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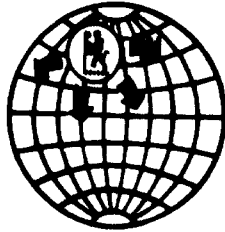
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INDUSTRIAL OPPORTUNITY SURVEY

CYPRUS

prepared for

THE GOVERNMENT OF THE REPUBLIC OF CYPRUS

on behalf of

THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION

by

L. H. MANDERSTAM AND PARTNERS LIMITED

Consulting Engineers
38 GROSVENOR GARDENS
LONDON, S.W.1

GENEVA

BRUSSELS

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419 A

FINAL REPORT

STAGE I

INDUSTRIAL OPPORTUNITY SURVEY

CYPRUS

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C/F
S/F

INDUSTRIAL SURVEY

prepared for

P. 152

THE GOVERNMENT OF THE REPUBLIC OF CYPRUS

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THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION

by

L.H. MANDERSTAM AND PARTNERS LTD

CONSULTING ENGINEERS

LONDON

JUNE 1976

L. H. Manderstam and Partners Limited have the honour to submit their report entitled "Industrial Opportunity Survey - Stage 1" prepared for the Government of the Republic of Cyprus, on behalf of the United Nations Industrial Development Organisation, under Contract No. 75/20 (Project No. IS/CYP/74/010).

The terms of reference of the study are set out in Appendix I.

The study concentrates on the identification of major areas of potential development in manufacturing, particularly those offering encouraging export prospects, at the same time investigating problems appertaining to the reactivation of industry in the Government controlled area under the Emergency Plan.

A team of four specialists visited the Government controlled area of Cyprus from July 10 to August 23, 1975, and held discussions with many Government departments and institutions, industrial and commercial concerns, and a number of sponsors of potential new industrial projects.

Visits were also paid to several manufacturing units within various categories of activity, under the guidance of the Ministry of Commerce and Industry. The visits covered the Nicosia, Limassol and Larnaca areas, as well as selected locations in the mid-western part of the Island and the Paphos Area.

A number of counterparts from the Ministry of Commerce and Industry was assigned to the Team which received the full cooperation of the various sections of that Ministry, including the UNIDO Industrial Extension Services.

The Team would like to acknowledge in particular the most helpful assistance given by the Ministry of Commerce and Industry, the Ministry of Agriculture and Natural Resources, the Ministry of Finance, the Planning Bureau, the Cooperative Movement and all organisations and individuals visited in Cyprus.

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	
SUMMARY AND CONCLUSIONS	i-vi
SYMBOLS AND ABBREVIATIONS	

CHAPTER I

THE PRESENT SITUATION OF THE MANUFACTURING SECTOR: GENERAL COMMENTS

I.1	General Trends	1
I.2	Analysis by Industrial Category	18

CHAPTER II

INDUSTRIAL OPPORTUNITIES

II.1	<u>Food Processing</u>	
	II.1.1 Background	36
	II.1.2 Agricultural Development Programme	41
	II.1.3 Export Markets	49
	II.1.4 Suggested Manufacturing Activities	
	II.1.4.1 Animal Products	64
	II.1.4.2 Fish Products	70
	II.1.4.3 Frozen Food Products	71
	II.1.4.4 Canning	73
	II.1.4.5 Dehydrated Products	75
	II.1.4.6 Vegetable Oils and Fats	78
II.2	<u>Textiles and Garments</u>	82
II.3	<u>Furniture</u>	98
II.4	<u>Chemicals</u>	
	II.4.1 Copper Sulphate	104
	II.4.2 Sodium Bichromate	109
II.5	<u>Non-Metallic Mineral Products</u>	
	II.5.1 Asbestos Products	113
	II.5.2 Gypsum Products	116
	II.5.3 Mineral Pigments	119
	II.5.4 Ceramic Products	123
II.6	<u>Metal Products - Machinery and Equipment</u>	127
II.7	<u>Plastic Products</u>	133

CHAPTER III

FACTORS INFLUENCING THE DEVELOPMENT OF
THE MANUFACTURING INDUSTRY

III.1	The Emergency Economic Action Plan (1975-1976)	140
III.2	The Government Guarantee Scheme	141
III.3	Investment Promotion and Tax Incentives	142
III.4	Free Zones	143
III.5	Industrial Estates	143
III.6	Industrial Extension Service	144
III.7	Standards and Quality Control	144
III.8	The Agricultural Research Institute	144
III.9	Geographical Advantages of Cyprus	144
III.10	The Cyprus Cooperative Movement	147
III.11	Export Promotion	148
III.12	Export Marketing Strategy	149
<u>APPENDIX I</u>	Terms of Reference	150
<u>APPENDIX II</u>	List of Main References	151

MAPS

LIST OF TABLES

<u>Table No</u>	<u>Title</u>	<u>Page No</u>
1	Industrial Origin of the Gross Domestic Product (1967-1974)	3
2	Manufacturing Activity in Cyprus	4
3	Employment, Gross Output, Value Added and Capital Formation of the Manufacturing Sector for 1974	6
4	Gross Domestic Fixed Capital Formation by Sector of Economy (1963-1974)	11
5	Gross Domestic Fixed Capital Formation by Sector of Economy and Type of Capital Asset (1967-1974)	12
6	Cyprus Domestic Exports (FOB) 1972- May 1975 (Principal Commodities)	14
7	Cyprus Domestic Exports 1972-May 1975 (Principal Countries)	15
8	% Domestic Exports (FOB) 1973-May 1975	16
9	Foreign Trade (1970-1974)	17
10	Selected Manufacturing Activities (1972-1974)	19
11	Sales of Principal Vine Products and Beer (1973-1974)	21
12	Export Market Purchases of Wine and Commandaria, Bottled and in Bulk (1973-May 1975)	23
13	Imports of Wine of Fresh Grapes into Certain Countries	24
14	Cyprus Trade in Footwear (1969-May 1975)	26
15	Export Trade in Footwear: Principal Markets (1973-May 1975)	29
16/17	Imports of Footwear into Certain Countries	30/31
18	Agricultural Average Annual Growth Rate (1960-1973)	36

<u>Table No.</u>		<u>Page No.</u>
19	Agricultural Output and Input (1969-1973)	37
20	Agricultural Production 1974	39
21	Food and Beverage Manufacturing Production, Value Added, Export and Employment (1972-76)	40
22	Paphos-Present Cropping Pattern and Output	43
23	Paphos-Future Cropping Pattern and Output Irrigated Area	44
24	Average Income from Vegetables-Open Land and Greenhouses	44
25	Land Utilisation in the Paphos Irrigation Project Area	44
26	"Hot" House and Open Land Cultivation Vegetable Yields	45
27	Crop Yields Achievable on Irrigated Open Land	45
28	Production of Principal Agricultural Products 1974	47
29	Production of Principal Agricultural Products (1971-1973)	48
30	Cyprus Domestic Exports (1973-1975) - Principal Product Sectors	54
31	Exports of Principal Processed Foods and Beverages (1973-May 1975)	55
32	Imports of Fresh/Frozen Pork Meat into Certain Countries	56
33	Imports of Pig Meat (Salted, Smoked, etc) into Certain Countries	57
34	Imports of Sausages into Certain Countries	58
35	Imports of Canned Meat (nes) into Certain Countries	59
36	Imports of Frozen Vegetables into Certain Countries	60
37	Imports of Processed Vegetables (canned) into Certain Countries	61

<u>Table No.</u>		<u>Page No.</u>
38	Imports of Vegetables in Temporary Preservative into Certain Countries	62
39	Imports of Dehydrated Vegetables into Certain Countries	63
40	Quantity/Value of Domestic Exports of Textiles and Clothing (1972/1973)	91
41	Value of Domestic Exports of Textiles and Clothing (1974/75)	93
42	Imports of Mens' and Boys' Outerwear (not Knitted or Crocheted) into Certain Countries	94
43	Imports of Women's and Girl's Outerwear (not Knitted or Crocheted) into Certain Countries	95
44	Imports of Clothing and Accessories (not knitted) into Selected Countries	96
45	Imports of Knitted Clothing and Accessories into Certain Countries	97
46/48	Imports of Furniture into Some Countries	101/103
47	Imports of Chairs and Parts into Some Countries	102
49	Production and Consumption of Copper Sulphate in 1972 in Selected Countries	105
50	Prices of Copper Sulphate	106
51	Main Specifications of Chromite Ore	109
52	Analyses of Cyprus Chromite (% weight)	110
53	Exports of Chromite Ore from Cyprus	110
54	Exports of Asbestos	113
55	Analyses of Cyprus Gypsums (% weight)	116
56	Exports of Raw Gypsum	117
57	Exports of Mineral Pigments	120
58	Imports of Porcelain and China Houseware into Selected Countries	125
59	Imports of Coarse Ceramic Houseware into Selected Countries	126
60	Indicative Freight Rates to Libya	145
61	Indicative Freight Rates to N.W.Europe	146
62	Indicative Freight Rates to Kuwait	146

INTRODUCTION

L. H. Manderstam and Partners Ltd. were entrusted by UNIDO with the carrying out of the present study on the reactivation of the manufacturing sector in the Government controlled area of Cyprus.

The main objects of the study relate to the identification of areas of potential growth, with special reference to the development of export-oriented industries, taking into account the present situation which has arisen from the Turkish invasion of the northern part of the Island.

The report comprises three parts: Chapter I explores in general terms the problems and features inherent in the manufacturing sector; Chapter II contains suggestions as to the establishment of new types of activities or the expansion of existing ones, and Chapter III incorporates important aspects appertaining to the further development of industry in the short and medium term.

Discussions were held in Vienna between the Cyprus Government, UNIDO and the Consultants from 10th to 12th November 1975. At the request of the Cyprus Government UNIDO decided to extend the terms of reference of the Study. The present report deals with Stage I of the Study which was completed in October 1975 in draft form. Thus, all data and information contained in this report do not extend beyond that date.

This volume is followed by a second one covering Stage II of the study. At the request of UNIDO, both volumes are submitted simultaneously.

SUMMARY AND CONCLUSIONS

A field survey was carried out in the Government controlled area by a team of specialists, during which the status of major manufacturing sectors was examined, on the basis of data and background information made available, augmented by numerous visits paid to and discussions with Government departments and institutions, manufacturing and commercial concerns and other organisations whose activities are directly connected with the present study.

The Ministry of Commerce and Industry and the UNIDO Industrial Extension Services provided the Team with a number of feasibility reports, market studies and internal notes on relevant fields, which were closely examined in the context of the study. This information proved to be most valuable and enabled the Team to short-list in situ major potential growth areas in the manufacturing sector, specially those which are export-oriented, on which attention was focussed both in Cyprus and at the Consultants' home office.

The number of studies carried out in the past on the export potential of industrial goods from Cyprus is limited, and some of them were carried out before the Turkish invasion. These dealt mainly with garments and footwear. The carrying-out of market studies as well as feasibility studies on individual products and manufacturing activities is beyond the scope of the present study. The Consultants did, however, explore development possibilities in the light of their own experience and investigations carried out in the United Kingdom and enquiries made in other West European countries. This was augmented by their knowledge of conditions and major developments in Arab countries and a number of countries in the Near and the Far East. The time element was a major constraint with regard to in-depth investigations. The purpose of this study is to identify industrial opportunities which, prima facie, are likely to be beneficial to Cyprus economy, to indicate possible new manufacturing activities or expansion of existing industries, to underline the need for carrying out more detailed studies in selected potential development areas within the manufacturing sector, and to suggest measures to promote its recovery and further expansion. The accent of the study is placed on those sectors which offer the most promising prospects in the short and medium term, within the framework of the Emergency Economic Action Plan.

In identifying such opportunities, distinction must be made between new manufacturing units or the expansion of existing production facilities suggested in the study, and established sectors which do not necessarily require the acquisition of additional physical assets to improve their performance and contribution to the national economy. In the latter case, pertinent comments are submitted, while in the former preliminary estimates of the cost of the necessary machinery and equipment, together with manpower requirements, are indicated. Because of constraints relating to the limited time allocated to the study, the general recession affecting at present the engineering industry and its repercussion on the activities of suppliers of plant and equipment, these cost estimates should be regarded as a broad guide to the fixed investments required. Unless otherwise stated, all costs of machinery and equipment given in this report relate to prices f.o.b. West European ports. It would be very difficult at this stage to be more precise, specially since the exact type of manufacturing process, plant siting and the extent of modification/extension of existing manufacturing units can only be determined through further studies.

In the following paragraphs, the salient findings of the study are summarised, and relevant suggestions and recommendations are submitted.

1. Although Cyprus economy has suffered severely from the Turkish invasion, the indications are that the manufacturing sector is recovering rapidly through both Government action and private business drive. The most severe draw-back to industry is the loss of agricultural resources, followed by that of certain mineral resources. The loss of manufacturing units in the occupied area has deeply affected several industries, but existing units in the Government controlled area, together with recently planned projects, are undoubtedly capable of restoring rapidly the level of production needed by the home market and to resume (even to expand) export activities for certain products, provided appropriate actions are taken.

In Chapter I, an analysis is given of the present situation of the manufacturing sector by main categories and in Chapter II the potential growth areas are elaborated upon in detail.

2. Among the fields which offer promising prospects are food processing, textiles and garments, furniture, a range of chemicals and non-metallic mineral products, engineering industries and special plastic products. Most of these are export-oriented, but some are essential to the rehabilitation of the local industry, directly or indirectly.

3. With the proposed irrigation schemes and the intensive horticultural development programmes, a scope exists for the processing of pork in various forms, of canned and frozen fruit and vegetables and dehydrated agricultural produce, mainly for export. By-product recovery from animal slaughtering is highly desirable, particularly in the form of feedstuff protein concentrate which would be utilised locally.

Trout fish farming can be developed into an export processing activity, and the production of vegetable oils (and oilcakes) from imported oilseeds deserves serious consideration (apart from olive oil, all other vegetable oils were imported refined, or in crude form for further processing).

The setting up of a multi-purpose central abattoir is recommended for various reasons. By-product recovery would be greatly facilitated and the integration of a protein/fat extraction plant would be justified.

The rapid recovery and intensive development of pig farming, characterised by lower meat costs than those prevailing in Western Europe, would be conducive to the establishment of a separate pig abattoir, combined with pork processing facilities to produce mainly canned ham, chopped ham and similar lines, and of a meat and bone meal/fat rendering unit. Export prospects of canned pork products to selected Western European countries appear to be promising.

The manufacture of frozen fruit and vegetables, already being contemplated by SEVEGEP, is recommended. Additional equipment would be required. Export market prospects point to the necessity of increasing the freezing facilities of the country beyond the level proposed by SEVEGEP, and consideration should be given to the possibility of including, in due course, similar processing lines within the Cyprus Canning Co. plant.

The fruit and vegetable canning industry is suffering at present from the lack of raw materials as a result of the invasion. It is operating well below capacity and a re-orientation of its activities would be needed as the proposed horticultural programmes materialise. New lines are being sought (such as canned grape juice for export), but the scope will no doubt widen in the future. Can making must be improved upon and expanded, taking into account the future demand for processed fruit and vegetables as well as pork.

A new activity suggested in the report is the dehydration of certain vegetables which will become available in the Paphos and Larnaca areas. The products could be exported to Western Europe for further processing into prepared soups and other food preparations.

Until recently, the wine industry was achieving increasingly satisfactory results on the export markets, particularly the United Kingdom. Due to a number of factors mentioned in Chapter I, this activity is encountering difficulties in the sales of products abroad. The industry has developed valuable assets over a number of years, and promotional efforts would gain in concentrating on fewer export markets, at the same time retaining a competitive price differential for 'branded' products.

4. A considerable scope for the expansion of the exports of clothing exists. Knitting and garment manufacture has been developing successfully over the past decade, but the industry is now facing difficulties as a result of the Turkish invasion. Export opportunities exist for shirts and outerwear to several countries. Cyprus has so far concentrated on the export of knitted products, but the demand for woven outerwear is also high in those countries.

Preliminary investigations point to the desirability of expanding the range of garments of improved design and quality. However, the knitting sector lacks a certain degree of cohesion necessary to maximising exports, and would require a thorough assessment of its capabilities in terms of equipment, design and quality. The concentration on fewer specialised lines by individual producers would be beneficial, and the acquisition of more knitting machines of certain types, such as double jersey and Raschel may be indicated.

Parallel to the rationalisation of the knitting industry, there seems to be a need for setting-up a number of weaving units to boost the potential of the garment making industry, judging from the level of imports of woven fabrics into the country in recent years. The production of towels, which has considerably declined due to the loss of units in the occupied area, would equally be worthwhile considering.

A detailed general survey of the textile and garment industry would be required to determine the optimum means to promote exports of quality goods at competitive prices. Suggestions are put forward in Chapter II for further investigations to be carried out. These should also cover the possibility of establishing a central 'commission' dyeing/printing/finishing unit, flexible enough to process a wide variety of textiles, knitted and woven. Should the conclusions of such a study be encouraging, it would be desirable to set up a central purchasing organisation for knitting and weaving yarns, and possibly of semi-finished woven fabrics to be further processed in Cyprus, thus ensuring that the raw materials are secured at the lowest possible price.

Other important factors for the success of the industry are the securing of expert advice on design and the coordination of export promotional efforts through frequent consultations between producers and the Export Promotion Section of the Ministry of Commerce and Industry.

With regard to footwear, the industry is potentially capable of considerable expansion in the field of exports. Improvement of efficiency, product quality, and again, the coordination of raw material purchasing are essential pre-requisites. Steps are already being taken in this direction, and relevant comments are presented in Chapter I.

5. The possibility of exporting simple types of knock-down furniture deserves consideration. The suggested product lines are mainly those utilising locally produced chipboard and plywood to a large extent and which are aimed at the middle income section of the population in certain countries in the Middle East. This new activity is labour intensive.

6. Chemicals which appear to offer export possibilities are copper sulphate and sodium bichromate, using locally available raw materials.

In the non-metallic mineral field, the production of asbestos-cement boards used in composite sandwich panels for the construction industry in the Middle East is suggested, so is the processing of larger quantities of umber and other mineral pigments into higher priced commodities.

