughly how cost figures have been assembled, further information is given here:

11)- **VARIOUS COST FIGURES**

a)- **Direct Materials**

Ocean Shells about 70,000 kls	Fl.	213,000.—
Packing, etc.	"	12,000.—
Total	Fl.	225,000.—

b)- **Supplies**

Lubricants & Hand Tools	Fl.	600.—
Cutting, grinding and polishing tools	"	950.—
Maintenance & Repair parts	"	4,350.—
Office supplies	"	600.—
Total	Fl.	6,500.—

c)- **Power & Light**
connected load about 100 H.P. Fl. 7,900.—

d)- **Water** - about 1,500 mts^3/per year " 2,300.—

e)- **Direct Labor** (one shift operation)

4 - skilled workers	Fl./1.64/hr	"	15,400.—
24 - semi skilled "	Fl./1.47/hr	"	82,600.—
3 - unskilled "	Fl./1.13/hr	"	8,000.—
31 - in total		Fl.	106,000.—

f)- **Indirect Labor**

1 - Manager	"	20,400.—
1 - Foreman	"	9,300.—
1 - Maintenance mechanic	"	4,500.—
2 - Office	"	8,800.—
2 - Others	"	5,000.—
7 - in total	Fl.	48,000.—

g)- **Depreciation**

	Value /Fl	Year's life		Cost/year
Building	20,000.—	20	Fl.	1,000.—
Prod. Tools & Equip.	130,000.—	20	"	6,500.—
Other Tools & Equip.	10,300.—	10	"	1,030.—
Furniture & Fixtures	1,700.—	10	"	170.—
			Fl.	8,700.—

h)- **Manufacturing Overhead**

Depreciation	Fl.	8,700.—
Indirect Labor	"	48,000.—
Power & Light	"	7,900.—
Water	"	2,300.—
Supplies	"	6,500.—
Total	Fl.	73,400.—

i)- **Administrative Costs & Miscellaneous Expenses**

Bank interests	Fl.	10,000.—
Insurance	"	300.—
Legal & Auditing	"	7,500.—
Sales Commissions & discounts, debts	"	45,000.—
Unforseen expenses	"	25,000.—
5% interest on fixed capital during construction	"	7,800.—
Total	Fl.	95,600.—

SMALL CERAMIC SHOP (SOUVENIRS)

1) - To produce about 16,000 pieces/year, working one shift/day. This type of very small industry would represent the possibility of up-grading a handicraft production, in this case ceramics are being produced in Aruba and here in Curaçao; in the first place it is more like a hobby and the one here is developing into a trade school for boys with considerable success. In both cases it has developed around one man: the creative artist or handicrafter making small ceramic wares.

2) - If they could start a handicraft center run by a practical man experienced in handicraft organization and promotion, an artistic ceramics small industry would be a first-rate possibility, working under the center's guidance, maintaining as much as possible, typical handicraft appearance.

COST CALCULATIONS

3) - Fixed Capital

Land, about 100 mts/^{2}	Fl./	1,500.-
Building 6 x 9 mts/^{2} = 54 mts/^{2}	"	4,000.-
Production Tools & Equipment Principal items:- 2 small fire brick kilns, small metal kiln, molds, brushes, knives & spatulas, scrapers, sieves, sgraffito knives, stilts for kilns, 2 spray guns for glazing.	"	3,000.-
Other Tools & Equipment	Fl./	1,200.-
Furniture & Fixtures	"	700.-
Total Fixed Capital	Fl./	10,400.-

4) - Working Capital

Direct Materials, Direct Labor	Fl./	7,140.-
and Manufacturing overhead (all 60 days)		
Administrative Costs:- Including: Bank interest, Insurance, Legal & Audit, Unforseen Expenses, Interest (5%) on idle capital during installation, Selling costs (all 30 days)	"	1,050.-
Training of workers	"	1,300.-
Working Capital	Fl./	9,490.-

5) - Total Capital Requirements

Fixed Capital plus Working Capital	Fl./	19,890.-

6) - Recapitulation of Costs, Sales & Profits

Direct Materials	Fl./	4,600.-
Direct Labor	"	11,350.-
Manufacturing Overhead	"	14,750.-
Total Manufacturing Cost	Fl./	30,700.-
Administrative Costs	"	13,300.-
Total Cost of the Manufactured Product	Fl./	44,000.-
Gross Profits Before Taxes (a)		8,000.-
Estimated Sales Value of Production	Fl./	52,000.-

7) - This plant could mould buttons in series and give them individual variety by the hand coloring.

It could be an excellent producer of souvenirs for tourists.

(a) - It is assumed the industry will be tax free.