The possibility of producing a limited range of simple tableware (coffee and tea cups and saucers and plates) for the home and export markets might well be economically feasible, even if the necessary raw materials are imported. The industry is particularly labour intensive.

7. The rationalisation and expansion of the ferrous metal products industry and of a range of machinery and equipment is recommended, serving the dual purpose of import substitution and service to industry (general repair and maintenance). The establishment of a new fabrication - machine shop unit in the Nicosia area is recommended.

8. The plastics industry is recovering quickly from the effect of the invasion and the projected new units will be capable of satisfying the home demand for a wide range of applications. New manufacturing activities which are suggested are the manufacture of fibre glass reinforced polyester fishing boats and fishing nets.

9. The present report reveals a number of areas of potential development, and brings them to a point where further investigations will be necessary to ascertain the viability or otherwise of the proposed manufacturing activities. These can be sub-divided into the following categories :

i. Activities requiring comprehensive sectoral surveys:

- Fruit and vegetable canning
- Textiles and clothing
- Metal products and engineering industries.

ii. Activities requiring individual feasibility studies :

- Central multi-purpose abattoir and associated by-product processing
- Integrated pig slaughterhouse and pork products canning, with by-product processing
- Trout processing/freezing together with -
- Quick freezing of fruit and vegetables
- Dehydrated vegetables (study to be preceded by pilot plant tests)
- Vegetable oil production from oilseeds
- Knock-down furniture
- Copper sulphate

- Sodium bichromate
- Ceramic tableware
- Fibre glass reinforced fishing boats
- Individual manufacturing and processing units,
in the light of the results of the sectoral survey
of textiles and clothing mentioned under (i) above,
e.g. weaving, central finishing unit.

iii. Activities within already established manufacturing units,
requiring expert diagnosis and advice :

- Can making (quality improvement and expansion)
- Asbestos cement boards.

10. A number of factors will influence the development of manufacturing and exports. These are commented upon in various sections of the report dealing with specific sectors, as well as in Chapter III. In many instances, recovery and expansion can be achieved through the resources of Cypriot concerns themselves with the assistance and guidance from the Government. In others, such as pork processing, the manufacture of knock-down furniture and ceramic tableware, it will be necessary to secure technical and marketing know-how from foreign groups of repute, either through licensing agreements or joint ventures.

SYMBOLS AND ABBREVIATIONS

Donum:	1/3rd acre
Hectare (ha):	7.2 donums
M ² :	Square Metre
Cu.ft:	Cubic Foot
Ton:	Metric Tonne
Kg:	Kilogram
g:	Gram
Oke:	2.8 pounds
lb:	Pound
% wt:	Per Cent by weight
£:	Cyprus pound = 20 shillings (1sh = 50 mills) = 1,000 mills = f.St. 1.25 = US\$ 2.80
fob	free on board
fas	free alongside ship
cif	cost, insurance, freight
ISIC	= International Standard Industrial Classification

Basic cost of machinery and equipment:

Unless otherwise stated, values relate to costs f.o.b. West European ports.

CHAPTER I

THE PRESENT SITUATION OF THE MANUFACTURING SECTOR : GENERAL COMMENTS

I.1

GENERAL TRENDS

The gross domestic product grew from Cf168 million in 1968 to Cf302.5 million in 1973, at current factor cost. During this five year period, the contribution from manufacturing increased steadily from Cf19.1 million to Cf43.3 million; that of agriculture (including forestry and fisheries) moved irregularly, from Cf32.3 million to Cf40.5 million, reaching a peak of Cf48.4 million in 1972. This pattern is common among countries where annual variations in climate affect crop production. Table 1 shows the contribution to the GDP by the various economic activities for the period 1967-1974. The total value for the latter year is not yet known due to the lack of data on agricultural production. The level in manufacturing dropped by 11.3% to Cf 38.4 million.

In the period 1970-1973, while local consumption was rising, domestic exports were also increasing, and within the latter, the trend towards some manufactures became more pronounced, inter alia in the fields of wearing apparel, machinery and equipment, and miscellaneous semi-durable consumer goods but the balance of payments showed in 1973 for the first time since many years an overall deficit of Cf4.5 million, increasing to an estimated level of Cf10.6 million in 1974.

Manufacturing

The effect of the Turkish invasion on manufacturing was tentatively quantified by the Ministry of Commerce and Industry towards the middle of 1975. Table 2 shows estimates of the loss of employment and gross output by main manufacturing categories related to corresponding figures for 1973. The number of jobs lost is estimated at about 11,500, the loss of gross output to the occupied area at nearly Cf29 million (corresponding to 26% for the Island's total), and that of value added at Cf11 million, a 24% decrease.

Table 3 shows that the reduction of gross output between 1973 and 1974 was relatively small: from Cf111 million to Cf109 million. Net output decreased by Cf6 million or 13%. Although, strictly speaking, the figures do not reflect the true situation arising from the invasion of July 1974, they point to an intensification of the manufacturing sector in the Government controlled area, despite the invasion. (The figures of employment and gross output between July and December 1974 in the table relate to activities in that area during this six month period.) Simple extrapolation cannot lead to meaningful results, largely because some manufacturing activities were then dependent to varying degrees on supplies of raw materials from the area now occupied (such as the food industry). Nevertheless, the recorded gross output of all industries reached a value of Cf39 million during July-December 1974, compared with nearly Cf70 million during the first six months of that year for the whole Island. This would suggest that the loss of production is likely to be appreciably less than the tentative estimate of Cf29 million previously mentioned, and would support the statement made on the intensification of resource utilisation of manufacturing in the Government controlled area.

Reference is made to Tables 3, 4 and 5, and to other relevant data contained in Industrial Production Surveys prior to 1973. During the period 1971 - 1974, there has been a tendency towards the establishment of more capital intensive industries. On the other hand, gross output per person employed grew from about C£2,150 per annum to nearly C£4,000 in that period. This may be due to increasing costs (and prices), but net output per person increased from about C£880 to C£1,480 approximately. In the period July - December 1974, this latter ratio dropped to about C£1,080 for obvious reasons. The figures do, however, indicate an increase in the efficiency within the manufacturing sector during the period under review. Better utilisation of existing resources and the reactivation of selected industrial activities would contribute to economic recovery.

The Emergency Economic Action Plan underlines the importance of maximum utilisation of manufacturing capacity. Very few units operate on a continuous basis and few plants work on more than one shift, 42-44 hours per week. The main reason for this feature is obviously the limitation in market outlets, but the existence of a multiplicity of units, often very small, producing the same types of products, also contributes to this state of affairs. The most striking cases are found in the footwear, furniture and garment making industries. The rehabilitation of the manufacturing sector in the Government controlled area and its substantial expansion into the export field would involve some form of re-grouping and rationalisation of various types of activities. While this might cut out a few redundant activities, the unemployment problem would be alleviated through the utilisation of plant capacity over longer working hours throughout the year.

The scarcity of capital resources should normally lead to a higher degree of selectivity in new investments. Priority would be given to necessary replacements or expansions of existing manufacturing facilities and to new projects considered to be best suited to a rapid improvement of the present situation from a national point of view.

Table 1

INDUSTRIAL ORIGIN OF THE GROSS DOMESTIC PRODUCT (1967-1974)

At Current Factor Cost

	(Cf million.)										
	1967	1968	1969	1970	1971	1972	1973	1974			
1. Agriculture, Forestry, Fishing and Hunting..	34.2	32.3	39.2	35.6	46.0	48.4	40.5	NA			
2. Mining and Quarrying	9.7	10.2	12.4	12.6	10.7	9.4	11.6	9.3			
3. Manufacturing	17.3	19.1	22.2	25.5	29.9	37.9	43.3	38.4			
4. Construction	10.4	12.2	14.5	16.9	19.8	23.0	28.7	21.3			
5. Electricity, Gas and Water.. .. .	3.1	3.3	3.6	4.3	4.6	5.2	5.6	5.1			
6. Transportation, Storage and Communication ..	13.9	15.2	17.4	19.8	23.2	25.4	32.3	21.9			
7. Wholesale and Retail Trade.	23.0	26.3	30.7	32.0	36.8	42.4	50.0	42.5			
8. Banking, Insurance and Real Estate	6.8	7.3	8.3	11.1	11.8	13.2	17.4	13.2			
9. Ownership of Dwellings	15.2	15.8	16.5	17.7	19.7	21.3	23.2	20.7			
10. Public Administration and Defence	8.4	9.3	11.0	11.4	12.9	15.7	19.0	22.6			
11. Services	14.1	16.9	18.7	21.3	25.4	31.3	38.6	34.1			
Gross domestic product at factor cost	156.1	167.9	194.5	208.2	240.8	273.2	302.5	NA			

SOURCE : Statistics and Research Department.

Table 2

MANUFACTURING ACTIVITY IN CYPRUS

Effects of Turkish Invasion and Occupation 1974

Based on 1973 Production and Employment Data.

Industry Code	INDUSTRY	TOTAL CYPRUS		OCCUPIED AREA		
		No. Empl.	Gross Output '000 Cf	No. Empl.	Gross Output '000 Cf	% share
2-3	ALL INDUSTRIES	36,019	111,766	11,493	28,947	25.9
20	FOOD MANUFACTURING	5,077	24,123	1,685	8,634	35.8
201	Sausages, etc.	168	610	75	350	57.4
202	Dairy Products	704	3,323	229	711	21.4
203	Canning & Preserving of Fruit & Vegetables	947	2,845	285	706	24.8
205	Grain Mill Products	373	4,545	177	2,132	46.9
206	Bakery Products	1,544	3,214	517	945	29.4
208	Chocolate & Sugar Confec.	258	548	29	75	13.7
209/10	Miscellaneous	1,083	9,038	373	3,715	41.1
21	BEVERAGES	1,956	12,435	83	275	2.2
211/13	Distilling of Spirits	1,199	8,856	12	53	0.6
214	Soft Drinks	757	3,579	71	222	6.2
22	TOBACCO	415	3,035	327	522	17.2
221	Tobacco Industries	415	3,035	327	522	17.2
23	MANUFACTURE OF TEXTILES	1,858	4,096	618	1,133	27.7
231	Textiles (Spinning, Weaving & Finishing)	332	619	229	424	38.5
232/39	Knitting Mills etc.	1,526	3,477	389	709	20.4
24	MANUFACTURE OF FOOTWEAR AND OTHER WEARING APPAREL	8,126	13,895	2,664	3,929	28.3
241	Footwear Manufacturing	2,068	4,409	372	551	12.5
242	Repair of Footwear	187	122	63	38	31.3
243	Wearing Apparel except Footwear	5,640	8,561	2,143	3,065	35.8
244	Made-up Textile Goods except 243	231	803	86	275	34.3
25	MANUFACTURE OF WOOD & CORK	799	2,205	325	1,205	54.6
251	Sawmills & Wood Floors	514	1,124	195	369	32.8
252	Wooden & Cane Containers	133	855	109	816	95.4
259	Wooden Products n.e.s	152	226	21	20	9.0
26	FURNITURE & FIXTURES	2,854	5,341	1,025	1,485	27.8
260	Furniture & Fixtures	2,854	5,341	1,025	1,485	27.8
27	PAPER PRODUCTS	292	1,833	117	726	39.6
272	Paper & Paperboard Products	292	1,833	117	726	39.6
28	PRINTING & PUBLISHING	1,300	3,533	172	452	12.8
280	Printing & Publishing	1,300	3,533	172	452	12.8
29	LEATHER PRODUCTS	448	1,483	56	96	6.5
291	Tanneries	81	753	25	53	7.1
292	For Tanning & Finishing	10	11	9	6	54.5
293	Leather Products	357	719	22	37	5.1

Table 2 (cont'd)

MANUFACTURING ACTIVITY IN CYPRUS.

Industry Code	INDUSTRY	TOTAL CYPRUS		OCCUPIED AREA		
		No. Empl.	Gross Output C£000's	No. Empl.	Gross Output C£000's	% share
30	<u>RUBBER PRODUCTS</u>	<u>240</u>	<u>733</u>	<u>98</u>	<u>306</u>	<u>41.8</u>
300	Rubber Products	240	733	98	306	41.8
31	<u>CHEMICAL PRODUCTS</u>	<u>758</u>	<u>3,557</u>	<u>185</u>	<u>827</u>	<u>23.2</u>
311/13	Basic Industrial Chemicals	66	289	-	-	-
319	Chemical products	692	3,268	185	827	25.3
32	<u>PETROLEUM PRODUCTS</u>	<u>154</u>	<u>8,036</u>	-	-	-
321	Petroleum Products	154	8,036	-	-	-
33	<u>MANUFACTURE OF NON-METALLIC MINERAL PRODUCTS</u>	<u>2,565</u>	<u>8,138</u>	<u>969</u>	<u>1,956</u>	<u>24.0</u>
331	Structural Clay Products	1,741	3,632	783	1,446	39.8
332	Glass Products	5	7	2	2	28.6
333	Pottery, China & Earthen.	40	34	30	25	74.2
334	Cement	318	3,032	-	-	-
339	Non-metallic mineral products n.es.	461	1,433	154	483	33.7
35	<u>MANUFACTURE OF METAL PRODUCTS</u>	<u>2,489</u>	<u>6,584</u>	<u>910</u>	<u>2,786</u>	<u>42.3</u>
350	Metal Products	2,104	5,340	709	2,067	38.7
351	Aluminium Products	385	1,244	201	719	57.8
36	<u>MANUFACTURE OF MACHINERY</u>	<u>1,107</u>	<u>2,873</u>	<u>439</u>	<u>1,017</u>	<u>35.4</u>
360	Machinery	1,107	2,873	439	1,017	35.4
37	<u>ELECTRICAL MACHINERY</u>	<u>562</u>	<u>1,149</u>	<u>161</u>	<u>291</u>	<u>25.3</u>
370	Electrical Machinery	562	1,149	161	291	25.3
38	<u>TRANSPORT EQUIPMENT</u>	<u>3,580</u>	<u>4,591</u>	<u>1,073</u>	<u>1,302</u>	<u>28.4</u>
381	Ship building	42	41	14	14	34.9
383	Assembly of Motor Vehicles	69	310	69	310	100.0
384	Repair of Motor Vehicles	3,077	3,561	852	837	23.5
385	Motorcycle Repairs	184	159	95	61	38.2
386	Aeroplane Repairs	52	125	-	-	-
389	Transport Equipment n.e.s	156	395	43	80	20.3
39	<u>MISCELLANEOUS INDUSTRIES</u>	<u>1,439</u>	<u>4,126</u>	<u>586</u>	<u>2,005</u>	<u>48.6</u>
391	Professional, Scientific Measuring Instruments	21	46	2	2	5.1
393	Watch & Clock Repairs	91	174	35	67	38.7
394	Jewellery, etc.	531	1,247	73	142	11.4
395	Musical Instruments	2	2	1	1	50.0
399	Manufacturers, n.e.s	794	2,657	475	1,793	67.5

Source : Ministry of Commerce & Industry

Table 3
 EMPLOYMENT, GROSS OUTPUT, VALUE ADDED AND CAPITAL FORMATION
 OF THE MANUFACTURING SECTOR FOR 1974

INDU- STRY CODE	INDUSTRY	EMPLOYMENT			GROSS OUTPUT (CFOOO's)			VALUE ADDED CFOOO's		CAPITAL FORMATION CFOOO's		
		1973			1974			1973	1974			
		1973	1 9 7 4		1973	1 9 7 4		1973	1974			
20	FOOD (TOTAL)	5,077	4,110	2,566	24,140	22,976	14,780	4,187	4,009	6,889	6,588	727
201	Sausages and other meat preparations	168	138	101	610	533	384	58	91	165	146	5
202	Dairy products	704	508	287	3,323	2,866	2,104	389	373	951	874	31
203	Canning and preserving of fruit & vegetables	947	949	356	2,845	4,009	3,119	570	320	1,357	1,596	473
205	Grain mill products	373	293	199	4,545	4,097	2,241	1,017	839	479	464	39
206	Bakery products	1,544	1,199	884	3,214	3,641	2,121	703	817	1,325	1,420	61
208	Chocolate and sugar confectionery	258	158	123	548	444	296	54	94	199	153	22
209- 210	Manufacture of miscellan- eous food preparations	1,083	865	616	9,055	7,386	4,515	1,396	1,475	2,413	1,935	96
21	BEVERAGE INDUSTRIES (TOTAL)	1,956	1,705	1,511	12,194	14,817	6,535	3,902	4,380	5,623	6,439	737
211- 213	Distilling, rectifying & blending of spirits	1,199	1,146	1,125	8,856	11,610	4,815	2,921	3,874	3,913	5,008	537
214	Soft drinks & carbonated water industries	757	559	386	3,338	3,207	1,720	981	506	1,710	1,431	200
22	TOBACCO INDUSTRIES (TOTAL)	411	367	310	2,103	2,914	1,280	751	883	798	958	40
221	Tobacco industries	411	367	310	2,103	2,914	1,280	751	883	798	958	40
23	MANUFACTURE OF TEXTILES (TOTAL)	1,858	1,377	997	4,095	3,517	2,327	482	708	1,877	1,520	139
231	Spinning, weaving & finishing of textiles	332	182	36	618	434	373	21	40	311	208	19
232- 239	Knitting mills & other textiles	1,526	1,195	961	3,477	3,083	1,954	461	668	1,566	1,312	120

Table 3 (Cont)

INDUSTRY CODE	INDUSTRY	EMPLOYMENT												GROSS OUTPUT (C'000's)						VALUE ADDED C'000's		CAPITAL FORMATION C'000's	
		1973			1974			1973			1974			1973		1974		1974					
		TOTAL	Jan.-June	July-Sept.	Oct.-Dec.	TOTAL	Jan.-June	July-Sept.	Oct.-Dec.	TOTAL	Jan.-June	July-Sept.	Oct.-Dec.	TOTAL	Jan.-June	July-Sept.	Oct.-Dec.	TOTAL	Jan.-June	July-Sept.	Oct.-Dec.		
24	MANUFACTURE OF FOOTWEAR AND OTHER WEARING APPAREL (TOTAL)	8,127	6,072	3,387	4,522	13,895	4,409	1,180	3,003	12,088	7,854	1,231	3,003	5,719	4,887	286							
241	Footwear manufacture	2,068	1,592	893	1,346	4,409	1,346	1,180	1,180	4,068	2,408	480	1,180	1,840	1,690	156							
242	Repair of footwear	187	154	123	115	122	115	21	99	99	65	13	21	100	82	-							
243	Wearing apparel	5,640	4,162	2,274	2,962	8,561	2,962	1,658	7,292	4,976	658	1,658	3,493	2,891	128								
244	Made-up textile goods (excl. wearing apparel)	232	164	97	99	803	99	144	629	405	80	144	286	286	2								
25	MANUFACTURE OF WOOD AND CORK (TOTAL)	812	606	358	433	2,235	433	245	1,578	1,180	153	245	785	564	657								
251	Sawmills and wooden flooring	514	400	242	306	1,124	306	197	849	562	90	197	510	375	636								
252	Wooden and cane containers and cane small ware	133	78	38	19	855	19	7	532	487	38	7	132	79	6								
259	Manufacture of wood products	165	128	78	108	256	108	41	197	131	25	41	143	110	15								
26	MANUFACTURE OF FURNITURE AND FIXTURES (TOTAL)	2,854	1,850	867	948	5,341	948	445	3,542	2,803	294	445	2,828	1,835	97								
260	Furniture and fixtures	2,854	1,850	867	948	5,341	948	294	3,542	2,803	294	445	2,828	1,835	97								
27	MANUFACTURE OF PAPER AND PAPER PRODUCTS (TOTAL)	292	200	79	117	1,833	117	253	1,558	1,202	103	253	550	483	1								
272	Paper and paperboard products	292	200	79	117	1,833	117	253	1,558	1,202	103	253	550	483	1								
23	PRINTING, PUBLISHING AND ALLIED INDUSTRIES (TOTAL)	1,300	1,093	850	838	3,533	838	700	3,479	2,172	607	700	1,795	1,724	429								
280	Printing, publishing and allied industries	1,300	1,093	850	838	3,533	838	700	3,479	2,172	607	700	1,795	1,724	429								

Table 3 (Cont)

INDUSTRY CODE	INDUSTRY	EMPLOYMENT			GROSS OUTPUT (C\$1000's)			VALUE ADDED C\$1000's		CAPITAL FORMATION C\$1000's		
		1973			1974			1973	1974			
		TOTAL	Jan-June	July-Sept	Oct-Dec	TOTAL	Jan-June	July-Sept	Oct-Dec			
29	LEATHER AND LEATHER AND FUR PRODUCTS	448	435	215	320	1,483	722	155	329	452	365	20
291	Tanneries and leather finishing plants	81	77	30	37	753	359	75	137	108	78	3
292	Fur tanning and finishing	10	10	6	5	11	6	1	1	5	4	-
293	Leather & fur products	357	348	179	278	719	357	79	191	339	282	17
30	MANUFACTURE OF RUBBER PRODUCTS (TOTAL)	240	242	89	107	733	483	62	95	335	300	51
300	Rubber products	240	242	89	107	733	483	62	95	335	300	51
31	MANUFACTURE OF CHEMICALS & CHEMICAL PRODUCTS (TOTAL)	758	795	403	435	3,557	2,369	596	717	1,327	1,346	124
311	Basic industrial chemicals	25	23	22	22	112	64	19	21	68	70	5
313	Manufacture of varnishes and lacquers	41	95	31	43	177	317	74	86	71	151	11
319	Miscellaneous chemical products	692	677	350	370	3,268	1,988	503	610	1,188	1,125	108
32	PETROLEUM PRODUCTS (TOTAL)	154	154	154	133	8,036	9,773	2,574	2,467	2,217	1,800	45
321	Petroleum products	154	154	154	133	8,036	9,773	2,574	2,467	2,217	1,800	45
33	MANUFACTURE OF NON-METALLIC MINERAL PRODUCTS (TOTAL)	2,557	2,649	1,175	1,085	8,138	5,017	1,029	1,215	4,568	3,675	2,443
331	Structural clay products	1,741	1,766	608	507	3,632	2,001	248	252	2,153	1,480	197
332	Glass products	5	5	3	3	7	4	-	2	5	4	-
333	Pottery, china and earthenware	40	44	14	10	34	21	2	2	27	20	6
334	Cement	318	356	352	375	3,032	2,236	637	815	1,638	1,630	2,010
339	Non-metallic mineral product n.e.s.	453	478	198	190	1,433	755	142	144	745	541	230

Table 3 (contd)

INDUSTRY CODE	INDUSTRY	1973		EMPLOYMENT				GROSS OUTPUT (C1000's)				VALUE ADDED (C1000's)		CAPITAL FORMATION (C1000's)	
		1973	TOTAL	1974			TOTAL	1974			TOTAL	1973	1974		
				Jan.-June	July-Sept	Oct.-Dec.		Jan.-June	July-Sept	Oct.-Dec.			1973	1974	
35	MANUFACTURE OF METAL PRODUCTS (TOTAL)	2,489	1,821	2,566	1,011	1,139	6,584	5,183	4,185	467	531	2,666	2,097	125	
350	Metal products(excluding machinery and transport equipment)	2,104	1,584	2,208	885	1,035	5,340	4,170	3,352	389	429	2,224	1,737	85	
351	Aluminium products	385	237	358	126	104	1,244	1,013	833	78	102	442	360	40	
36	MANUFACTURE OF MACHINERY (EXCL.ELECTRICAL) (TOTAL)	1,105	798	1,121	437	512	2,873	2,071	1,504	227	340	1,585	1,142	255	
360	Machinery excluding electrical machinery	1,105	798	1,121	437	512	2,873	2,071	1,504	227	340	1,585	1,142	255	
37	MANUFACTURE OF ELECTRICAL MACHINERY (TOTAL)	562	419	552	271	302	1,149	1,005	722	114	169	669	585	27	
370	Electrical machinery apparatus, appliances and supplies	562	419	552	271	302	1,149	1,005	722	114	169	669	585	27	
38	MANUFACTURE OF TRANSPORT EQUIPMENT (TOTAL)	3,580	2,713	3,626	1,686	1,915	4,591	3,514	2,470	404	640	3,527	2,701	111	
381	Ship building and repairing	42	23	34	14	10	41	28	22	2	4	26	18	-	
383	Motor car assembling	69	63	78	46	50	310	324	209	54	61	77	93	4	
384	Repair of motor vehicles	3,077	2,345	3,104	1,485	1,688	3,561	2,743	1,920	309	514	3,021	2,327	80	
385	Motorcycle and bicycle repairing and assembling	184	133	184	79	86	159	116	88	12	16	141	103	-	
386	Repair of aeroplanes	52	34	63	10	-	125	77	67	10	-	109	67	26	
389	Transport equipment n.e.s.	156	115	163	52	81	395	226	164	17	45	163	93	1	
39	MISCELLANEOUS MANUFACTURED INDUSTRIES (TOTAL)	1,439	965	1,410	501	537	4,126	2,785	2,257	235	293	1,532	1,284	68	
391	Professional scientific measuring instruments	21	18	20	16	15	46	33	27	2	4	26	18	-	

Table 3 (Cont)

INDU- STRY CODE	INDUSTRY	1973		EMPLOYMENT				GROSS OUTPUT (C:000's)				VALUE ADDED C:000's		CAPITAL FORMATION C:000's	
		TOTAL	1973	1974			TOTAL	1974			1973	1974	1973	1974	
				Jan-June	July-Sept	Oct-Dec		Jan-June	July-Sept	Oct-Dec					
393	Repair of watches and clocks	91	71	91	52	50	174	132	90	16	26	162	123	-	
394	Jewellery and related articles	531	362	502	188	257	1,247	785	620	62	103	541	341	16	
395	Musical instruments	2	2	2	1	1	2	2	2	-	-	1	1	-	
399	Manufacturing industries n.e.s.	794	512	795	244	214	2,657	1,833	1,518	155	160	1,162	801	52	
2-3	ALL INDUSTRIES	36,019	27,264	36,369	17,521	18,777	110,639	108,630	69,635	17,573	21,422	46,102	40,293	6,382	

SOURCE : Statistics and Research Department

Table 4
GROSS DOMESTIC FIXED CAPITAL FORMATION
BY SECTOR OF ECONOMY
 (1963-1974)

Sector of Economy	At current market price Cf million											
	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
1. Agriculture etc.	2.8	2.5	2.6	3.2	3.6	3.6	4.4	4.2	4.5	6.0	5.9	5.0
2. Mining & Quarrying	0.4	0.5	0.5	0.7	0.8	1.6	1.0	0.8	1.0	0.7	0.7	0.3
3. Manufacturing	{6.9	{5.2	3.8	6.7	3.5	4.4	6.1	9.7	7.5	7.5	8.0	6.4
4. Electricity Gas & Water			3.2	2.0	1.4	2.3	3.1	2.5	3.9	3.9	5.2	4.0
5. Construction	1.6	0.6	0.9	1.1	1.0	1.1	0.8	1.6	1.4	2.1	1.8	2.0
6. Trade	..	..	..	..	2.2	2.3	2.4	2.7	3.0	3.8	5.2	11.7
7. Transport, Storage & Communication	4.4	3.1	4.8	4.7	5.5	5.6	9.1	10.3	11.2	11.8	12.4	4.1
8. Housing	7.7	3.9	6.8	7.6	10.4	13.1	15.1	17.4	19.5	21.9	28.2	0.6
9. Financial Inst. & Real Estate N.E.S.	-	-	-	-	0.2	0.3	0.3	0.3	0.4	0.4	0.9	6.7
10. Administration & Defence	0.4	0.4	0.3	0.3	0.4	0.5	0.6	0.5	0.6	0.6	0.6	0.7
11. Other Services	2.3 ⁺	1.5 ⁺	2.0 ⁺	2.5 ⁺	2.3	2.6	3.1	3.3	5.5	8.5	11.3	21.6
T O T A L	26.5	17.7	24.9	28.8	31.3	37.4	46.0	53.3	58.5	67.2	80.2	63.1

- = Negligible

+ = Includes Services and Trade

SOURCE : Statistics and Research Department

Table 5

GROSS DOMESTIC FIXED CAPITAL FORMATION BY SECTOR OF ECONOMY AND TYPE OF CAPITAL ASSET (1967-1974)

At Current Market Prices

(Cf million)

	1967			1970			1971			1972			1973			1974								
	Constr.	Mach. & Equip.	Transp.	Total	Constr.	Mach. & Equip.	Transp.	Total	Constr.	Mach. & Equip.	Transp.	Total	Constr.	Mach. & Equip.	Transp.	Total	Constr.	Mach. & Equip.	Transp.	Total				
1. Agriculture.. ..	1.8	1.8	-	3.6	1.5	2.6	0.1	4.2	1.5	2.8	0.2	4.5	2.4	3.4	0.2	6.0	2.7	3.0	0.2	5.9	2.2	2.7	0.1	5.0
2. Mining and Quarrying ..	0.2	0.5	0.1	0.8	0.2	0.5	0.1	0.8	0.3	0.7	-	1.0	0.2	0.4	0.1	0.7	-	0.6	0.1	0.7	0.1	0.2	-	0.3
3. Manufacturing	0.7	2.6	0.2	3.5	1.6	7.8	0.3	9.7	1.6	5.4	0.5	7.5	1.8	4.8	0.9	7.5	1.8	5.3	0.9	8.0	1.6	4.2	0.6	6.4
4. Electricity, Gas and Water	1.0	0.3	0.1	1.4	2.0	0.4	0.1	2.5	2.2	1.7	-	3.9	1.8	2.1	-	3.9	2.3	2.9	-	5.2	1.9	2.1	-	4.0
5. Construction	-	1.0	-	1.0	-	1.6	-	1.6	-	1.4	-	1.4	-	2.1	-	2.1	-	1.8	-	1.8	-	2.0	-	2.0
6. Transp., Storage & Commun	2.0	0.8	2.7	5.5	4.0	1.6	4.7	10.3	5.7	1.8	3.7	11.2	5.6	1.9	4.3	11.8	5.8	1.3	5.3	12.4	3.7	4.0	4.0	11.7
7. Wholesale & Retail Trade	0.9	0.7	0.6	2.2	1.3	0.8	0.6	2.7	1.5	0.9	0.6	3.0	2.2	0.9	0.7	3.8	3.5	1.0	0.7	5.2	2.7	0.9	0.5	4.1
8. Banking, Insur. & Real Estate	0.1	0.1	-	0.2	0.2	0.1	-	0.3	0.2	0.2	-	0.4	0.2	0.2	-	0.4	0.6	0.3	-	0.9	0.5	0.1	-	0.6
9. Services	1.6	0.6	0.1	2.3	2.2	1.0	0.1	3.3	3.7	1.7	0.1	5.5	5.8	2.5	0.2	8.5	8.3	2.8	0.2	11.3	5.0	1.6	0.1	6.7
10. Public Administration..	0.3	0.1	-	0.4	0.2	0.2	0.1	0.5	0.2	0.3	0.1	0.6	0.2	0.3	0.1	0.6	0.1	0.3	0.2	0.6	0.2	0.4	0.1	0.7
11. Housing	10.4	-	-	10.4	17.4	-	-	17.4	19.5	-	-	19.5	21.9	-	-	21.9	28.2	-	-	28.2	21.6	-	-	21.6
TOTAL	19.0	8.5	3.8	31.3	30.6	16.6	6.1	53.3	36.4	16.9	5.2	58.5	42.1	18.6	6.5	67.2	53.3	19.3	7.6	80.2	39.5	18.2	5.4	63.1

* Includes oil refinery.

SOURCE: Statistics and Research Department.

Exports

Domestic exports almost trebled in value over the ten years to 1973. Exports in that year reached a peak of Cf 54 million.

Table 6 which shows the value of domestic exports from 1972 to May 1975 in commodity groups, shows the pattern which prevailed up to 1973 and recent changes in emphasis. The traditional sources of the economy, agriculture and minerals, which up to 1973 had represented the base for over 90% of exports, have lost their share to just over 70% and manufactured goods in Categories 6 and 8 have achieved an increase in both value and share. Exports to Cyprus's principal markets from 1972 to May 1975 are given in more detail in Table 7. These have been sub-divided to show the relative importance of processed compared with unprocessed products of agricultural and non-agricultural origins.

Over the period, 25 countries have taken 1% or more of Cyprus exports in any year. Up to the end of May 1975, eighteen of these markets had a share of over 1%. Of these, the largest single share after the United Kingdom (40.6%) was Libya with 5.8% and the USSR with 3.9%

The United Kingdom is traditionally the major export market for Cyprus products, made up principally of agricultural products. However, Cyprus is now developing exports :

- i. to the European Economic Community with which it has Associate Member Status;
- ii. to the countries of Eastern Europe in pursuance of trade and payment agreements of a clearing type;
- iii. to countries of the Middle East and North Africa with which the Government maintains friendly and close relations.

The main effects of the Turkish invasion on the export trade were threefold:

- i. it created a temporary hiatus during which it was either impossible or difficult to export by either sea or air. Some trace of these difficulties continues today.
- ii. it created a crisis of confidence with customers for whom continuity of supply was essential.
- iii. it transformed trading with suppliers of raw material imports from a credit to a cash operation. This has seriously affected the working capital situation of a number of companies.

In other ways the export business is experiencing a change of emphasis because of the loss of raw materials and resources now in the occupied area. Although the data available for 1975 are not necessarily representative of those of a full year, Table 8 shows the changes which have occurred in the direction of trade.

Table 6

CYPRUS DOMESTIC EXPORTS (FOB) 1972 - MAY 1975

Classified by Principal Commodity Groups

	Commodity Group	1972		1973		1974		Jan-May 1975		1975 Linear Extrapol- ation C£
		C£	%	C£	%	C£	%	C£	%	
01	Food & Live Animals	26,660,233	59.7	32,349,823	59.9	23,030,714	49.3	9,271,666	46.7	22,250,000
1	Beverages & Tobacco	4,881,131	11.0	5,597,093	10.4	6,197,791	13.3	1,800,723	9.1	4,321,000
2	Crude Materials	9,308,860	20.8	10,989,385	20.3	10,523,015	22.5	3,281,250	16.5	7,875,000
3	Mineral Fuels, etc.	146,641	0.3	25,072	0.1	211,361	0.5	93,838	0.5	225,200
4	Animal & Vegetable Oils and Fats	144,356	0.3	177,866	0.3	62,298	0.1	3,817	—	9,160
5	Chemicals	152,736	0.3	218,734	0.4	228,495	0.5	190,484	0.9	457,160
6	Manufactured Goods	941,985	2.1	1,170,636	2.2	2,710,073	5.8	3,202,128	16.1	7,685,000
7	Machinery	136,884	0.3	345,366	0.6	254,889	0.5	344,311	1.7	826,300
8	Miscellaneous Manufactured Goods	2,285,675	5.1	2,898,479	5.4	3,425,244	7.3	1,564,706	7.9	3,755,000
9	Commodities n.e.s.	26,344	0.1	236,633	0.4	93,959	0.2	114,290	0.6	274,000
	TOTAL	44,684,845	100	54,009,087	100	46,737,839	100	19,867,213	100	47,677,820

SOURCE: Import and Export Statistics, 1973, 1974 and May 1975

— less than 0.1%

Table 8
DOMESTIC EXPORTS FOB (1973 and January to May 1975)
to main markets as % of total value

	1973	Jan-May 1975
	%	%
Export Markets		
United Kingdom	43.1	40.6
Rest of E.E.C.	18.1	8.6
<u>Total E.E.C.</u>	<u>61.2</u>	<u>49.2</u>
Other Western Europe	4.1	6.0
Eastern Europe	15.9	12.6
Middle East and N. Africa	6.4	20.8
United States of America	1.1	2.0

SOURCE: Based on Table 7

The declining share of trade with the EEC and expansion of trade with the Middle East are matched by the reduction of 'agricultural' exports both processed and unprocessed by over 30% and the increase of 'non-agricultural' exports by nearly 30%. This change of emphasis in the wake of the Turkish invasion is shown in Table 6 which summarises domestic exports by the principal product groups and gives a hypothetical extrapolation for 1975 based on January to May exports.