8) - To illustrate roughly how cost figures have been assembled, some further information is given here:

9) - Various Cost Figures

a) - Direct Materials — Fl./ 4,600.-
Slip-casting clay, Glazes of various types and colors, Decalcomanias, Glaze stains & underglaze stains, Overglazes, Plasters, Glue & quick drying cement, Benches and bins.

b) - Supplies — Fl./ 920.-
Hand Tools, Maintenance materials and repair parts & Office supplies, etc.

c) - Electric Power — Fl./ 1,440.-

d) - Fuel — " 190.-

e) - Water — " 300.-

f) - Direct Labor

Specialized worker	1 x Fl/1.92/hr.	Fl./	4,480.-
Semi-skilled "	2 x Fl/1.47/hr.	"	6,870.-
	3	Fl./	11,350.-

g) - Indirect Labor
Foreman-manager - In most cases he would be the owner, better if expert in ceramics. — Fl./ 11,400.-

h) -

Depreciation	Value Fl.	Year's Life	Cost/Year
Building	4,000.-	20	Fl./ 200.-
Prod. Tools & Equip.	3,000.-	20	150.-
Other Tools & Equip.	1,200.-	10	120.-
Furniture & Fixtures	700.-	10	70.-
Depreciation Cost/year			Fl./ 540.-

i) - Manufacturing Overhead
Depreciation, Indirect Labor Power & Light, Water, Fuel and Supplies. — Fl./14,790.-

ELECTRO PLATING

1) - This service industry has been suggested many times by different people and they all refer to the increasing number of automobiles in these islands and the need to recover their rusted parts which at present are simply replaced by new imported ones.

2) - This is another small productive activity that would be difficult to make it commercially productive if set up as an independent industry, for the cost of management and general overhead expenses would weigh too heavily on it, so we will figure it as a section of another industry with a minimum cost.

COST CALCULATIONS

Annual capacity in one shift/day Fl./80.000.- of Job Work.

3) - Fixed Capital

Land (free)		
Building (part free, the office will be that of the main industry)	Fl./	4,000.-
Production Tools & Equipment Bench grinders, pickling tanks, plating tanks, electric control panel, buffing machines, rinsing tank, work benches.	Fl./	10,000.-
Other Tools & Equipment	Fl./	1,600.-
Total Fixed Capital	Fl./	15,600.-

4) - **Working Capital**

60 days of Direct Materials, Direct Labor and Manufacturing Overhead.	Fl./	3,300.-
30 days of miscellaneous costs, contingencies etc.	Fl./	300.-
Total Working Capital	Fl./	3,600.-

5) - **Total Capital Requirements**

Fixed capital plus working capital	Fl./	19,200.—

6) - **Recapitulation of Costs, Sales & Profits**

Direct Materials	Fl./	4,700.-
Direct Labor		9,400.-
Manufacturing Overhead		5,700.-
Total Manufacturing Costs	Fl./	19,800.-
Administrative Costs (a)		3,600.-
Various other expenses		3,600.-
Total Yearly Cost	Fl./	27,000.-
Gross Profits before taxes (b)		10,000.-
Estimated Gross Income	Fl./	37,000.-

7) - To illustrate roughly how cost figures have been assembled, while eliminating some, further information is given here:

8) - **Various Cost Figures**

a) - **Direct Materials** Plating materials and chemicals etc.	Fl./	4,700.-
b) - **Supplies** Grinding & buffing wheels, Maintenance & Repair Parts	Fl./	1,250.-
c) - **Electric Power** For plating & general purpose	Fl./	1,350.-

(a) - Most carried by the mother industry.
(b) - It is assumed that it will be tax free.

d) - Fuel, for heating when necessary — Fl./ 500.-

e) - Water — 750.-

f) - Direct Labor
Foreman - Worker — Fl./ 6,000.-
Semi-skilled-worker Fl/1.47/hr. — 3,400.-
Fl./ 9,400.-

g) - Indirect Labor — 500.-
Contribution to Management mainly would be carried on by the mother industry.

h) - Depreciation	Value Fl.	Year's Life	Cost/year	
Building (part free)	4,000.-	20	Fl./	200.-
Production Tools & Equipment	10,000.-	10		1,000.-
Other Tools & Equipment	1,600.-	10		160.-
		Total	Fl./	1,360.-

i) - Manufacturing Overhead — Fl./ 5,700.-
Depreciation, Indirect Labor, Power & Light, Fuel, Water and Supplies.

FISH DRYING & SALTING

1) - This is the type of industry that could be developed in the island of St. Martin, in combination with the present fishing industry, to take advantage of seasonal excesses of fish catches, and of that part of the normal catch that does not come up to export standards as fresh fish to transform them into valuable dried fish etc. The bigger islands Aruba, Bonaire and Curacao are, according to experts reports, already overfished, so that no dried fish plants could be installed there as there would be normally no excess fish to dry.

2) - Assuming that there is great abundance of fish(as to all outward appearance there is) and of very good quality, it would be profitable to put up a plant for drying and salting in an industrial way, buying all the fish that fishermen could deliver at reasonable prices. This would be the complement of the freezing and filleting that is already being done, mainly for export of the higher quality fishes.

3) - Drying and salting has a small local permanent market as well as for export to neighbouring countries, where the masses of the people find it a convenient food, as this type of fish is always at their disposal without danger of spoiling.

4) - Indications are that the demand for this product, both at home and abroad, will increase as standards of living improve all round the Caribbean, and consequently a better type of nutrition is required.

The dried and salted fish will be the ideal solution for many years to come for the lower income families with no refrigerator at home.

5) - This kind of centralized medium size plant of 300/tons per year would permit also to deliver to the fish meal plant nearby all the fish wastes for industrialization, adding an extra income to the fisherman and the industry.

6) - Fish drying and salting should be a complement of fish freezing and filleting plant for export, which would carry the burden of the general overhead expenses and have both the "Drying and Salting Plant" and the "Fish Meal Plant" as complements, where the excess fish would go for salting and the waste to the fish meal. This would give the industry the security that no fish or fish waste would be lost, for any price obtained from the excedents and wastes would be, in a big percentage, an added profit.

7) - So this plant would work as part of the general fish industrializing plant and would therefore have the same manager (without charge) and the rest of the "Indirect Labor" would be charged to it part time and for the same reason the unskilled workers will be reduced from 19 to 12. For transportation no special truck would be charged.

8) - It is assumed that it will have a maximum capacity to process 500 tons of raw fish/year, with a final production of 300 tons of dried and salted fish. Of the rest, about 120 tons would be recovered as fish waste, that would be sold if possible to a Fish Meal Plant at about Fl. 0,12/kilo.

9) - This industry would, in part, replace fish imports and on the other hand, considering the population explosion and the gradual improvements in the standard of living of the masses, the demand for better foodstuffs will grow and grow year after year. So, although the production may now seem excessive, the future demand, not very many years from now, will make it a need.

10)- CAPITAL INVESTMENT & COST CALCULATIONS

Production Tools and Equipment

Drying ovens, Drying trays, Racks, Cleaning tanks, Cleaning tables, Brine tanks, Packing tables, Hand trucks, Monorail conveyor, Scales.

Imported Equipment etc.	Fl. 45,600.—
Equipment locally made	" 28,500.—
Total	Fl. 74,100.—

Other Tools & Equipment	Fl. 8,990.—
Furniture and Fixtures	Fl. 600.—

DIRECT LABOR

Description	Number	Hourly Rate	Estimated Annual Cost
Operators skilled	3	1.64	Fl. 11,510.—
" semi-skilled	3	1.47	" 10,320.—
Unskilled workers	12	1.13	" 31,730.—
Total	18		Fl. 53,560.—

INDIRECT LABOR

		Estimated Annual Cost
Manager - No extra salary as he is the General Manager of the Fish Industrialization plant		
Foreman (part time)	1	Fl. 5,700.—
Bookkeeper (part time)	1	" 1,500.—
Secretary (part time)	1	" 1,200.—
	3 (part time)	Fl. 8,400.—

SUPPLIES

Items		Estimated Annual Cost
	Total	Fl. 2,800.—

Oil and grease, Factory Maintenance and Repairs,

Office Supplies

PLANT SITE

Land - about 2,000 mts^2 Fl. 2,000.—

BUILDINGS

One-story shed - 30 x 30 mts = 900 mts^2 with concrete floor

Fl. 45,000.—

With 12 x 12 mts. = 144 mts^2	Refrigerator =	Fl. 25,000.—
	Buildings=	Fl. 70,000.—

POWER

Connected from the fish filleting plant	Fl. 1,200.—

WATER

	Fl. 1,500.—

FUEL

	Fl. 15,000.—

DIRECT MATERIALS

Raw Fish	500 tons at Fl. 300 /t...	Fl. 150,000.—
salt, sugar etc and packaging		" 14,600.—
	Total	Fl. 164,600.—

DEPRECIATION

Building, Production tools and equipment, Other tools and equipment, Furniture and Fixtures.

	Total	Fl. 8,160.—

MANUFACTURING OVERHEAD

Item	
Depreciation, Indirect Labor, Power, Water, Fuel, and Supplies.	
Total	Fl. 37,000.—

11) - CAPITAL REQUIREMENTS

Fixed Assets

Land	Fl. 2,000.—
Building	Fl. 70,000.—
Production Tools and Equipment	Fl. 45,600.—
Other Tools and Equipment	Fl. 8,990.—
Furniture and Fixtures	Fl. 600.—
Total Fixed assets	Fl. 127,190.—

Working Capital

Direct Materials	30 days	Fl. 13,720.—
Direct Labor	30 days	" 4,460.—
Manufacturing overhead	30 days	" 3,080.—
Various		" 20,000.—
	Total	Fl. 41,260.—

12) - CAPITAL REQUIREMENTS

Fixed Assets	Fl.	127,190.—
Working Capital	"	41,260.—
Total Capital	Fl.	168,450.—

13) - RECAPITULATION OF COSTS, SALES AND PROFITS

	Estimated	
Direct Material	Fl.	164,600.—
Direct Labor	"	53,560.—
Manufacturing Overhead	"	37,000.—
Total Manufacturing Costs	Fl.	255,160.—

Interest on Loans, Insurance, Legal, Auditing, Unforeseen Expense 5% interest on fixed assets - one year construction and start written off in 4 years, Sales commissions, etc.

Total Administrative Costs	Fl.	24,000.—
Total Annual Cost of Production	Fl.	279,160.—
Deduction: - 120 tons of fish waste delivered to the Fish Meal Plant at Fl. 0,12/kl0	Fl.	14,400.—
Net Cost of Production	Fl.	264,760.—
Profit before taxes (21,5 on total capital)	Fl.	35,240.—
Estimated Annual Gross Sales of 300 tons of dried and salted fish at an average of Fl. 1,— per kilo	Fl.	300,000.—

WORK GLOVES

1) - This is the type of very small industry that because of the tiny local market could not by itself defray costs, so as to make it commercially feasible, but it could be attacked, as we might say as a side line to a clothing industry. Here CARIBES in Bonaire would be the right combination, because they are working only one 8-hour shift per day and are behind in their deliveries.
With an added production such as work gloves, it would probably be profitable to start a second 8-hour shift per day, duplicating the use of the factory, with the consequent increase of profits, since at present the whole value of the plant investment is lost two thirds of the time.