The main area of growth compared with 1973 lies within processed non-agricultural products which could more than double in value. The unspecified products could increase by over 50%.

Table 9
FOREIGN TRADE (1970-1974)

Imports/Exports	1970		1971		1972		1973		1974	
	Cfm.	% of Total	Cfm.	% of Total	Cfm.	% of Total	Cfm.	% of Total	Cfm.	% of Total
Total Imports	98.7	100.0	106.9	100.0	121.5	100.0	157.4	100.0	148.0	100.0
Imports from UK	28.1	29.4	30.7	28.7	33.1	27.9	39.3	24.9	30.7	20.7
Imports from other E.E.C. countries	(a)27.0	27.5	(a) 30.7	28.7	(a) 32.2	26.5	(b) 47.7	30.3	(b) 44.0	29.7
Total Exports	45.2	100.0	47.3	100.0	51.3	100.0	60.5	100.0	55.3	100.0
Exports to U.K.	17.4	38.4	19.7	41.7	21.2	41.4	24.2	39.9	21.1	38.2
Exports to other E.E.C. countries	(a)13.6	30.1	(a) 11.4	24.1	(a) 7.6	14.7	(b) 12.3	20.3	(b) 7.3	13.3

(a) Excluding Ireland and Denmark.

(b) Including Ireland and Denmark.

SOURCE : Statistics and Research Department.

I.2

ANALYSIS BY INDUSTRIAL CATEGORY

A comprehensive study (Industrial Development in Cyprus) carried out by a UNIDO Industrial Survey Mission and published in 1971, analysed the development of manufacturing by category for the 1960-1969 period, largely based on econometric methods. The study revealed areas of potential growth, identified important problems inherent in various types of activities and put forward suggestions and recommendations as to possible means and measures to achieve improved efficiency and to promote industrial growth. During the decade covered by the survey, the salient features of industry were the dominance of food, beverages, tobacco and wearing apparel sectors in relation to gross output, followed by furniture, metal products, transport equipment and other manufacturing activities. Exports of manufactures consisted largely of processed food (in the widest sense), beverages and tobacco, and other sectors were particularly geared to import substitution.

In the following sections of this chapter, an analysis of the present situation of industry by category is presented, based on available statistical data and investigations carried out in the field by the Consultants' Survey Team. Emphasis has been placed on areas which deserve particular attention, bearing in mind important priorities, namely the utilisation of available resources to the maximum extent and the necessity of expanding or setting-up new export-oriented manufacturing units. When dealing with industrial activities which are historically well established in the Government controlled area, brief pertinent comments are submitted.

The list of industrial categories from which the Survey Team selected specific areas of potential interest is given in Table 10. It was compiled with the help of the Ministry of Commerce and Industry and shows the number of manufacturing units lost in the occupied area, employing more than four persons. The data should be examined in conjunction with the relevant figures in Tables 2 and 3.

FOOD (Code 20)

Compared with 1973, the recorded total gross output for 1974 did not substantially decrease. When examining more closely the figures for July-December of the latter year, the most pronounced loss of production is found to be in the sub-sectors of Dairy Products, of Canning and Preserving of Fruit and Vegetables and of Miscellaneous Food Preparations.

Gross output per person employed rose from about Cf4,500 in 1972 to Cf4,750 in 1973, and was Cf5,600 in 1974. The value added per person employed in these years were successively Cf1,180, Cf1,360 and Cf1,600, which indicates a trend towards improved efficiency, paradoxically even after the invasion (though the increase in the ratios for 1974 may also be due to higher prices).

Table 10

SELECTED MANUFACTURING ACTIVITIES

Number of Establishments Employing more than 4 Persons in 1972,
Number of Establishments Set-up between 1972 and 1974, and Balance
Left in the Government Controlled Area after the Turkish Invasion.

Industry Code	Description	No. of establishments in 1972	Units established in 1972 - 74	No. of units Lost	Balance
201	Meat Products	6	-	3	3
203.1	Canning	14	1	4	11
205	Grain milling	9	-	3	6
206.2	Confectionery	35	-	9	26
206.3	Biscuits	3	-	2	1
209.1	Olive Oil	2	-	1	1
209.2	Other oils	2	-	2	-
210.1	Fodder	6	1	1	6
231.1	Spinning	1	-	-	1
231.3	Weaving	7	-	3	4
231.5	Fabric Dyeing	1	-	-	1
232.1	Hosiery	5	-	1	4
232.2	Underwear	3	-	-	3
232.9	Other knittings	16	5	6	15
241.1	Footwear	60	1	5	56
243	Garments	155	3	41	117
243.2	Dresses	62	1	22	41
243.3	Shirts	18	-	4	14
243.6	Childrens'wear	21	-	6	15
243.9	Other clothing	1	-	-	1
244.3	Embroidery	3	-	-	3
252.1	Wooden cases, barrels	2	-	2	0
260.1	Wooden furniture	103	-	30	73
260.2	Metal furniture and fixtures	15	-	3	12
272.1	Paper bags	2	-	1	1
272.3	Paper boxes	4	-	1	3
272.5	Stationery	1	2	1	2
272.6	Wrapping paper, napkins	2	1	2	1
291.4	Hides and Skins	1	-	-	1
293	Misc. leather	20	3	4	19
313.1	Paints, varnishes	2	2	1	3
319.3	Soap	2	-	-	2
319.4	Detergents	10	-	3	7
331.1	Bricks and Tiles	19	-	17	2
331.3	Tiles, Mosaic	39	-	13	26
333.1	Pottery	2	-	2	0
334.1	Cement	2	-	-	2
339.1	Blocks, Cement	6	-	2	4
339.5	Lime	5	1	4	2
350.4	Al -utensils	3	-	1	2
351.3	Metal containers	1	-	-	1
360.1	Machine Shops	35	-	11	24
360.2	Refrigerators	9	-	3	6
360.7	Machine Repairs	2	-	1	1
360.9	Other Machines	1	-	-	1
399.6	Brooms & Brushes	1	-	-	1
399.8	Plastics	15	7	12	3

The decline of the dairy industry is attributed to a loss of milk production, while that of fruit and vegetable processing is mainly due to the large proportion of the citrus trees in the occupied area. Miscellaneous food preparations suffered particularly from inadequate supplies of olives, oilseeds, carob and fodder materials.

The rehabilitation of the dairy sector, specially cattle, is a long-term process. The Emergency Plan does, however, indicate an effort in this direction. In the short term, the intensification of goat and sheep production (with dual purpose breeds for the latter) would alleviate the problem, particularly with regard to cheese production.

Fruit and vegetable products (which were mainly citrus products) are dealt with in Chapter II. The announced irrigation and horticultural schemes will no doubt enhance the recovery of this sub-sector as they become operational. The rationalisation of the manufacturing facilities, together with their expansion, would be necessary, and new processing lines are suggested, freezing and dehydration, largely for the export market.

Other food and feed products which show promising manufacturing prospects for the local market are vegetable oils other than olive oil, together with by-product oil cakes, as well as a variety of agricultural residues which can be up-graded to valuable animal feedstuffs.

A new approach in the field of meat processing and animal by-product recovery is suggested in this study. The expansion of the pig industry could well lead to a successful pork processing activity on a large scale, offering encouraging exports opportunities for such lines as canned ham and chopped ham, and at a later stage, smoked or cured products. At the same time, the rational utilisation of animal by-products from slaughtering would also make available relatively large tonnages of protein concentrates and mineral supplements which would be required by the livestock sector. The food sector could become a major export earner if its development is properly planned and marketing methods devised accordingly.

BEVERAGES (Code 21)

The loss of production as a result of the invasion is minimal. Non-alcoholic beverages (soft drinks) are being produced in adequate quantities in the Government controlled area, and the alcoholic beverages industry remained virtually unaffected. The latter sub-sector (Nos 211-213) is one of the most important industries. In 1974, its gross output and value added amounted to Cf 11.6 million and Cf 5 million respectively (the corresponding figures in 1973 were Cf 8.9 million and Cf 3.9 million). Domestic exports were valued at over Cf 5.2 in 1974, equivalent to some 10% of the total domestic exports. Sales of principal vine products (excluding raisins) and beer in 1973 - 1974 are given in the following table.

Table 11

SALES OF PRINCIPAL VINE PRODUCTS AND BEER-1973-1974

Volume in million liquid litres

Products	1973			1974		
	Total Sales	Home Sales %	Exports Sales %	Total Sales	Home Sales %	Exports Sales %
Wines	45.7	9.1	90.9	41.6	7.6	92.4
Intoxicating Liquors Brandy, Ouzo, etc.	3.3	94.0	6.0	2.3	92.4	7.6
Eau de vie de vin	2.5	-	100.0	0.04	-	100.0
Beer	14.7	100.0	-	12.5	99.8	0.2

SOURCE: Statistics and Research Department

Exports of sherry increased from 29.1 million liquid litres in 1973 to 33.8 million liquid litres in 1974. Traditionally, the United Kingdom has been the major customer for Cyprus wines taking about 85% of exports. In recent years, the industry has attempted to widen the product range and to develop new markets.

Table 12, which details the export sales of Cyprus wines in 1973, 1974 and January to May 1975, illustrates the importance of sales to the UK. During this period, apart from the UK, more than 26 countries received exports of wine from Cyprus. The pattern of export sales is inconsistent, and the quantities involved are relatively small.

Imports of wine of fresh grapes into certain countries 1970-1972 are listed in Table 13. In 1972, imports from Cyprus achieved a significant share of total imports (about 1% in Austria, Norway and Ireland; over 2.5% in Sweden and 3% in the UK). Exports to Austria, Norway and Ireland have not been maintained and were irregular to Sweden.

The following factors are affecting the present state of the industry.

- i) The United Kingdom (the largest customer) has increased the level of duty and consumer prices at a time of economic recession. This has caused a reduction in consumption which may not last long.
- ii) The future of Cyprus wine sales within the European Economic Community has to be resolved by the end of 1975. The position is complicated by the existence of and problems associated with the "European Wine Lake". If Cyprus wines are allocated an EEC quota, it will be important to retain their price differential as compared with competitive products from Spain and other sources.

The wine industry should be well placed to operate an effective export business. It is engaged in the marketing of 'branded' consumer products and has a substantial investment in consumer promotion over a number of years. This is an investment in future business and cannot be at its most effective when dissipated across too many small markets.

Concentration on one or two markets, in which a significant consumer share can be achieved through sales promotional effort, could be the basis of future growth. In the long term, growth must relate to the capacity of the industry to increase its output and this factor should determine the marketing plan.

Table 12

EXPORT MARKET PURCHASES OF WINE AND COMMANDARIABOTTLED AND IN BULK, 1973 - MAY 1975

Markets	1973		1974		January-May 1975	
	Total Value C£	%	Total Value C£	%	Total Value	%
United Kingdom	3,334,792	80.0	4,605,544	91.1	1,030,882	80.3
Austria	18,066	0.4	3,975	0.1	-	-
Belgium	-	-	1,718	....	-	-
West Germany	344	-	4,890	0.1	-	-
Gibraltar	9,347	0.2	6,146	0.1	6,775	0.5
Greece	57,315	1.4	-	-	-	-
Ireland	11,242	0.3	-	-	-	-
Italy	-	-	555	....	-	-
Netherlands	60,942	1.5	7,442	0.1	-	-
Norway	19,411	0.5	-	-	-	-
Sweden	120,098	2.9	25,441	0.5	50,881	4.0
Switzerland	78,263	1.9	56,390	1.1	-	-
Denmark	3,600	0.1	-	-	-	-
Czechoslovakia	45,390	1.1	66,130	1.3	58,649	4.6
Finland	1,520	....	2,628	....	-	-
East Germany	137,364	3.3	-	-	-	-
U.S.S.R.	62,025	1.5	99,858	1.9	17,406	1.3
Gambia	20,166	0.5	18,762	0.4	9,058	0.7
Kenya	11,458	0.3	6,513	0.1	1,519	0.1
Nigeria	2,097	....	1,875	-	6,275	0.5
Sierra Leone	53,651	1.3	58,303	1.5	27,230	2.1
Tanzania	-	-	1,440	....	-	-
Uganda	4,800	0.1	-	-	-	-
U.S.A.	11,485	0.4	15,390	0.3	7,339	0.6
Canada	23,648	0.6	50,931	1.0	29,380	2.3
Australia	5,092	0.1	10,858	0.2	35,115	2.7
Guiana	-	-	443	....	-	-
Others	34,605	0.8	15,615	0.3	3,993	0.3
T O T A L	4,126,721	100	5,060,847	100	1,284,502	100

SOURCE: Cyprus Imports and Exports Statistics, 1973, 1974 and May 1975

.... less than 0.1%

Table 13

IMPORTS OF WINE OF FRESH GRAPES INTO CERTAIN COUNTRIES'000 US\$

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Main Suppliers</u>
U.S.A.	141,297	156,494	213,359	France
Belgium/Luxemburg	45,723	58,966	86,464	France and 8 Exporting Countries
France	176,765	98,549	166,820	Italy
West Germany	147,437	182,736	238,731	Italy, France and 19 Exporting Countries
Italy	17,698	29,511	40,646	France
Holland	31,291	36,406	56,806	Spain, France
Austria	5,169	6,147	10,222 (CY124)	Italy, Spain
Denmark	13,812	15,115	18,914	Portugal and 6 Exporting Countries
Finland	3,630	3,522	4,791	Spain, France and 7 Exporting Countries
Norway	4,225	4,627	5,536 (CY 50)	France, Spain
Portugal	213	226	279	
Sweden	15,655 (CY217)	16,543 (CY322)	24,247 (CY637)	France and 18 Exporting Countries
Switzerland	54,715	61,582 (CY129)	83,146 (CY134)	France, Italy
United Kingdom	103,026 (CY4,337)	130,525 (CY4,851)	191,019 (CY5,951)	France, Spain and 19 Exporting Countries
Greece	314	344	345	
Ireland	4,333 (CY62)	4,410 (CY59)	6,612 (CY93)	Spain, France
Spain	693	497	2,890	Morocco
Yugoslavia	427	392	65	

CY - Cyprus

SOURCE: UN Statistics

TEXTILES (Code 23)

Decrease in output in the second half of 1974 is due to a combination of a loss of manufacturing units (mainly towel making in weaving and a larger number of knitting mills), as well as to the apparent decline in home sales and exports of garments (the latter category overlaps with Code 243 Wearing Apparel in the industrial classification, presumably due to the fact that several knitting mills also produce finished garments). Details of the situation of the industry are given in the relevant section of Chapter II.

This industry had been growing steadily prior to 1974. Gross output per person employed grew from C£ 1,800 in 1972 to C£ 2,200 in 1973, reaching C£ 2,550 in 1974 in spite of the invasion. The corresponding levels for net output were C£ 860, C£ 1,000 and C£ 1,100. The same reservation is made on the interpretation of these figures as in the case of the food processing sector.

The industry offers a wide scope for expansion on the export market. It suffers, however, from fragmentation and lack of co-ordination. Diversification into new lines of textiles, coupled with a greater effort to improve designs, would be ultimately beneficial to the industry and would stimulate exports of finished garments. The setting-up of a central printing/dyeing/finishing unit may constitute an added advantage. A detailed survey of the industry would be called for to determine the best means to reorganise and expand its activities.

The industry, through the manufacture of finished garments, could become a major export earner, comparable in importance to a well conceived food processing industry.

FOOTWEAR AND OTHER WEARING APPAREL (CODE 24)

Gross output amounted to Cf 12.2 million in 1972, to Cf 13.9 million in 1973 and fell to Cf 12.1 million in 1974, largely caused by a slow-down in the manufacture of clothing. Gross output and value added per employee rose from Cf 1,520 and Cf 640 respectively in 1972, to Cf 2,000 and Cf 800 in 1974, despite the invasion. No substantial investments were made in the sector during that period.

In 1973, the footwear manufacturing sector produced 4.0% of the total manufacturing output and contributed about 0.65% of the Gross Domestic Product. It is a sector of some significance in the economy since it is both export oriented and fairly labour intensive.

The industry has been developing gradually towards self sufficiency at home, at the same time expanding exports.

Table 14

CYPRUS TRADE IN FOOTWEAR - EXPORTS AND IMPORTS

	<u>1969 to May 1975</u>				
	'000 Cf				
	<u>1969</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>Jan - May 1975</u>
Footwear Exports	394.5	648.5	590.9	961.7	649.6
Footwear Imports	211.1	290.6	313.4	214.1	110.7

SOURCE: Cyprus Imports and Exports Statistics, 1973, 1974 and May 1975.

The Cyprus footwear industry in the Government controlled area comprises 56 firms with more than 4 persons, employs over 1500 persons and has an estimated potential production capacity of 2.5 million pairs of shoes annually. Most companies are members of the Cyprus Footwear Association.

One sizeable production unit was lost following the Turkish invasion (a new factory on the Nicosia Industrial Estate). More important to the industry as a whole was the loss of retail outlets and stocks, estimated to have been worth Cf 0.5 million, which has left many firms short of working capital.

The reduction of local demand and loss of tourist sales since July 1974 have led to a cut in output by most firms by about 50%. This is near a break even level and exports offer the best hope of improving this situation. Exports were worth nearly Cf 1 million 1974 and the achievement in 1975 shows promise of exceeding that figure.

In the first six months of 1975, about 400,000 pairs of shoes were exported to 14 countries at an average fob price of about Cf 1.50 a pair. The largest customer in this period was Saudi Arabia, which received about 20% of the total exports. Table 15 shows the exports of footwear from Cyprus and the principal markets supplied. It indicates the relatively small quantities of shoes supplied to individual markets. Considered from the viewpoint of the principal importing countries, Tables 16 and 17 show that Cyprus did not achieve a significant share of UK imports, Cyprus's largest customer. In the Middle East, on the other hand, exports to Kuwait in terms of number of pairs of shoes can be assumed to be about 10% of the market (based on 1971 figures).