2) - Done as indicated above, the plant and buildings would be the same, there would be little new investment in "Production Tools & Equipment", and also a very small amount in "Other Tools & Equipment". Following these lines, our calculations are given below.

3) - COST CALCULATIONS

For a production of 40,000 pairs of work gloves per year in one 8-hour shift per day, in a clothing (shirts etc.) factory already installed that is working only one eight hour shift per day, part of the work would need to be done in a second 8-hour shift per day, to increase in the one hand the normal production of their present articles, plus the work gloves. Consequently some of these articles could be profitably produced.

4) - FIXED CAPITAL

Land (same)	Fl.	———
Building (same)	"	———
Production Tools & Equipment	"	600.—
Other Tools & Equipment	"	150.—
Furniture & Fixtures etc. (same)	"	———
Total (Extra) Fixed Capital	Fl.	750.—

5) - WORKING CAPITAL

Direct materials, Direct Labor		
Mfg. Overhead (60 days)	Fl.	958.—
Administrative costs, sales costs (30 days)	"	100.—
Training costs	"	500.—
Total Working Capital	Fl.	1,558.—

6) - TOTAL CAPITAL REQUIREMENTS

(Fixed plus Working Capital)	Fl.	2,308,—

7) - RECAPITULATION OF COSTS, SALES & PROFITS

Direct Materials	Fl.	4,300.—
Direct Labor	"	6,410.—
Manufacturing Overhead	"	1,200.—
Total Manufacturing Costs	Fl.	11,910.—
Administrative Costs	"	1,200.—
Total Cost of the manufactured Product	Fl.	13,110.—

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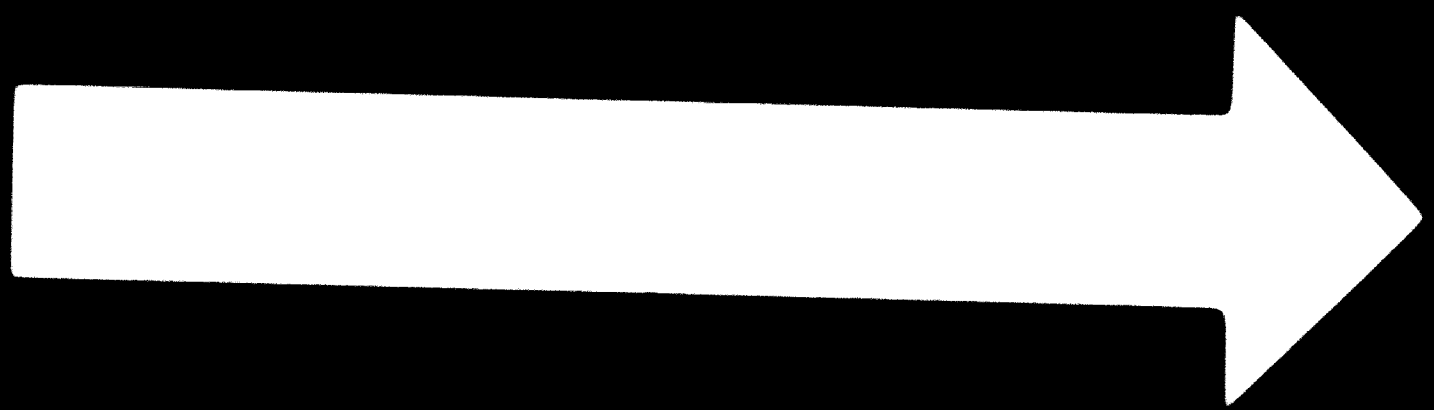