Exports of footwear are growing but the industry's ability to exploit its under-utilised capacity to intensify exports is limited by a number of factors, the most significant of which are :

- i. manufacturers are mainly organised to supply the needs of the local market through their own retail outlets;
- ii. efficiency in terms of production, quality control, training and organisation is lagging behind;
- iii. the industry is lacking in coordinated effort to deal with common functions such as raw material purchasing, distribution and export marketing for the mutual benefits of economy, efficiency, and for achieving competitive and profitable export prices;
- iv. the industry is dependent on copying designs from the trend setting markets such as Italy and so tends to be some months behind the fashion. It is interesting to note that the United Kingdom footwear industry has just established its own design unit in Leicester Polytechnic.

Considerable efforts have been and are being made to solve these problems and enable the footwear industry to exploit its under-utilised capacity and develop export sales:

- i. in association with UNDP, the Ministry of Commerce and Industry has provided an extension service to this industry, supported by the participation of a UNIDO expert in footwear production. Practical results are already being achieved in terms of production and quality control;
- ii. during 1974, the Ministry commissioned a study of export market opportunities for footwear in West Germany. The report provides both an indication of the market possibilities and an analysis of the basic problems of the industry with proposals to resolve them. This is a valuable contribution to the development of a future marketing strategy for the industry.
- iii. footwear manufacturers will benefit from the many Government facilities which have been and are being provided to assist the industry to export, such as the Export Guarantee scheme and training programmes for both managers and employees.

It is estimated that the footwear industry has a production capacity of up to 2.5 million pairs of shoes with single shift working. In theory, full utilisation of the available capacity could produce over 7 million pairs of shoes a year with multi-shift operation. The exportable potential could well reach 6.5 million pairs of shoes.

It is suggested that expansion must be pursued with caution and that an essential first step is to determine a marketing strategy for the footwear industry to which development and expansion can be geared.

There is no doubt that the footwear industry must pursue the programme which is being undertaken to improve efficiency, productivity, quality, management and staff training to ensure that it is both competitive and profitable.

The industry's total production capacity of 7 million pairs of shoes is small in relation to the requirement of most European markets. The mass merchandising demand of these markets is geared to obtaining supplies from organisations capable of large scale production at low cost. New competition in these markets is coming from the State factories of Eastern Europe and China.

In this situation, the Cyprus footwear industry should capitalise on the flexibility possible to small scale production and take advantage of its relatively low labour costs. The small scale establishments could specialise in the provision of relatively small quantities of quality shoes aimed at those sectors of the European market where quality can still command high prices. Pending the development of the industry to such an advanced stage, it might be best to concentrate early efforts in the markets of the Middle East.

There is a need within the industry for an effective central organisation to guide members on the development of fashion lines and promote exports, in addition to coordinating the purchasing of raw materials and other functions of mutual benefit.

Table 15

EXPORT TRADE IN FOOTWEAR: PRINCIPAL MARKETS

1973 - May 1975. Quantity, pairs of shoes and value Cf

Footwear with soles and uppers of rubber or plastic materials.

Markets	1973		1974		Jan-May 1975	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	255,967	91,307	231,213	112,178	60,090	39,666
Belgium	....	....	4,800	3,400	-	-
W. Germany	56,660	11,357	72,860	15,906	20,500	6,287
Australia	11,060	1,823	....	....	-	-
Others	1,000	765	500	375	-	-
T O T A L	324,787	105,252	309,373	131,859	80,590	45,953

Footwear with soles of leather; footwear with soles of rubber or plastic.

Markets	1973		1974		Jan-May 1975	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	26,272	44,650	61,885	82,334	5,040	840
Netherlands	....	....	7,808	26,461	6,055	14,568
Bulgaria	15,478	36,189	46,348	129,992	25,655	68,602
Czechoslovakia	....	....	2,563	8,488	....	....
Abu Dhabi	....	....	....	....	5,658	11,574
Bahrein	21,008	29,234	33,074	57,012	22,910	49,802
Dubai	30,274	50,090	24,579	45,291	11,978	23,818
Kuwait	72,952	89,474	82,867	103,305	47,185	89,187
Lebanon	1,879	2,718	2,200	4,170	....	....
Muscat and Oman	....	....	8,154	14,855	20,104	32,564
Qatar	4,274	6,040	....	....	....	....
Saudi Arabia	55,052	80,622	116,270	166,568	71,555	102,374
United Arab Republic	2,775	3,678	....	....	....	....
Kenya	....	....	....	....	2,216	6,300
Libya	31,698	53,419	30,620	82,452	15,861	47,780
Nigeria	3,398	9,145	3,000	6,900	....	....
Tanzania	1,600	3,660	....	....	....	....
Zaire	2,750	4,988	....	....	....	....
Zambia	3,054	7,255	....	....	....	....
U.S.A.	8,144	26,554	10,802	40,098	....	....
Canada	9,002	22,913	12,670	32,548	2,917	5,976
Others	11,317	17,447	9,016	20,641	7,891	15,021
T O T A L	300,927	488,076	451,856	821,115	245,025	468,406

SOURCE : Imports and Exports Statistics

Table 16

IMPORTS OF FOOTWEAR INTO CERTAIN COUNTRIES

'000 US\$

	1970		1971		1972		1973		1974	
	851.01	851.02	851.01	851.02	851.01	851.02	851.01	851.02	851	851
U.S.A.	136,535	475,821	178,084	568,645	195,906	696,398	NA	NA	NA	NA
	(150.67million prs)	(172million)		(CY217)		(CY179)				
Belgium/ Luxembourg	7,755	56,738	12,118	71,620	13,806	91,290	136,700	178,200	178,200	178,200
France	10,020	56,140	13,793	65,324	17,650	87,169	131,300	185,600	185,600	185,600
West Germany	31,800	212,479	55,356	281,041	64,546	373,836	538,100	NA	NA	NA
Italy	969	3,676	875	4,435	1,211	7,489	14,100	NA	NA	NA
Holland	8,039	54,875	10,292	68,735	9,585	87,271	117,200	NA	NA	NA
Austria	3,435	14,143	4,779	18,084	5,899	22,114	39,500	60,400	60,400	60,400
Denmark	4,977	26,499	5,547	25,513	6,260	25,791	46,400	NA	NA	NA
Finland	2,350	7,099	2,328	5,058	1,484	6,766	16,100	15,600	15,600	15,600
Norway	4,159	21,580	8,180	24,491	7,345	29,241	45,000	54,300	54,300	54,300
Portugal	850	449	638	543	422	691	1,900	NA	NA	NA
Sweden	6,586	53,212	10,513	52,596	11,986	62,627	80,400	97,400	97,400	97,400
Switzerland	7,286	48,170	11,827	54,476	16,046	70,986	106,900	135,700	135,700	135,700
United Kingdom	25,756	70,800	43,049	88,761	40,161	112,385	206,900	255,700	255,700	255,700
	(253.7million prs)	(527million prs)	(CY 330)	(CY 427)	(CY 362)	(CY232)				
Greece	-	89	-	101	-	114	300	NA	NA	NA
Ireland	2,192	3,405	2,659	5,175	3,860	7,791	17,900	NA	NA	NA
Spain	307	1,377	578	1,378	1,111	2,697	5,700	NA	NA	NA
Yugoslavia	3,642	8,440	3,199	6,456	642	3,341	NA	NA	NA	NA

851 = All Footwear 851.01 = Footwear of Rubber or Plastic 851.02 = Footwear mainly of Leather
 CY = Imports from Cyprus NA = Not available

SOURCE: UN & OECD Statistics.

Table 17

IMPORTS OF FOOTWEAR INTO CERTAIN COUNTRIES

'000 US\$

(from 14 Major Exporting Countries)
mainly OECD members

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>Remarks - Major Supplier</u>
Kuwait	2,090	1,538	1,638 (757,000 prs)	Italy and 47 Exporting Countries
Jordan	96	120	59	
Libya	4,722	4,913	5,594	Italy
Iran	92	69	105	
Iraq	48	118	55	United Kingdom
Saudi Arabia	1,134	1,480	1,621	
Lebanon	543	588	592	
Syria	-	-	41	
Egypt	6	26	42	
Sudan	142	42	12	
S. Yemen	295	264	33	
Ethiopia	87	105	105	
Algeria	172	109	138	France
Morroco	186	195	147	
Tunisia	95	90	140	

SOURCE: U.S. Market Share Reports

WOOD AND CORK PRODUCTS (Code 25)

This sector includes primary processing, principally sawmilling, contributing to the gross output (which exceeded C£2.2 million in 1973) to the extent of some 50%, together with miscellaneous finished wood-based products (except furniture), including barrels and baskets. Cork is not used to any appreciable extent.

The industry suffered severely from the Turkish invasion because of two main reasons: the loss of a substantial part of the forest reserves including the burning of an area in the southern range which has damaged about 0.3 million M³ of timber, and the decline in the production of wooden containers destined for the packaging of fresh agricultural produce.

A salvage operation is being carried out in the devastated forest area and the overall felling rate of intact trees (mainly pine) has been reduced. The Forestry Department indicated, however, that adequate quantities of timber will be made available to the new sawmill and chipboard factory located near Nicosia. Thus, the construction industry, and to a lesser extent, the furniture making industry will not be seriously affected for some years to come, unlike the manufacture of "bruce boxes". The latter, however, could be made from plywood which is to be produced in a new unit near Nicosia. Cardboard, which is also used to pack a variety of horticultural produce, is now scarce and the necessity of having recourse to a combination of materials, when large exports of fresh produce will be resumed, will arise. Perhaps a combination of wood, paper and plastic materials would offer the best solution.

FURNITURE (Code 26)

This industry is discussed in some detail in Chapter II. A re-orientation of this activity in the Government controlled area is needed, to minimise the effect of fragmentation and utilise as much locally available raw materials as possible. An encouraging factor is the production of chipboard and plywood mentioned above. The industry may regain its importance by concentrating on simple functional items for the home market, as well as for the export market which would offer outlets for the "knock-down" type of furniture.

PAPER PRODUCTS (Code 27)

Until 1974, the gross output of this sector had been growing steadily, reaching about C£1.8 million in 1973. A number of paper and board conversion units were lost to the occupied area.

A new, modern kraft paper sack plant in Limassol is capable of producing 50,000 - 55,000 multi-ply sacks per 8-hour shift, from imported paper. If operated over two shifts a day and 270-280 days a year output could comfortably reach 30 million sacks, enough to meet the needs of the cement industry, which will expand shortly to an

aggregate capacity of 1.1 million tons of product per annum, leaving 8-10 million sacks for the feedstuff compounding industry (this quantity would be adequate for some years to come). The lime-making industry was using 3-4 million kraft sacks before the invasion; plans to re-activate this activity are materialising and the possibility exists to use plastic film bags produced by the local plastics industry (also for a range of chemicals), should difficulties arise in securing adequate quantities of kraft paper from international sources at a competitive price.

No major problem will exist in reactivating the paper conversion industry (including sacks, bags, toilet paper and stationery). The economics of manufacturing corrugated board from waste paper, pulp and other suitable materials would be problematic because of the large outputs required to make such an operation viable. This poses the question of pulp-making in Cyprus. The scarcity of wood resources and, again, economies of scale, would not be conducive to contemplating the production of high quality pulp and paper in Cyprus. Nevertheless, the possibility of using straw pulp in conjunction with imported long fibre pulp for the manufacture of lower grades of paper deserves consideration. The future availability of straw will depend on the extent of cereal production. The cost of the raw material to the processing site and the size of the operation would constitute important factors in the economics of pulp and paper production, an industry which is relatively capital intensive.

CHEMICALS (Code 31)

Rapid growth was characterising this sector until the invasion. In 1973, gross output was some C£3.6 million. Sizeable factories lost to the occupied area include mainly paints and detergents units. Most of the existing chemical factories depend largely on local outlets, and capacities are on the whole adequate.

The manufacture of two new chemicals for export, copper sulphate and sodium bichromate, is suggested in this report. This would increase the value derived from the corresponding metallic minerals.

Crude sea salt is being harvested in the Larnaca area and further processed into edible and industrial salt of a relatively low quality. A project for the production of 20,000 tons of salt per annum has been investigated by the Ministry of Commerce and Industry, with the assistance of a UNIDO expert. The proposed magnitude of the operation is modest compared with that in some North African countries, particularly Tunisia, Algeria and Morocco.

The salt study takes into account the possibility of utilising part of the output for the electrolytic production of caustic soda and chlorine. Both these products have a limited demand in Cyprus and their export would encounter marketing difficulties. Perhaps at a first stage, production should concentrate on edible salt (kitchen and table types), which fetch higher prices than industrial salt, for the home and the export market.

The manufacture of sulphuric acid from local pyrites will be undertaken by Hellenic Mining Co. The annual capacity of the plant will be 180,000 tons of acid. The project was initially conceived in conjunction with the manufacture of ammonium sulphate and nitrogen-phosphorus (NP) compounds, based on liquid ammonia and phosphate rock to be imported. The loss of agricultural land and the highly capital intensive nature of such a fertiliser Complex have led to the implementation of the sulphuric acid project, for the time being, which seems to stem from the fact that sulphuric acid might be easier to market than pyrites, taking advantage of their low cost of production. If economically feasible, the setting-up of a compounding plant might well be justified at a later date, based on imported ammonia and phosphoric acid (rather than producing the latter chemical from imported phosphate rock and locally produced sulphuric acid). Thus, the success of the venture will necessitate the conclusion of special long-term arrangements with producers of phosphate rock/phosphoric acid and ammonia, both at the primary and secondary development stages of the project.

NON-METALLIC MINERAL PRODUCTS (Code 33)

Gross output grew from C£7.1 million in 1972 to C£8.1 million in 1973. Loss of production after the invasion is attributed largely to that of brick-making and the decline of the building industry. Brick production, together with stone crushing and lime manufacture, are being revived in the Government controlled area.

The largest expansion likely to boost this sector is in cement manufacture, and a total output of 1.1 million tons is anticipated for 1976, largely destined for the export market.

A project for the manufacture of asbestos cement pipes has been studied by the Ministry of Commerce and Industry. The project is commented upon in Chapter II, and although the economics of the proposed operation appear to be marginal, the new irrigation schemes, together with the requirements of public works, favour the implementation of the project, particularly as cement and part of the asbestos needed are available.

The production of certain types of asbestos-cement sheets, possibly in the existing plant producing corrugated sheet and low pressure pipes, is suggested in the present report. Another non-metallic mineral product of interest is simple household tableware and, subject to further studies, could offer export possibilities.

Another feasibility study carried out by the Ministry with the assistance of UNIDO relates to the manufacture of 5,000-7,000 tons of glass containers per annum (mainly bottles for the beverage industry). Although a large proportion of good quality sand will have to be imported, together with most other raw materials needed, the project appears to be economically attractive. Expert advice is being sought through UNIDO to clarify certain technological matters prior to the establishment of this new industry.

METAL PRODUCTS AND ENGINEERING INDUSTRIES

Reference is made to the appropriate section of Chapter II. The loss of a relatively large number of machine shops has particularly affected this group of industries. Foundry capacity, both ferrous and non-ferrous (copper alloys), is so far adequate in the Government controlled area.

These industries merit a thorough review of their potential, firstly in fulfilling the rising demand for a number of items on the home market (pumps, hand tools, tankage, etc.) and secondly in terms of expanding exports in already established lines, mainly pumps. It is believed that, as industry expands in Cyprus, metal working and engineering industries will assume an increasingly important role, both in supplying inputs and as a repair and maintenance service. Suggestions are made in this respect in Chapter II.

With regard to the manufacture of consumer durables, such as refrigerators and air conditioners for export, possibilities may exist, but the scale of the operation is unlikely to be large enough to make such a venture particularly attractive.

MISCELLANEOUS INDUSTRIES (Code 39)

In spite of the Turkish occupation, the plastics industry, which is the most important activity within the group, is recovering quickly. A wide range of products can be produced by the existing units in the Government controlled area, and no major expansion in capacity is foreseen, as output can easily be increased by working over longer hours a day and periods of the year (reference is made to the relevant section of Chapter II).

Scope exists for the manufacture of glass reinforced polyester fishing boats and perhaps other products based on the same material. This activity is not new and was carried out on a small scale in Famagusta. A larger operation, based on improved technology, is suggested in the report.

CHAPTER II

II.1

FOOD PROCESSING

II.1.1

BACKGROUNDAgriculture

This sector is one of the most important in the Cyprus economy and the basis of the food and beverage industry. Agriculture's contribution to the Gross Domestic Product showed a severe drop, owing to the effects of drought, from 17.7% in 1972 to 13.4% in 1973. Value Added at current factor cost, having expanded from C£ 14.6 million in 1960 to a peak of C£ 48.4 million in 1972, fell to C£ 40.4 million in 1973. The sector ceased to make the most important contribution to national income.

Agriculture remained the leading source of employment with 93,500 employees in 1973; these comprised 33.4% of the economically active population. Agricultural employment has been decreasing as alternative job opportunities have become available with full employment. Despite this, between 1960, following Independence, and 1973, a strong average annual rate of growth was achieved in the Agricultural Sector, an indication of increasing efficiency.

Table 18

AGRICULTURAL AVERAGE ANNUAL GROWTH RATE
at Current Prices 1960-1973

	<u>%</u>
Crops and livestock products	10.6
Crops	8.1
Livestock products	13.0
Ancillary activities - Raisins, Zivania and Halloumi	8.1
Total Agricultural Production	9.4
Gross Product of Agriculture (Value Added)	9.2

SOURCE: Statistics and Research Department

Table 19 which details the main agricultural outputs and inputs between 1969 and 1973, shows the variations within the growth patterns. Live-stock production has tended to develop at a more consistent rate than that of the horticultural crops which are more subject to the vagaries of climate.