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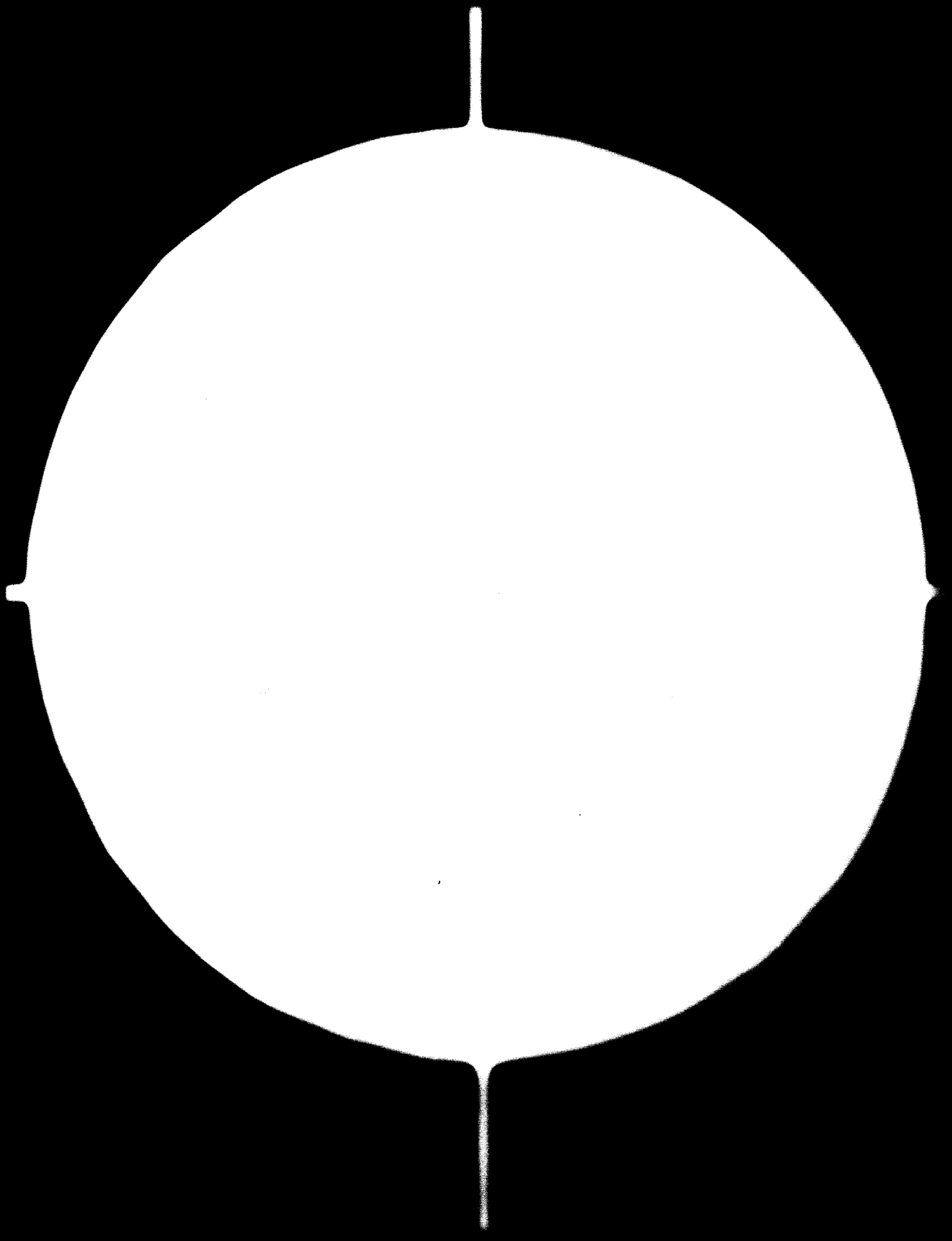

Total Cost of the Manufactured Product	Fl.	13,110.-
Gross Profit Before Taxes (a)	"	3,000.—
Estimated Sales Value of Production	Fl.	16,110.—

8) - To illustrate roughly how cost figures have been assembled, some further information is given here.

9) - VARIOUS COST FIGURES

a)- Direct Materials — Fl. 4,300.—
Canvas, knit wrists, etc.

b)- Supplies — " 150.—
Lubricants and tools, maintenance and Repair Parts, Office supplies

c)- Electric Power & Light — " 90.—

d)- Direct Labor

			Fl/year
Skilled worker (women)	1	Fl/1.72/hour	2,480.—
Semi-skilled " (women)	2	Fl/0,84/ "	3,930.—
	3		Fl. 6,410.—

e)- Indirect Labor
Contribution to Management — 500.—

f)- Depreciation:

	Value Fl	Years life	Cost/year
Prod. Tools & Equipment	600.—	20	Fl. 30.—
Other Tools & Equipment	150.—	10	15.—
			Fl. 45.—

g)- Manufacturing Overhead — Fl. 785.—
Depreciation, Indirect Labor, Power, Light and supplies.

(a) - It is assumed the industry will be tax free.

10 - Something like this would be an ideal set up for some other productive activities which, being too small in volume (as it is usually the case here) could not pay their way as independent industries, not even in an "Industrial Park", as, even if they had there the plant building free, the cost of a separate management and the overhead expense would weigh too heavily to let it make a profit.
Consequently, my advice is: combine similar small productive activities under one roof and one management so that in their aggregate they will have enough volume of commercial production to make a profit, with the added benefit that diversity of products will assure a more steady activity.

11 - This production may seem (and it is) insignificant, and the profit of only Fl. 3,000.-/year, to say the least, unattractive, but this insignificant internal activity would, if attached to a bigger, already established industry, give work for three (3) people that may now be unemployed living on relief and/or with the assistance of relatives. To my way of thinking, as things are here now, any sacrifice is worthy, even if just to get one single new job for an unemployed Antillean by replacing imports with local production.

LADIES LEATHER HANDBAGS AND SPECIALITIES

1) - This would be a small industry producing something like "curio-shop" leather articles, with the imprint of local color, for the tourist trade, substituting some imports. At the beginning imported leather would be used, which would be gradually substituted by the production from a local small goat-skin tannery. If such a small industry like this prospers, it would undoubtedly give rise to a market for improved local goat-skin leather.

2) - Annual production would be about 3,000 ladies leather handbags and some 7,500 miscellaneous small leather articles, (working one 8-hour shift per day).

3) - COST CALCULATIONS

Fixed Capital	
Land, about 100 mts/^{2}	Fl. 2,000.-
Building - 55 mts/^{2}	" 5,500.-
Prod. Tools and Equipment	" 3,500.-
Cutting table, serving machines, hand punch, line roller, skiver, hand splitter.	
Other Tools and Equipment	" 700.-
Furniture, fixtures etc.	" 500.-
Total Fixed Capital	Fl. 12,200.-

4) - WORKING CAPITAL

60 days of Direct Materials Direct Labour and Mfg. Overhead	Fl. 12,440.-
30 days of Administrative and Miscellaneous Expenses	" 760.-
Total Working Capital	Fl. 13,200.-

5) - **TOTAL CAPITAL REQUIREMENTS** Fl. 25,400.—
(Fixed Capital plus Working Capital)

6) - **RECAPITULATION OF COSTS, SALES & PROFITS**

Direct Materials	Fl.	46,000.—
Direct Labor	"	10,250.—
Manufacturing Overhead	"	18,370.—
Total Manufacturing Cost	Fl.	74,620.—
Administrative and Miscellaneous Expenses	"	9,200.—
Total Yearly Cost	Fl.	83,820.—
Gross Profits Before Taxes (a)	"	10,180.—
Estimated Annual Sales Revenue	Fl.	94,000.—

7) - The fundamental problem to start this small industry would be to get some outside expert to teach the trade of fine leather articles. Local people, no doubt, would readily learn, but they would need advice and training from a practical experienced person for the making of quality leather articles.