Table 19

AGRICULTURAL OUTPUT AND INPUT 1969-1973

'000 C£ at current prices

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Crops	31,732	29,097	37,110	38,384	32,235
Livestock Products	16,921	18,106	21,384	23,923	27,702
	<u>48,653</u>	<u>47,203</u>	<u>58,494</u>	<u>62,307</u>	<u>59,937</u>
Fishing	420	477	646	718	904
Ancillary Products					
Raisins, Zivania, Halloumi	2,866	2,937	3,077	3,372	3,697
Wheat, Barley, Legume, Straw	611	343	687	783	245
Green Fodder	600	800	800	900	250
Animal Manure	374	397	406	605	687
Total Agricultural Production	<u>53,608</u>	<u>53,862</u>	<u>65,304</u>	<u>70,729</u>	<u>65,955</u>
<u>Operating Expenses</u>					
Feeding Stuff	6,595	7,996	8,458	10,478	12,331
Chemical Fertilizers	2,082	2,571	2,317	2,376	3,080
Animal Fertilizers	374	397	406	605	687
Gross Domestic Product (Agriculture) Value Added	<u>39,158</u>	<u>35,552</u>	<u>46,006</u>	<u>48,365</u>	<u>40,510</u>

SOURCE : Agricultural Survey, 1973

The effects of the Turkish invasion and occupation have had serious consequences for the agricultural sector: (Table 20)

- i. The Turkish occupied area is 40% of the total area of Cyprus.
- ii. It is estimated that in 1972 about 70% of Cyprus' total gross output emanated from that area and adjacent affected areas.
- iii. Agricultural losses are considerable. The most significant are citrus (79% of total citrus production lost), cereals (68%), potatoes (25%) and carrots (86%). In 1973, as in previous years, about 80% of citrus production was exported as fresh fruit. This, with processed citrus juices and segments, had a value of over C£ 17 million and represented nearly one third of total domestic exports. The livestock production of the occupied area was about 47% of the total.
- iv. Agricultural exports from the occupied area in 1973 were estimated at up to 60% of total agricultural exports and 42% of all domestic exports.
- v. The total loss of agricultural property, equipment, crops, stocks and livestock was estimated to be over C£ 30 million excluding the value of land and established plantations, orchards, etc.

Table 20

AGRICULTURAL PRODUCTION 1974

Effects of Turkish Invasion and Occupation

Kind of Production	Value of total Production	Value of production from Turkish Occupied area	% of total production value-Turkish Occupied area
<u>CROP PRODUCTION</u>	<u>C f million</u>	<u>C f million</u>	<u>%</u>
Citrus	12.30	8.90	72
Deciduous fruits	5.80	0.60	10
Potatoes	3.90	0.40	10
Other Vegetables	7.90	2.80	36
Bananas	0.50	0.01	2
Cereals	10.70	6.50	61
Fodder Plants	3.20	1.50	47
Tobacco	0.40	0.40	100
Olives	2.80	1.20	43
Carobs	1.90	0.50	27
Table Grapes	1.80	0.02	1
Grapes for Wines	7.21	0.07	1
<u>ANIMAL PRODUCTION</u>			
Goats and Sheep	16.20	8.00	50
Cattle	6.20	3.20	52
Pigs	6.50	2.40	37
Poultry	6.10	3.00	50
TOTAL	93.41	39.50	42

SOURCE : Ministry of Agriculture and Natural Resources.

Table 21

FOOD AND BEVERAGE MANUFACTURING PRODUCTION, VALUE ADDED, EXPORT

AND EMPLOYMENT 1972 - 1976

	1972	%	1973	%	1974	%	1975	%	1976	%
<u>Production (Gross Output) Cf'000</u>										
Food Manufacture	23,064	23,8	24,140	21,8	22,140	20,4	18,800	19,3	20,450	17,9
Beverage Manufacture	10,228	10,5	12,194	11,0	14,817	13,6	14,500	14,9	14,600	12,8
All Industry (Manufacturing)	97,020	100,0	110,639	100,0	108,630	100,0	97,258	100,0	114,306	100,0
<u>Value Added Cf'000</u>										
Food Manufacture	6,087	15,0	6,889	14,9	6,588	16,3	5,267	15,0	5,720	13,5
Beverage Manufacture	5,382	13,2	5,623	12,2	6,439	16,0	6,298	17,9	6,343	14,9
All Industry (Manufacturing)	40,530	100,0	46,102	100,0	40,293	100,0	35,162	100,0	42,433	100,0
<u>Export</u>										
Food Manufacture	3,328	27,1	4,053	27,3	3,255	19,2				
Beverage Manufacture	4,512	36,7	5,217	35,1	5,288	31,2				
All Industry (Manufacturing)	12,300	100,0	14,867	100,0	16,940	100,0				
<u>Exports as % of Gross Output</u>										
Food Manufacture		14,4		16,7		14,7				
Beverage Manufacture		44,1		42,7		35,7				
All Industry (Manufacturing)		12,7		13,4		15,6				
<u>Employment No.</u>										
Food Manufacture	5,114	14,5	5,077	14,1	4,110	15,1	4,067	16,7	4,332	14,6
Beverage Manufacture	1,960	5,5	1,956	5,4	1,705	6,2	1,815	7,4	1,838	6,2
All Industry (Manufacturing)	35,339	100,0	36,019	100,0	27,264	100,0	24,347	100,0	29,569	100,0

NOTES: 1974 - Data are for the whole of Cyprus January to June and for the Government Occupied Area July-December. Employment figures are an average. 1975 & 1976 figures are projections by the Ministry of Commerce and Industry.

SOURCE: Statistics and Research Department and Ministry of Commerce and Industry.

The Food and Beverage Industry

Both the food and beverage manufacturing sectors of industry have experienced a steady growth in both production and value added between 1965 and 1973.

The food industry achieved a growth of 79% in production and 183% in value added, and the beverage industry a growth of 163% in production and 122% in value added over this period.

During 1973, the two sectors in combination contributed 5.3% of the Gross Domestic Product and employed 2.5% of the economically active population.

Table 21 gives a broad picture of the food and beverage manufacturing sectors in the context of the Manufacturing Industry. Food and beverage production was about a third of all manufacturing output and contributed one half or more of manufactured exports.

In addition to the serious loss of agricultural raw materials, especially citrus, the food and beverage industries suffered material losses of production capacity, plant, equipment and employment. As Tables 2 and 3 show, the food industry experienced the greatest losses while the beverage sector was only marginally affected.

II.1.2 AGRICULTURAL DEVELOPMENT PROGRAMME

The Emergency Economic Action Plan 1975-1976

The Cyprus Government's Emergency Economic Action Plan, 1975-1976, which is based on the Third Five-Year Plan, is designed to combat the problems resulting from the Turkish invasion and occupation. The principal objectives of the Plan are :

- i. to create employment opportunities for as many people as possible;
- ii. to replace, as much as possible, production lost, particularly basic foodstuffs, raw materials and exportable products;
- iii. to replenish and save as much foreign exchange reserves as possible;
- iv. to ensure that economic burdens are shared and secure an acceptable minimum standard of living for the whole population.

To implement its programmes for the revitalisation and reactivation of the economy the Government plans to invest about C£ 51 million, of which some C£ 18 million (36%) will be allocated to agricultural and rural development and C£ 6 million to industry.

Agriculture - Reactivation and Development

The main constraints on agricultural development are : the shortages of both land and water; the limited financial resources; the need to provide opportunities for as many unemployed farmers and agricultural workers as possible.

In outline, the agricultural programme will concentrate on exploiting available land by the establishment of small agricultural and livestock units requiring a low capital outlay but providing adequate return to support the farmer. First priority will be given to annual rather than perennial crops, on irrigated land to vegetables and flowers and on dry-lands, to cereal crops. Fodder crops will be encouraged when suitable land is available.

To implement the programme, efforts are being made to make available or acquire suitable unused land. It is hoped that this will be adequate to provide units for over 4,500 families of displaced farmers and that about 6,000 families in all will be found employment in the direct agricultural sector.

In addition, within the period of the Emergency Plan, it is intended to extend and improve the exploitation of available and known water resources. This is estimated to provide about 15,000 donums of permanently and 9,000 donums of seasonally irrigated land in addition to that presently in the Government controlled area. This will include between 5,000-7,000 donums of permanently irrigated land in the Paphos area.

Considerable caution will be exercised in the allocation of land to perennial crops, especially those such as citrus which require 10 years to reach maturity of yield.

Cyprus is in the process of reorganizing and revitalizing its agriculture to cope with the changes in the product mix and the emphasis on self-sufficiency and export development which are its present priorities. It is intended to encourage the production of vegetables and some flowers by intensive methods, taking full advantage of climate, irrigation and both "cold" and "hot" green-houses.

In the animal husbandry sector, development emphasis is being placed on sheep and goats and secondly on cattle. The development stage for pigs and poultry had been completed prior to the invasion. It is anticipated that the losses in both these latter sectors will be made good by the end of 1976 and self-sufficiency achieved. Individual plans for the further expansion of pig production are already in progress. Some farmers are aiming to treble their output by 1978-1980.

The Ministry of Agriculture has established a basis for future developments in the Emergency Plan. Longer term, this foundation will be strengthened by the implementation of three major irrigation schemes.

- i. The Paphos Project
- ii. The Vassilikos Pendaskinos Project (Larnaca)
- iii. The Akrotiri Project in conjunction with land development in the Limassol area.

Although preliminary activity has begun on the initial phase to expedite the Paphos Project, all three projects are dependant on outside financial assistance. It is understood that the World Bank has agreed in principle to financing the Paphos project.

Each project will entail a period of construction and implementation of the water distribution facility which may take 3-5 years. On completion the projects will make available :

Paphos: about 35,000 donums of irrigated land;
Larnaca: nearly 15,000 donums of irrigated land;
Akrotiri: about 35,000 donums of irrigated land;

The detailed plans for each of these projects have been developed over a number of years and include an indication of the proposed cropping patterns of the land to be irrigated. It seems probable that the change of emphasis for agricultural production, consequent to the Turkish invasion will lead to changes in the eventual cropping pattern. Current priorities are for annual crops rather than perennial crops and citrus, table grapes, bananas and avocado were all given varying priority in the original plans.

The Paphos Project

As an indication of the original plans and their effect on agricultural production, the following table shows the effects of the Paphos Irrigation Project.

Table 22

PAPHOS - PRESENT CROPPING PATTERN AND OUTPUT

<u>CROP</u>	<u>Net Area</u> hectares	<u>Average Yield</u> ton/hectare	<u>Output</u> tons
Cereals	5,220	1.5	7,830
Legumes and others	430	1.0	430
Vegetables	340	20.0	6,800
Table Grapes	320	12.0	3,840
Citrus	80	30.0	2,400
Bananas	40	15.0	600

SOURCE : Water Development Department

Table 23

PAPHOS - FUTURE CROPPING PATTERN AND OUTPUT - IRRIGATED AREA

<u>CROP</u>	<u>Net Area</u> hectares	<u>Average Yield</u> ton/hectare	<u>Output</u> tons
Vegetables	2,040	30.0	61,200
Table Grapes	1,800	15.0	27,000
Grapefruits	550	45.0	24,750
Lemons	350	35.0	12,250
Other Citrus	100	30.0	3,000
Bananas	120	20.0	2,400

SOURCE : Water Development Department

The first phase of the Paphos Scheme which entails the use of river water and additional boreholes to irrigate about 5,000 donums is being implemented as part of the Emergency Plan. This area plus that to be irrigated later, will total over 40,000 donums in all. It is planned to erect greenhouses on 2.5% of the land.

Greenhouses can produce significant increases in crop yields as shown by the following data.

Table 24

AVERAGE INCOME FROM VEGETABLES - OPEN LAND AND GREENHOUSES

£ per donum per annum

<u>Method of Cultivation</u>	<u>Expenses</u>	<u>Gross Income</u>	<u>Net Income</u>
Open Land	81.5	180.0	98.5
Low Tunnel Greenhouses	216.1	547.2	333.1
"Hot" Houses	1,265.5	2,490.0	1,224.0

SOURCE : Ministry of Agriculture and Natural Resources

On the basis of the above calculations it is planned to allocate land in the Paphos Irrigation Project area as shown below :

Table 25

LAND UTILISATION IN THE PAPHOS IRRIGATION PROJECT AREA

<u>No. of farmers</u>	<u>Size of Units</u> donums	<u>Type of Cultivation</u>	<u>Total area of each type, donums</u>	<u>Average Annual Income per Farmer £</u>
1,000	1	"Hot" Houses	1,000	1,224.0
3,000	2	Low Tunnel Greenhouses	6,000	662.5
5,000	7	Open Land	35,000	659.5

Although the initial number of plastic greenhouses is limited by the need to finance the initial investment, it is possible that the area under greenhouses will eventually be larger.

The advantage which heated plastic greenhouses confer compared with the yields obtained from open irrigated land is shown in the following table :

Table 26

"HOT" HOUSE AND OPEN LAND CULTIVATION VEGETABLE YIELDS

Yields from selected vegetable crops

<u>Crop</u>	<u>tons/donum</u>	
	<u>"Hot" House Yield</u>	<u>Open Land Yield</u>
Tomatoes	17.5	5.0
Cucumbers	50.0	3.75
Beans	3.75	1.87
Melons	15.0	4.4
Water Melons	15.0	5.0
Courgettes	12.5	3.75
Peppers	6.25	3.75
Aubergines	4.5	3.75

SOURCE : Ministry of Agriculture and Natural Resources

It must be noted that the nature and quality of some crops which are 'forced' in hot house cultivation differ from those of similar crops produced normally.

The following vegetable crops could be produced on irrigated open land :

Table 27

CROP YIELDS ACHIEVABLE ON IRRIGATED OPEN LAND

<u>Product</u>	<u>Yield tons/donum</u>
Celery	11.25
Spinach	10.0
Cauliflower	5.0
Cabbage	4.4
Lettuce	11.25
Beetroot	3.75
Artichokes	3.75
Okra	3.75
Onions	3.75
Spring Onions	11,000 bunches

SOURCE : Ministry of Agriculture and Natural Resources

The Ministry of Agriculture has established the broad pattern for future agricultural development. Implementation will involve tackling many new problems and their solutions will influence the course of development. Fortunately, between the provision of financial assistance, supply of irrigation water and expert advice it is possible to guide the activities of individual farmers.

A foretaste of the difficulties which can arise was experienced early in 1975. The farmers responded to an appeal to intensify their efforts and found that plans and facilities to market the resulting produce were not adequate. Valuable lessons will have been learnt from this. It is interesting to note that the Co-operative Organisation will be responsible for the marketing of fresh produce. Their marketing plans, including the logistics of collection, transport and distribution, are already being developed in association with the Agricultural Research Institute.

It may require one or two years' operating experience to master the problems and to determine the most effective and profitable methods of exploiting Cyprus's agricultural potential. In consequence, it may take several years before any regular crop and production pattern evolves.

Agribusiness is now vital to the economy of Cyprus and it is essential that its potential is fully evaluated to ensure the maximum benefits. The first priority for agriculture is to meet home demand as far as possible. In the context of government policy to encourage the production of vegetables on an intensive basis, once home requirements are covered, the balance will be available for export as fresh produce. Where it is possible to exploit the 'early' or 'out of season' markets, the returns can be high. There may also be scope for exporting 'ordinary' fresh vegetables but the returns are likely to be variable. The cost of transport and distribution may be a critical factor. For all fresh produce exports, the availability of adequate supplies to make up an economic shipment will be an important consideration.

A complementary use for the vegetable crops will be processing. Quality standards should be high whether the vegetables are to be frozen, canned or dehydrated.

As an aid to the planning of the utilisation of vegetable crops, it is essential that a study be undertaken to determine the best ways of allocating output between fresh and processed products. It will also be advantageous to review the cropping pattern to ensure continuity in the availability of produce, especially when processing is involved.

Table 28 which shows the production of principal agricultural products in 1974, includes 30 vegetables with widely varying yields, and 17 different fruit crops, of which much of the citrus has been lost. This illustrates the wide spectrum of crops which can be grown. The function of the recommended study will be to establish an optimum cropping pattern best suited to the export objectives of fresh and processed products at the same time ensuring maximum returns to the primary producers.

Table 28

PRODUCTION OF PRINCIPAL AGRICULTURAL PRODUCTS 1974

January - June : All Cyprus

July-December : Areas controlled by Government

<u>Crops</u>	<u>Quantity</u>	<u>Crops</u>	<u>Quantity</u>
Wheat	95,000 t	Pepper	400 t
Barley	110,000 t	Peas - fresh	1,400 t
Vicos	3,000 t	Grapes	145,000 t
Vetches	1,500 t	Oranges	155,000 t
Favetta	500 t	Lemons	18,000 t
Oats	750 t	Grapefruit	57,000 t
Tobacco, Cotton, Sesame,)	NA	Mandarines	3,000 t
Cumin, Aniseed, Linseed)		Olives	8,000 t
Chickpeas	250 t	Apples	7,500 t
Lentils	200 t	Pears	950 t
Louvana	150 t	Quinces	150 t
Groundnuts	200 t	Apricots and Kaisha	1,300 t
Broadbeans - fresh	1,500 t	Cherries	1,200 t
Broadbeans - dry	2,250 t	Peaches	2,300 t
Cowpeas - fresh	700 t	Plums	1,000 t
Cowpeas - dry	150 t	Strawberries	450 t
Potatoes	150,000 t	Bananas	2,200 t
Carrots	14,500 t	Loquats	450 t
Tomatoes	16,500 t	Pomegranates	250 t
Colocase	4,000 t	Figs	1,000 t
Cucumbers	11,300 t	Hazelnuts	250 t
Water Melons	17,500 t	Walnuts	150 t
S. Melons	4,000 t	Almonds	3,500 t
Haricot beans - fresh	2,200 t	Carobs	6,000 t
Haricot beans - dry	500 t	Okra	800 t
Artichokes	5,000 t	Celery (1,000 bundles)	2,000
Cabbages	4,000 t	Beetroots	2,200 t
Onions	2,000 t	Eggplants	2,000 t
Onions - sets	150 t	Marrows	4,000 t
Onions - fresh (1,000 bundles)	1,500	Cauliflower	3,000 t
<u>Meat</u>		<u>Milk</u>	
Cattle	2,000 t	Cows	18,000 galls.
Sheep and Lambs	4,250 t	Sheep	20,000 galls.
Goat and Kids	2,550 t	Goats	29,000 galls.
Pork	14,500 t	<u>Eggs</u>	7,800,000 doz.
Poultry	7,900 t	<u>Honey</u>	160 t
<u>Wool</u>	653 t		

SOURCE : Ministry of Agriculture and Natural Resources

Table 29
PRODUCTION OF PRINCIPAL AGRICULTURAL PRODUCTS

1971-1973

Products	Unit	1971	1972	1973	1974 *
Wheat	Tons	95,000	80,000	4,000	95,000
Barley	"	110,000	80,000	3,000	110,000
Oats	"	1,300	1,000	150	750
Broadbeans, dry	"	3,000	2,500	1,800	1,500
" , fresh	"	1,500	1,350	1,450	2,250
Vetches	"	5,000	2,000	200	1,500
Haricot beans, dry	"	850	750	400	500
" " , fresh	"	2,650	2,500	2,250	2,200
Vicos	"	6,000	4,000	500	3,000
Potatoes	"	175,000	172,000	160,000	150,000
Tobacco	"	1,100	960	66	NA
Grapes	"	182,000	165,000	95,000	145,000
Olives	"	15,000	20,000	1,500	8,000
Carobs	"	32,000	38,000	14,000	6,000
Carrots	"	15,000	16,500	12,000	14,500
Melons	"	7,500	6,800	6,000	4,000
Water Melons	"	24,000	22,000	20,000	17,500
Oranges	"	163,000	144,500	120,000	155,000
Lemons	"	33,000	36,000	41,000	18,000
Grapefruits	"	60,500	56,500	67,000	57,000
Apples	"	10,500	9,800	9,300	7,500
Almonds in Shell	"	4,000	4,000	1,000	3,500
Eggs	1000 doz	9,600	10,100	9,800	7,800
Poultry meat	Tons	9,850	10,300	10,000	7,900
Sheep & Goat Meat	"	8,650	9,040	10,410	6,800
Beef & Veal	"	3,200	3,500	3,900	2,000
Pork	"	12,500	15,000	15,700	14,500
Milk (Sheep, Goat, & Dairy Cattle)	Galls	74,600	80,700	76,250	67,000
Wool	Tons	738	774	787	653

SOURCE : Annual Abstract of Statistics, 1973

* Ministry of Agriculture and Natural Resources

II.1.3 EXPORT MARKETS

The exports of processed agricultural products in relation to other categories which contributed to Cyprus' domestic exports between 1972 and May 1975 are shown in Table 30 . In both 1973 and 1974 processed agricultural exports were worth over C£ 10 million and comprised about 20% of domestic exports. Owing to the seasonal cropping patterns it is not possible to draw any conclusions about the end of year results from the data for 1975.

Table 31 provides a more detailed list of the principal processed products which are exported and illustrates the importance of grapes and citrus in this sector. The value of exports of products based on grapes represented 61% of the 1973 and 57% of the 1974 total; processed citrus comprised 19% of the 1973 and 30% of the 1974 exports. The next most important processed agricultural crop was carob with shares of 12% and 7.7% respectively. Cheese has been a small but important export commodity. This business is currently suffering from a shortage of milk following the Turkish invasion. The Agricultural Development Programme aims at overcoming this problem in time. There is a need to organise milk production and collection for processing to ensure that the best use is made of this important product.

Two major agricultural developments are intended to provide surpluses for export :

- i) pig breeding and rearing
- ii) vegetable cultivation on an intensive basis

These will constitute a source of raw materials for those processing plants currently available and for the additional facilities proposed in a later section of this report.

Processed Pork Products

Cyprus could be competitive with European pig producers due to a number of factors, primarily lower labour costs, lower investment and higher yields. Pig production is expected to yield 20,000 tons of carcass meat in 1976 and further growth is projected over the next five years. Proposals made later in this chapter provide for the processing of up to 10,000 tons per annum initially, of which, it is anticipated, part will be utilised for home consumption.

The international market for pork products is substantial. As an indication of the scale and nature of the main market requirements, Tables 32, 33, 34, and 35 show the imports of fresh and frozen pork meat, salted, smoked pig meat, sausages and canned pork products into certain countries. In 1972, the United Kingdom imported about 600,000 tons of processed pork products. Denmark was the principal supplier but 10 countries were supplying salted or smoked pig meat, and canned pork products were obtained from 30 countries. In relation to an import figure of 600,000 tons, the projected processing output for Cyprus of 10,000 tons is less than 2%. Given acceptable products at competitive prices, export sales of this level should be achievable.

It must be pointed out that these markets favour different types of pork products. Denmark is probably the main producer and exporter of the "bacon" pig, particularly to the United Kingdom and the USA. The heavier type of pig favoured by the original six EEC countries is mainly supplied by the Benelux.

It is thought that initial processing should concentrate on prime pork products, hams, shoulders, loins and bacon.

It would be desirable to establish the costs and potential profitability of alternative marketing strategies, for example the production of catering packs, consumer packs or a combination of both. This will depend on target markets and the marketing channels which offer the best sales opportunity. In the United Kingdom, preliminary enquiries indicate that catering packs might offer, at present, the best prospects. The consumer market for canned ham is being depressed by the current economic situation.

The labelling of food regulations in the United Kingdom stipulate the minimum standards required for each category of processed pork product, but within each there are variations of quality.

As an indication of the current importers' prices of canned pork products, levy or duty paid where appropriate, in catering packs in the United Kingdom, the following data would be of interest.

Canned Hams	£ 950 - £ 1200/ton
Shoulder Hams	£ 850 - £ 1050/ton
Pork Loins	approximately £ 1250/ton
Chopped Pork	£ 475 - £ 700/ton
Chopped Ham/Pork	approximately £ 520/ton
Pork Luncheon Meat	approximately £ 250/ton
Frankfurters	approximately £ 500/ton
Pork and Liver Pate	approximately £ 480/ton

Fish Processing

It is estimated that the fish farming resources, which currently produce about 50 tons of trout a year for local consumption, can be extended to achieve a total output of 150 - 200 tons a year. This would provide a potential for export of 100 - 150 tons a year.

Trout is a prime fish which justifies a premium price and for which the market is rather limited.

Provided that production costs remain competitive it should be possible to develop an export market for this quantity of trout. It is suggested that the fish are individually frozen, smoked or unsmoked. Catering packs may prove easier to market than consumer packs.

Processed Vegetables and Fruit

Following the Turkish occupation, agricultural development will be concentrating on the intensive cultivation of vegetable crops. The Government has placed priority on the production of annual crops for marketing as fresh "early produce". Being a new development, it is difficult to forecast the crop and production pattern for 1976/77, and it may take some years to derive a reliable pattern. It is probable that the supply of some crops will :

- i. be available too late to command the premium prices of the 'early' market or exceed the export potential for fresh produce consistent with expected economic returns;
- ii. be un-exportable as a consequence of competitive market surpluses or a fall in consumer demand or be inadequate to meet the potential demand.

Such factors make it impracticable to predict the availability of produce suitable for processing, unless special arrangements are made at an early stage of the relevant cropping cycle.

Produce for processing must be selected more on the basis of quality rather than of availability. In general, comparable selection standards should be applied whatever form of processing is involved. Processing of second grade or 'surplus' produce should be avoided unless the end product has a ready and profitable outlet, without the risk of discrediting the quality of Cyprus products.

The use of the existing processing facilities and the additional provision of new processing techniques is 'a priori' justified by :

- i. a positive opportunity to exploit an export market potential. Tables 36, 37, 38 and 39 show the scale of the international trade in processed vegetables;
- ii. the defensive need to become self-sufficient in the provision of certain processed vegetables and fruit, for which local demand may grow in the future, and to exploit crop surpluses which may occur for reasons previously outlined.

If existing and additional plants are to be fully utilised, some decisions will have to be taken concerning the allocation of supplies of produce to the processing plants over a period of years, even at the cost of limiting from time to time the availability of crops for marketing as 'early' produce.

With regard to frozen fruit and vegetables, the import pattern of a number of European markets is shown in Table 36. It provides a guide to some of the principal exporting countries and shows that the major importers, the United Kingdom and West Germany, obtained supplies from several sources. Although no data are available for frozen vegetable imports to the Middle East, it is known that this is a developing market.

The availability of freezing facilities will enable other products to be processed. Strawberries and other fruits are available and it is reported that it may be possible to grow raspberries; these fruits could be attractive additions to a range of frozen vegetables.

In 1972, the international trade in canned vegetables was substantial, as shown in Table 37. Imports to the United Kingdom and West Germany alone totalled about 750,000 tons which were obtained from nearly 30 different countries. Demand for these products remains high in world markets. Vegetable crop yields are subject to the varying influences of climate which create fluctuations in the supply situation. Canned vegetable prices vary considerably, depending on quality and source. The following figures broadly indicate importers prices, duty paid, prevailing at present in the United Kingdom, for catering packs.

Whole Tomatoes	£ 200 - £ 220/ton
Processed Peas	£ 130 - £ 150/ton
Garden Peas	£ 140 - £ 180/ton
Carrots	£ 160 - £ 180/ton
Mixed Vegetables	£ 150 - £ 170/ton
New Potatoes	£ 200 - £ 225/ton

Tomato puree, in which there is a substantial trade in 5 kg tins for industrial re-use, offers some potential provided that the product meets the European market requirements of colour, consistency and purity. Current prices are about £ 225 per ton. It is possible that in the future, tomato puree for processing will be packed in aseptically filled drums.

It will be necessary to examine the alternative market options for canned vegetables in Europe or the Middle East and North Africa. The choice of catering and/or consumer packs will depend on the requirements of these markets.

Vegetables in "temporary preservative" are generally referred to as 'brined vegetables' and are mainly supplied for industrial re-use in products such as pickles. Table 38 shows that Germany was the largest importer in 1972, obtaining supplies from 15 countries.

Demand for these products is reported to be growing. An indication of the price ranges applying in the United Kingdom, landed, duty paid, is given below.

Onions	£ 350 - £ 800/ton
Gherkins	£ 100 - £ 180/ton
Cauliflower	£ 270 - £ 450/ton

The wide variations in price reflect the premium for selected quality produce.

Dehydrated vegetables are mainly used industrially for the manufacture of soups and prepared meals, although a limited consumer market is developing. It is a fairly small market in terms of volume and value compared with canned vegetables. Details of imports by certain countries are given in Table 39.

In 1971, the United Kingdom and West Germany imported nearly 25,000 tons of dehydrated vegetables, which were supplied by nearly 30 exporting countries. Demand for dehydrated vegetables of good quality is growing. An indication of current United Kingdom prices is given below :

Onions)	£ 1000/ton
Carrots)	
Cabbage	£ 1200/ton
Celery	£ 1300/ton

The processing industry must be provided with a regular flow of inputs at a level adequate to ensure an economic level of production.

There is a need for a study of the marketing of horticultural produce to determine a cropping pattern :

- i. to take maximum advantage of the potential for 'early produce' primarily for export;
- ii. to determine the extent to which it is profitable to compete in the international markets for fresh produce;
- iii. to provide adequate supplies of the vegetables selected for processing so that production targets for each product can be met and there can be the maximum possible continuity of production at an economic level;
- iv. to provide for the requirements of the 'home' market.

Cyprus manufacturers' experience in marketing processed foods abroad has concentrated on citrus products, segments and juices. Processed vegetables are effectively new products.

The marketing of new products requires careful planning, a study of likely markets, and the selection of the most suitable products with a view to organising the supply of raw materials, production, distribution and sales.

Ideally, each processing activity (if proven economically viable) should achieve a substantial level of sales as quickly as possible. The approach will therefore differ from that used normally in launching a new consumer product when sales are built up gradually. The Cooperative SEVEGEP already has plans for marketing frozen products in the Middle East.

The quickest way to achieve an adequate level of production is :

- i. to contract to supply bulk products for industrial use in manufacture, e.g. canned tomato puree and concentrate, dehydrated onion and carrots and brined cauliflower, gherkins, etc.
- ii. to process and pack vegetables on behalf of an organisation which has distribution channels through which the products will be marketed as 'own label' goods. These goods would be presented under the brand and label of the distributor, with the mention "Made in Cyprus".

Table 30

CYPRUS DOMESTIC EXPORTS 1973-1975 - PRINCIPAL PRODUCT SECTORS

(C£ FOB)

Commodities	1973	%	1974	%	Jan-May 1975 actual	%	1975 Linear Extrapolation	% change in value com- pared with 1973
<u>Agricultural - Total</u>	<u>37,799,186</u>	<u>70.0</u>	<u>28,526,637</u>	<u>61.0</u>	<u>10,651,614</u>	<u>53.6</u>	<u>23,563,800</u>	- 32.4
Processed	10,726,822	19.9	10,572,997	22.6	2,258,681	11.4	5,420,800	- 49.5
Unprocessed	27,052,364	50.1	17,953,640	38.4	8,392,933	42.2	20,143,000	- 25.5
<u>Non-Agricultural - Total</u>	<u>11,417,217</u>	<u>21.1</u>	<u>12,622,369</u>	<u>27.0</u>	<u>6,171,601</u>	<u>31.1</u>	<u>14,811,000</u>	+ 29.7
Processed	3,812,272	7.0	4,610,701	9.9	3,551,404	17.9	8,523,000	+ 123.6
Unprocessed	7,604,945	14.1	8,011,668	17.1	2,620,197	13.2	6,288,000	- 17.3
Unspecified	4,812,084	8.9	5,588,833	12.0	3,043,998	15.3	7,303,020	+ 51.7
TOTAL ALL DOMESTIC EXPORTS (FOB)	54,009,087	100	46,737,839	100	19,867,213	100	47,677,820	- 11.7

SOURCE : Cyprus Imports and Exports Statistics 1973, 1974 and May 1975

Table 31

EXPORTS OF PRINCIPAL PROCESSED FOODS AND BEVERAGES

1973 - May 1975

PRODUCT	1972	1973	1974	1975
	CF	CF	CF	January-May Cl
Cheese	294,918	317,775	234,803	76,547
Macaroni and Pasta Products	18,444	13,907	31,448	13,790
Almonds - shelled	196,647	313,863	137,946	96,950
Citrus fruit - segments	730,405	528,869	1,326,960	117,984
Citrus fruit - juice	388,562	794,195	1,604,032	212,373
Vegetables	282,348	165,301	76,313	22,361
Carobs	995,915	1,121,014	748,527	128,281
Grapes - processed and/or preserved	339,689	353,439	274,783	1,165
Raisins	282,154	103,039	22,302	3,415
Intoxicating liquors	65,295	84,590	108,529	68,805
Eau-de-vie-de-vin	1,003,243	525,218	13,770	-
Wines	2,874,426	4,130,040	5,060,847	1,284,502
Grape must	536,303	412,401	34,835	-
TOTAL	8,008,349	9,263,651	9,675,095	2,026,173

SOURCE: Statistics and Research Department

Table 32

IMPORT OF FRESH/FROZEN PORK MEAT INTO CERTAIN COUNTRIES

'000 US\$

	1970	1971	1972	Main Suppliers
U.S.A.	24,244 (25,192t)	22,880	29,998 (29,206t)	Canada
Belgium/Luxemburg	9,359	11,622	11,243	Holland
France	175,237 (180,953t)	161,780	174,371 (168,438t)	Holland, Belgium/Luxemburg and 15 Countries
West Germany	88,768	138,827	220,694 (198,838t)	Holland, Belgium/Luxemburg
Italy	190,303 (100,737t)	129,220	162,761 (145,904t)	Holland
Holland	2,064	1,634	4,625	Belgium/Luxemburg
Austria	479	178	5,470 (7,669t)	Denmark
Denmark	1,209	1,723	1,831	
Finland	-	-	119	
Norway	4,051	1,878	1,520	
Portugal	3,889	8,034	10,443	Denmark
Sweden	16,724	15,041	18,684 (13,094t)	Denmark
Switzerland	10,267 (18,910t)	8,081	3,702	Denmark
United Kingdom	8,249 (10,149t)	21,502	35,684 (46,305t)	Ireland
Greece	-	-	60	
Ireland	53	110	156	
Spain	1,187	2,603	60,521 (76,152t)	Hungary, Yugoslavia Denmark
Yugoslavia	-	-	3,082	U.S.S.R.

t = ton

SOURCE: UN Statistics

Table 33

IMPORTS OF PIG MEAT (SALTED SMOKED ETC)
INTO CERTAIN COUNTRIES
'000 US\$

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Main Suppliers</u>
U.S.A.	4,208	3,172	3,319 (1,794t)	Canada
Belgium/Luxemburg	2,965	1,627	1,992	Italy
France	9,420 (2,989t)	11,269 (3,437t)	12,106 (3,480t)	Italy
West Germany	4,197	6,661	9,111 (3,465t)	Belgium/Luxemburg
Italy	685	661	766	Yugoslavia
Holland	518	1,167	1,661	
Austria	-	-	-	
Denmark	-	-	-	
Finland	-	-	-	
Norway	132	109	93	
Portugal	-	-	-	
Sweden	3,964	3,770	4,152 (2,541t)	Denmark
Switzerland	1,755	1,684	2,107	Italy
United Kingdom	325,044	313,383 (375,107t)	344,895 (350,352t)	Denmark and 9 Countries
Greece	-	-	-	
Ireland	-	-	108	
Spain	96	145	322	
Yugoslavia	-	-	-	

t = ton

SOURCE: UN Statistics

Table 34

IMPORTS OF SAUSAGES INTO CERTAIN COUNTRIES

'000 US\$

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Main Suppliers</u>
U.S.A.	9,319	10,449	10,939	Denmark
Belgium/Luxemburg	2,838	3,074	4,260	France
France	2,877	3,369	3,727	Italy
West Germany	20,689	27,046 (18,354t)	36,208	Holland, Poland and 9 Exporting Countries
Italy	594	794	964	
Holland	5,111	6,426	8,352	Belgium/Luxemburg
Austria	698	834	467	
Denmark	-	-	-	
Finland	-	-	-	
Norway	-	-	-	
Portugal	-	52	-	
Sweden	583	555	547	
Switzerland	8,560	8,874	11,126	Italy
United Kingdom	6,227 (6,369t)	7,976	8,959	Denmark
Greece	291	378	447	
Ireland	-	-	-	
Spain	1,012	1,449	1,993	Denmark
Yugoslavia	367	97	-	

t = ton

SOURCE: UN and OECD Statistics.