8) - To illustrate roughly how cost figures have been assembled, further information is given here:

9) - **VARIOUS COST FIGURES**

a) - Direct Materials Leather, Lining & Tread Metal Ornaments.	Fl.	46,000.—
b) - Supplies Hand Tools, maintenance and repair parts, office supplies.	"	1,000.—

(a) It is assumed that it will be tax free.

e) - Power & Light — Fl. 600.—

d) - Water — " 200.—

e) - Direct Labor

1 - man skilled worker	Fl/1.64	"	3,840.—
1 - woman " "	Fl/1.06	"	2,480.—
2 - women semi-skilled	Fl/0.84	"	3,930.—
4 -	Total	Fl.	10,250.—

f) - Indirect Labor

1 - Expert foreman, manager — Fl. 16,000.—

g) - Depreciation	Value Fl.	Year's life	Cost/year
Building	5,500.—	20	275.—
Prod. Tools & Equip	3,500.—	20	175.—
Other Tools & Equip.	700.—	10	70.—
Furniture & Fixtures	500.—	10	50.—
	Total		Fl. 570.—

h) - Manufacturing Overhead

Depreciation, Indirect Labor
Power & Light, Water and Supplies — Fl. 18,370.—

LEATHER TANNING

1) - A modern tannery is a highly technical and mechanized industry, that requires a considerable volume of production to be commercial. Yet smaller, less mechanized plants are working everywhere, and in many places hides and skins from local abattoires are tanned with relative success in very small modest, primitive installations, without machinery and only vats, knives and some finishing mechanical elements when warranted. In many small countries, where volume of production is low, it is a question of either throwing away the goat skins or receiving a low price for them, so as to induce the installation of a small tannery that would take advantage of their low cost, as should be done in this country.

2) - Here about 15,000 goat skins are thrown away every year into the sea by the slaughter house, as there is no export market for them as raw skins.

3) - Recently at the Retraining Center, the beginning of a small primitive tannery has been at work on goat skins, rather on an experimental basis, and is gradually improving.

4) - The following tannery estimate is based on I.C.A., United States Government studies adapted to local conditions as follows:

- Small Leather, Hand-Operated Tannery with a capacity of some 20,000 goat skins per year, working one 8 hr, shift/day.

Production Tools & Equipment	Estimated Total Installed Cost
Vats, tanning drums, hand tools and imported mechanical elements	Total Fl. 44,400.—
Other Tools & Equipment	Fl. 650.—
Furniture & Fixtures etc.	350.—

DIRECT LABOR

Description	Number	Hourly Rate	Estimated Annual Cost Fl.
Operators skilled	3	Fl. 1.92	13,480.—
Unskilled worker	1	1.13	2,640.—
	4		Fl. 16,120.—

Indirect Labor

Working Manager or Owner, the Technical Man.	Fl. 20,340.—
Employee	3,400.—
	Fl. 23,740.—

Supplies

Chemicals, hand tools and Office supplies	Fl. 6,250.—

Plant Site & Building (to be rented)

700 mts/^{2} of simple shed with concrete floor, plus 300 mts/^{2} of open space.	(Fl. 3,500.—) per month.

Direct Material

20,000 goat skins, which at present are worthless, will be estimated at Fl/0.50 each. At present some of the best are bought at half that price. Fl. 10,000.—

Power & Water - Estimated at Fl. 4,500.—

Depreciation: on Production Tools & Equipment, other Tools, Equipment & Furniture & Fixtures. Fl. 2,270.—

Manufacturing Overhead

Depreciation, Indirect labor, Power, Water, Supplies and Building rent Fl. 42,260.—

5) - **CAPITAL REQUIREMENTS**

Fixed Assets

Land (rented)	
Building (rented)	
Production Tools and Equipment	Fl. 44,400.—
Other Tools & Equipment	650.—
Furniture & Fixtures	350.—
Total Fixed Assets	Fl. 45,400.—

Working Capital

Direct Materials - 30 days	Fl. 850.—
Direct Labor - 30 days	1,350.—
Manufacturing overhead - 30 days	3,500.—
Various	5,000.—
Total	Fl. 10,700.—

6) - CAPITAL REQUIREMENTS

Fixed Assets	Fl.	45,400.—
Working Capital		10,700.—
TOTAL CAPITAL REQUIREMENTS	Fl.	56,100.—

7) - RECAPITULATION OF COSTS, SALES AND PROFITS

Direct Material	Fl.	10,000.—
Direct Labor		16,120.—
Manufacturing Overhead		42,260.—
Total Manufacturing Costs	Fl.	68,380.—
Interest on Loans, Insurance, Legal & Auditing, Unforeseen Expense 10% interest on fixed assets - one year construction written off in 4 years		
Sales commissions etc.	Fl.	24,120.—
Total Annual Cost	Fl.	92,500.—
Profit before taxes (a) on total Capital Requirements (31.-%).	Fl.	17,500.—
Estimated, Annual Gross Average Sales, Valued at	Fl.	110,000.—

(a) - It is assumed that the industry will be tax free.

8) - [redacted]

Makers of some special types of leather footwear, luggage, purses, rugs, carpets, garments and fancy souvenir articles etc.

Sales are made mostly direct to user industries, but also sometimes to wholesalers.

SILK SCREEN PRINTING OF TEXTILES

1) - Silk screen printing of textiles would be both a local and an export industry specially suited for Netherlands Antilles. It is true that there would be at present little local market for its products, which are hand-made, higher priced than the usual run of machine-made printed textiles, and rather exclusive.

2) - This industry has very peculiar characteristics as the printing would be practically done to order, on imported cloth, for agreed designs and colours, and for limited runs of even a few hundred yards, for third parties.

3) - Months ahead of the season, the management selects from thousands of sample designs sold by specialists from all over the world, according to fashion trends, those prints that they will present to their customers to produce, in most cases, for them exclusively. This shows why it would preferably have to be developed in combination with foreign textile firms having their own print goods market, but desiring to extend that market into the hand made printing field, and to expand it, taking advantage in this case of the local lower wages and the Government tax holiday and other inducements given here.

4) - So this is no job for the local entrepreneur alone, who would not have in the beginning a permanently assured market, local or foreign, for his production and could not waste time and money trying to create overnight a foreign clientele in an unknown country.

In the future, when a local clothing industry develops it would have there a market in cloth printed with local motives for tourists' clothing.

5) - This plant has an estimated capacity of about 250,000 to 300,000 yards of printings per year, working one 8 hour shift per day, 250 days per year. Variations of volume depend on the number of colours printed, in accordance with orders. In most countries the silk screen printing shop works three (3) shifts a day, increasing production almost three times (as the night shifts are usually not as productive).

6) - This would be an ideal employment for local boys as the work is clean and easy to learn and needs semi-skilled, healthy young men. If the first plant is successful, it would undoubtedly attract others and this could become an important activity giving work to many people.

7) - It is assumed that the industry would be accorded the maximum legal inducements: Tax Holiday etc., including the duty-free import of the raw materials, mainly the bolts of cloth - most of which will be re-exported once they are printed.

8) - These figures are based on U. S. A. Government I. C. A. study, adapted to the local costs and wage standards, as follows:

9) - It is a type of industry which will always fill a definite niche for the following reasons:

a) - It makes possible the production of a wide variety of designs and patterns at low cost.

b) - It requires the minimum of equipment of the simplest character.

c) - With the exception of the preparation of the screens and colors, it requires only semi-skilled labor.

d) - The product is usually quite saleable since the designation "Hand Made" always serves to attract a certain segment of the market to which "machine made" products would not appeal.

e) - It is ideal for the repetitive production in small lots of items of special designs which would otherwise be impracticable to attain.

f) - Although it is a type of industry unsuited to large-scale production, it is admirably suited for an advanced type of "cottage" operation, requiring a small force, inasmuch as in one day a few people can print either a great many yards of fabric or a great number of individual pieces.

10) - GENERAL ASSUMPTIONS

Silk-screen printing varies in complexity from a simple operation to a highly scientific art. If confined to the use of pigmented dyes, a satisfactory product can be produced for cottage industry with a minimum of equipment and without the need of highly trained and skilled color chemists and special equipment for dye setting and aging.

It is basically a service industry since no product is produced; instead printing is done to supply the needs of other manufacturers for decoration of their products.

11) - One thousand to twelve hundred yards of material can be printed on five tables by six printers in one eight-hour shift. In view of these facts, to be realistic in determining the needs of the industry, the following assumptions are made:

a) - Pigmented dyes will be used to avoid complex equipment and highly skilled personnel.

b) - It will be a service industry, receiving the imported cloth from abroad for printing and returning the prints, finished, to the original country.

c) - A small plant will suffice for necessary production, employing approximately nine people. (Volume can be increased by adding tables, and/or by working two (2) or three (3) shifts per day as it is done all over the world).

d) - Labor costs are average for semi-skilled labor.

e) - Material costs are quoted prices in the United States plus 15% to cover freight and various extra expenses etc.

f) - Process water and power for lighting are available.

g) - Cost estimates are for single shift operation, fifty weeks per year.

h) - All cost items are estimated on the basis of costs in the United States adjusted to local conditions in H.A.

12) - EQUIPMENT

The equipment required for silk screen printing on textiles for a relatively small volume of production, as contemplated in this study, is not available on the open market and must be built. Since it consists primarily of printing tables, screen frames, drying racks and storage racks for screens and bolt materials, it can be built easily by carpenters. The printing tables will be about 50 yards long.

13) - It might be considered desirable to install additional equipment to permit printing of small pieces of fabric, such as handkerchiefs, towels, sections of shirts or dresses, flags, etc., but this is already being done in Aruba, so it should not be considered here in order not to interfere with the market that that firm has already created.

14) - PRODUCTION CAPACITY

The equipment here described would produce between 1,000 yards and 1,200 yards per eight hour shift, would print 250,000 to 300,000 yards/year.

15) - COST OF MATERIAL

Direct material costs cannot be fixed, as the fabric is usually supplied by the customer and returned printed to him. The material cost is that of the dyes, which vary from $ 1.76 per pound to over $ 10.00 per pound, depending on the particular color and type of

dye. It is therefore impossible to fix the cost per yard for direct material. For purposes of estimating here, it is assumed that dye costs will amount to about Fl. 6,000,— plus 15 % to cover freight and other expenses, that is Fl. 6,900,—/year.

16) - PLANT SITE

The site should be away from city dirt and include about 2,300 mts/^{2} with an estimated cost of Fl. 16,000,—.

17) - BUILDING

A building 18 mts x 65 mts is required to accommodate 5 tables, office, color laboratory, silk screen room, material and silk screen storage, with concrete floor and about 4.30 meters of head room for adequate ventilation. Floor area 1.170 mts/^{2} which, at fl. 80,— per square meter, would cost Fl. 93,600,—.

18) - POWER

The only power requirement is for lighting, estimated at Fl. 1,000,— per year.

19) - WATER

Water cost is estimated at Fl. 1,500/year.

20) - FUEL

Fuel requirements for the heating of the oven are estimated at Fl. 1,200,—.

21) - DIRECT LABOR

Description	Number	Hourly Rate	Estimated Annual Cost
Printers	6	Fl. 1.47	Fl. 20,600.—
Screen maker	1	1.92	4,500.—
Helper and sweeper	2	1.13	5,300.—
Total	9		Fl. 30,400.—

22) - INDIRECT LABOR

Manager	1	Fl. 20,300.—
Foreman (color chemist)	1	12,000.—
Bookkeeper	1	5,400.—
Receiving and shipping	1	3,400.—
Total	4	Fl. 41,100.—

Note: In the United States, the manager is usually the owner

23) - PRODUCTION TOOL AND EQUIPMENT

Description	Number
° Printing Tables	5
° Drying racks	5
° Storage rack (screens)	1
° Storage racks (bolt material)	1

# Hand truck	1
# Light table	1
# Drafting board	1
° Squeegees	15
° Laboratory bench	1
# Dye containers	
# Drying oven and boiler	1

Total cost installed Fl. 35,000.—.

Imported

° Locally made from wood.

24) - FURNITURE AND FITTINGS ETC. - Fl. 1,500,—

25) - SUPPLIES

Description

Screen lumber per screen, Acetate sheet, Silk bolting cloth, Angle irons, Flat angles, Screw eyes, Lacquer, Cloth tape.

Total - Fl. 4,500,—

26) - DEPRECIATION

Item	Estimated Cost	Average Years Life	Estimated per year
Building	93,600,—	20	Fl. 4,680,—

Production tools and equipment	35,000,—	15	Fl. 2,370,—
Furniture and Fixtures	1,500,—	10	150,—
Total			Fl. 7,200,—

27) - MANUFACTURING OVERHEAD - Fl. 56,500,—

Depreciation, Indirect labor, Power, Water, Fuel, and Supplies.

28) - MANUFACTURING COST

Item	Estimated Cost
Direct Labor	Fl. 30,400,—
Direct Materials	" 6,900,—
Manufacturing Overhead	" 56,500,—
Total	Fl. 93,800,—

29) - CAPITAL REQUIREMENTS
FIXED ASSET

	Estimated Cost
Land	Fl. 10,000,—
Building	" 93,600,—
Production tools and equipment	" 35,000,—
Furniture and Fixtures	" 1,500,—
Total	Fl. 140,100,—

30) - WORKING CAPITAL

	Estimated Cost
Direct materials - 60 days	Fl. 1,200,—
Direct Labor - 30 days	" 2,500,—
Manufacturing overhead - 30 days	" 4,700,—
Various	" 5,000,—
Total	Fl. 13,400,—

31) - CAPITAL REQUIREMENTS

	Estimated Cost
Fixed Assets	Fl.146,100,—
Working Capital	" 13,400,—
Total Capital Requirements	Fl.159,500,—

32) - SALES REVENUE

The annual production would amount to 300,000 yards. Estimating the average printing charge per yard to be Fl. 0,65, the annual gross revenue would be Fl. 195,000,— From it would have to be deducted the cost of incoming sea freight of the bolts of raw cloth from abroad, and the returning freight of the printed cloth.

33) - RECAPITULATION OF COSTS, SALES AND PROFITS

	Estimated Cost
Direct Materials	Fl. 6,000,—
Direct Labor	30,400,—
Manufacturing overhead	56,500,—
Total manufacturing cost	Fl. 93,800,—

Interest on loans, Insurance, Legal, Auditing, Unforeseen expenses, bad work etc. and interest on capital requirements = 5 % on Fl. 146,100 during one year of construction and work initiation, written off **yearly within a period of** 4 years.

Total administrative cost	Fl. 35,000,—
Total cost of production	Fl. 128,800,—
Gross profit before taxes (x)	66,200,—
Total annual gross sales	Fl. 195,000,—

(x) = Must deduct cost of incoming freight (set) of cloth from abroad and the returning freight of the printed goods.

This would be the type of industry that a "Development Corporation" could well sponsor, combining local and foreign capital. Most important would be to secure the foreign contacts through the Corporation's "Foreign Commerce Department", so that a foreign export market could be opened which, if obtained, would assure a definite success for the industry.

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