Table 35

IMPORTS OF CANNED MEAT (n.e.s.) INTO CERTAIN COUNTRIES

'000 US\$

	1970	1971	1972	Main Suppliers
U.S.A.	363,451	385,220	392,904 (229,642t)	Denmark
Belgium/Luxemburg	11,487	15,056	17,067	Holland
France	22,098	20,265	23,965	Holland
West Germany	105,965	126,181 (95,536t)	154,301 (103,986t)	Benelux Poland and 25 countries
Italy	22,361	16,816	20,824	15 countries
Holland	16,363	21,701	23,572	Benelux and 13 Countries
Austria	1,984	2,221	2,770	
Denmark	347	353	407	
Finland	119	166	235	
Norway	671	581	712	
Portugal	259	282	523	
Sweden	11,573	9,032	9,052	Poland and 14 Countries
Switzerland	14,446	16,390	19,604	Italy and 14 Countries
United Kingdom	195,880 (180,884t)	229,170 (181,725t)	256,345 (97,404t)	Denmark and 29 Countries
Greece	3,161	3,346	3,770	
Ireland	349	297	315	
Spain	5,849	7,311	8,869 (8,562t)	Denmark
Yugoslavia	820	797	998	

t = ton

SOURCE: UN Statistics

Table 36

IMPORTS OF FROZEN VEGETABLES INTO CERTAIN COUNTRIES'000 US\$

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Main Suppliers</u>
U.S.A.	-	-	-	
Belgium/Luxemburg	2,344	2,587	3,057	Holland
France	1,804	2,684	3,107	Germany
West Germany	6,464 (23,401t)	6,978 (24,704t)	9,069	France, Hungary and 15 Exporting Countries
Italy	2,564	2,536	2,968	Sweden, United Kingdom
Holland	2,009	1,780	2,224	Belgium
Austria	315	485	442	
Denmark	755	284	193	
Finland	-	-	55	
Norway	214	239	184	
Portugal	482	391	826	
Sweden	1,824	1,697	2,070	Hungary
Switzerland	320	515	1,119	France
United Kingdom	14,296 (41,029t)	8,387 (21,266t)	13,395	S. Africa, Ireland, Holland and 13 Exporting countries
Greece	-	-	18	
Ireland	1,921	617	1,064	
Spain	748	836	1,413	United Kingdom
Yugoslavia	2,042	193	151	

t = ton

SOURCE: UN and OECD Statistics

Table 37

IMPORTS OF PROCESSED VEGETABLES (CANNED) INTO CERTAIN COUNTRIES'000 US\$

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Main Suppliers</u>
U.S.A.	99,440	108,362	-	Spain
Belgium/Luxemburg	18,564	26,196 (88,275t)	32,713	France
France	27,023	32,989	42,750	Morocco, Spain
West Germany	166,887 (412,376t)	207,894 (513,700t)	252,632	France, Holland and 27 Exporting Countries
Italy	16,364	14,189	17,595	Greece
Holland	16,277	18,016	23,905	Belgium/Luxemburg
Austria	1,742	2,199	2,786	Germany
Denmark	4,161	3,907	4,485	Spain, Portugal
Finland	1,051	928	1,099	Portugal
Norway	1,684	2,135	2,431	Portugal
Portugal	93	85	150	
Sweden	9,627	10,579	11,933	Denmark
Switzerland	16,011	15,662	18,957	Italy, and 18 Exporting Countries
United Kingdom	53,504	53,344 (CY199)	62,472 (233,155t)	Italy Portugal and 20 Exporting Countries
Greece	116	172	188	
Ireland	1,218	1,268	1,162	United Kingdom
Spain	1,148	1,648	2,052	France
Yugoslavia	3,272	3,081 (12,891t)	1,905	Greece, Bulgaria

t = ton

CY = Cyprus

SOURCE: UN Statistics

Table 38
IMPORTS OF VEGETABLES IN TEMPORARY PRESERVATIVE INTO CERTAIN
COUNTRIES

'000 US\$

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Main Suppliers</u>
U. S. A	2,058	2,327	2,309	Holland
Belgium/Luxemburg	674	997 (2,119t)	1,335	Holland
France	2,578	2,829	4,336	Yugoslavia, Italy
West Germany	5,076 (7,491t)	4,963 (8,242t)	6,965	Yugoslavia, Poland, and 3 Exporting Countries
Italy	1,876	1,671	2,104	Yugoslavia
Holland	233	408	544	Italy
Austria	61	76	154	
Denmark	189	171	217	
Finland	-	-	68	
Norway	58	55	120	
Portugal	-	-	-	
Sweden	398	357	448	
Switzerland	1,606	1,761	1,432	Spain
United Kingdom	3,776	4,419 (14,263t)	4,152	Holland and 6 Export Countries
Greece	-	-	-	
Ireland	59	-	106	
Spain	399	633	207	
Yugoslavia	611	284	507	Greece

t = ton

SOURCE: UN Statistics

Table 39

IMPORTS OF DEHYDRATED VEGETABLES INTO CERTAIN COUNTRIES'000 US\$

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Main Suppliers</u>
U.S.A.	4,285	5,069	9,311	Japan
Belgium/Luxemburg	536	(2,918t) 795	1,059	France
France	3,699	4,028	5,763	Yugoslavia
West Germany	15,264 (13,271t)	15,196 (12,412t)	16,571	Yugoslavia, Holland, Hungary, 26 Exporting Countries
Italy	3,002	3,854	6,795	Yugoslavia
Holland	5,819	4,713	5,889	Italy
Austria	1,443	1,438	1,381	Germany
Denmark	560	326	356	
Finland	201	201	217	
Norway	1,218	956	933	
Portugal	53	138	139	
Sweden	1,618	1,579	1,602	
Switzerland	5,546	6,501	8,143	China
United Kingdom	15,288	12,128 (12,123t)	13,279	United States and Eire
Greece	-	-	-	
Ireland	927	943	1,042	
Spain	931	1,109	1,269	Germany
Yugoslavia	943	1,211	1,045	Hungary, Israel

t = ton

SOURCE: UN Statistics

II.1.4

SUGGESTED MANUFACTURING ACTIVITIESII.1.4.1 ANIMAL PRODUCTS

While the production of beef, lamb and goat meat is to be expanded under the Emergency Economic Action Plan to compensate the loss incurred as a result of the Turkish invasion, the Government controlled area is nearing self-sufficiency in pork and chicken production. Development of beef and dairy cattle is also being planned, but progress in this field cannot be expected to be made quickly, mainly due to the shortage of land. In particular, the dairy sector is unlikely to achieve appreciable results for several years to come; goat and sheep milk production will, however, continue to contribute to supplying the needs of the population for the traditional cheeses, an important aspect of the local diet.

The annual production of chicken is estimated at about 1.2 million birds in the Government controlled area. Many units produce fewer than 5,000 chickens a year, others are much larger. A chicken is sold at C£0.500/oke and costs about as much to produce. A rationalisation of the chicken industry and the setting-up of larger units would be necessary, especially in view of the future availability of by-product oilcakes from the vegetable oil extraction unit which it is suggested to set-up (this would reduce the cost of feed). Poultry is one of the cheapest sources of animal protein available and efforts should be made to intensify its production.

Animals are slaughtered in abattoirs situated in Nicosia, Larnaca, Limassol, Paphos and Strovolos, handling a total of about 20,000 animals per month (cattle, sheep, goats, kids, lamb and pigs). A large number of animals is also slaughtered in villages.

The operation of these abattoirs is not totally satisfactory. Many of them are small and 20-30 years old. Consideration should be given to the setting-up of a modern central multi-purpose abattoir where greater quality control can be exercised. Because of the present poor flaying techniques, the loss in skins alone has been estimated to be as much as C£200,000 per annum.

The only by-products so far utilised to any extent are cattle hides, sheep and goat skins, and some animal intestines. The blood, bones, horns, hooves, offals, hair, bristle, condemned meat, reject hides and skins, cuttings and trimmings are wasted. An estimate made by the Department of Agriculture of cuttings, trimmings and offals alone is as much as 20,000 tons/annum.

The potential availability of bones in 1975 is placed at 5,000 tons. The requirements of this mineral supplement for the sheep and goat population in the Government controlled area are about 6,000 tons per annum.

Bone meal is a valuable mineral supplement in animal feeding and can, of course, be obtained directly from bones. A more attractive approach would be to follow a recent method for the production of meat protein concentrate (MPC), whereby offals, soft tissues, blood, some quantities of bones and selected waste products from slaughtering are dehydrated and de-fatted by azotropic separation with a solvent and the residue is purified into a meal containing up to 80% protein. The protein is fit for human consumption and can be incorporated in sausages, hamburgers and meat pies. Alternatively, all the bones can be processed together with the offals and other waste products from slaughtering to give a meal containing around 40% protein which can be used as a feed-stuff component.

Technical literature about this process indicates that the pay-backtime of a plant with an input capacity of 100 tons/day is two years. This is based on a raw material cost of US\$ 30/ton from slaughterhouses and a selling price of US\$0.25/lb of edible MPC (equivalent to 5lb of meat and US\$ 0.07/lb of fat).

The production of MPC for human consumption is not suggested in Cyprus, partly because pork meat is likely to become increasingly available at low cost and partly because of the rigid hygiene control which has to be applied in such an operation. The alternative procedure of producing animal feed protein concentrate would be more appropriate to local conditions in view of the rising requirements of feedstuffs for animal production.

Should a central multi-purpose abattoir be set up it would be logical to locate the protein extraction plant in its proximity. The possibility of treating by-products from other medium scale abattoirs may prove to be feasible, if collection and transport costs are reasonably low.

An adequate size of the MPC plant would be 100 tons/24 hours of raw material. The plant would produce 40-50 tons/day of feed grade meal containing about 40% protein, and 12-15 tons of fat which can be utilised for soap making, or further refined to give a fat suitable for human consumption:

The plant would consist of the main machinery and equipment listed below:

- Extraction unit
- Miscella filters and holding tanks
- Solvent distillation column
- Condensers
- Cooling unit
- Solvent pre-heater
- Flash evaporator
- Water separator
- Milling unit
- Meal storage hoppers
- Fat storage tank
- Meal bagging unit

The total basic cost of the above equipment is estimated at C£160,000.

Operating labour requirements would be 12 men/shift, and total employment is estimated at 50 persons.

In the following section, an integrated pig abattoir-pork processing unit is put forward, together with by-product recovery facilities for meat and bone meal production, based on the classical "dry process" entailing fat rendering and milling of the residue. The quantities of by-products which would be available are much smaller than the input to the dehydration-protein extraction plant described above. The pig slaughtering by-products could also be fed to such a plant, but it is felt that an integrated pig processing scheme would be preferable.

Further studies would be required to determine the possibility of maximising the utilisation of waste products from animal slaughtering, within the framework of the potential development of meat production in Cyprus.

Integrated Pig Processing Plant

Although the Turkish invasion caused a fall in pork meat production from 16,000 tons in 1973 to a forecast level of 12,000 tons in 1975, quick recovery in this sector is expected, and self sufficiency is likely to be reached soon, at a level of 20,000 tons per annum.

Pig production is well developed and benefits from the advantage of low capital and labour costs compared with other West European producers, good management as well as low feed costs, mainly owing to a Government subsidy for barley. Production costs are thus particularly low. Farm prices vary but an indicative level is C£ 30,000 per 1000 pigs averaging 65 okes, against a feed cost of C£ 10,000. The cost of production could be 20-25% lower.

Pig breeds are of satisfactory quality and productivity is high. Average live weight of the animal upon slaughtering is 70-80 okes. Production units vary in size, from 400 to 6,000 head. Two large piggeries at Orunda are designed to produce 20,000 pigs per annum each and entail a total capital investment of about C£ 160,000. The industry appears to be in a natural state of expansion, but some rationalisation is required, with small concerns changing over to another agricultural activity.

Most of the larger piggeries are equipped with automatic feeding and dunging equipment. It would be worthwhile considering dung filtering and drying to 15% solids. Pig manure fetches a price of C£8 per 80 kg bag. Within a pig breeding area of 30,000 animals at any one time, it is estimated that 20 tons/day of dry manure or over 6,000 tons/annum could thus be recovered, at a value of C£ 600,000. The equipment required would be a rotary filter, a drier, bulk storage hoppers, conveying equipment and a bagging unit, at a basic cost of C£30,000 approximately. This operation could largely be carried out by existing farm labour, plus 3-4 extra workers for bagging and handling.

The swift expansion of pig farming in Cyprus in favourable economic conditions is conducive to the development of modern pork processing facilities capable of producing canned ham, chopped ham and luncheon meat. Smoking for canning, the production of Parma type ham and of liver pate would also be worthwhile considering within such a production unit. The production of smoked and cured pork products is limited and largely of the cottage type of activity. Pork liver is often wasted because of the fragmentation of the slaughtering industry.

The pork processing plant would not only act as a buffer to the pig sector, but would also ensure the maximum utilisation of pork after disposing of high price hams and prime meat cuts (45-55% by weight) to the home market.

The indications are that an export market for canned ham, chopped ham and similar unsmoked types of product can be successfully developed on a fairly substantial scale, specially to Free Trade countries such as Norway, Sweden and Finland, to the UK and West Germany, particularly since costs of pork and food processing are generally rising in major West European producing countries.

A new venture into this field in Cyprus could best be established through close co-operation with a leading international company with experience in pork processing and the distribution of pork products, capable of supplying both technical and marketing know-how. It is suggested that development of smoked varieties of pork, liver pates and similar items should be deferred to a later stage, because of the limited market outlets for these products in comparison with the more "standard" items widely accepted by European consumers.

The required capacity of the pork canning plant is difficult to determine at this stage. The "buffer" function approach would warrant the installation of an annual capacity of 5,000 tons of canned products, while export prospects would suggest at least double that figure.

Although not directly substitutable, other meats (beef, lamb, goat, poultry) and their relative future prices will pre-determine the level of pork surpluses. As mentioned earlier, the pig sector is worthwhile developing well beyond the forecast volume of home demand, and the setting-up of processing facilities capable of producing annually 10,000 tons of selected canned products as suggested above seems to be indicated. A detailed feasibility study would be required to determine the size of the unit and the profitability of the operations, but an indicative basic cost of the machinery and equipment required is Cf 100,000. This figure would include slicers, mincers, pulverisers, soaking tanks, work tables, injection machines, an automatic filling machine and a can seaming machine (assuming that empty cans would be purchased). Total employment is estimated at 50 people, including 35 workers (one-shift) and administration staff.

It is suggested that the plant should be located near to the proposed central multi-purpose slaughterhouse. At a later stage, should pork production reach 30,000 - 40,000 tons per annum, then a specialised pig slaughterhouse should be integrated to the meat processing unit. Pig slaughtering facilities capable of handling 100 animals per hour would entail a basic equipment cost of Cf 230,000, to which must be added a chill room with a capacity corresponding to 2-3 days' production, costing about Cf 130,000 (erected). Total employment would be about 60 persons when operating over one shift.

By-products from the pig abattoir could be processed into high protein content meal in the extraction unit which is suggested to be installed with the central multi-purpose abattoir. As the quantities of these by-products will be small, an alternative means of disposal would be to incorporate with the pig abattoir a conventional dry rendering plant for the recovery of fat and the production of meat and bone meal feedstuff with about 40% protein. The basic cost of the necessary machinery and equipment would be of the order of Cf 60,000 and would include the main items listed below :

Feeding hopper
Pressure melter
Fat percolation tanks
Centrifugal fat extractor
Cooling unit
Fat storage tanks
Milling unit
Bagging unit
Boiler

This section of the plant would employ some 10 persons
(one shift).

II.1.4.2 FISH PROCESSING

Before the Turkish invasion, the sea fish catch was about 1,400 tons per annum, worth C£ 1 million. These quantities were well below the demand of the Island, and some 2,000 tons of fish (including processed fish) were imported annually. In the Government controlled territorial waters, the catch is now estimated at 600-700 tons per annum, against a total potential of 2,000 tons for the whole Island. Most of the species are of the bottom type and, unlike other Mediterranean waters, pelagic fish are non-existent.

Fish farming is carried out in Troodos mountain in five units; one of them is owned by the Government and serves as an experimental/demonstration farm. So far, only trout are bred and the total annual production is 50 tons. The Fisheries Department is actively promoting the development of this sector which could be expanded comfortably to a total output of 150-200 tons per annum. Other fish, such as American salmon and carp, are also being considered. The capital investment per farm producing 12-15 tons of fish per annum is said to be in the region of C£10,000.

Trout is consumed mainly by the foreign community and visitors in Nicosia. The price of fresh fish delivered to the capital is 13-15 shillings/oke, which compares favourably with those prevailing in the UK. The cost of production is particularly sensitive to that of feed which is imported at a cost of C£ 220/ton, as the conversion ratio is 1.5:1. As by-product protein concentrates will become increasingly available in Cyprus, this cost can be reduced.

It is suggested that processing facilities be acquired for the filleting, smoking, freezing and packing of trout, with an annual throughput of 150 tons, mainly destined for the export market, leaving some 50 tons in fresh form for local consumption. Consideration should be given to fish transportation in refrigerated containers to a multi-purpose fruit and vegetable freezing plant (discussed in a subsequent section). The main items of equipment would cost about C£ 15,000, excluding freezing facilities and cold stores. They are listed below :

- Holding tanks and hoppers for culled fish
- Filleting machine (degutting can be carried out manually)
- Washing tank
- Two smoking kilns
- Work tables
- Shrink-wrap machine

Total employment would be around 20 when operating over one shift.

II.1.4.3 FROZEN FOOD PRODUCTS

There are no food freezing facilities in Cyprus at present, although freezing rooms and cold storage facilities are installed at the SEVEGEP and the Cyprus Canning Co. plant. However, SEVEGEP are proceeding with the installation of a blast freezer for vegetables, with a capacity of 1½ tons/hour. Annual throughput will be about 2,000 tons of carrots, peas, beans, okra and miscellaneous vegetables. The cost of the freezing equipment is C£ 30,000 and that of the cold store C£200,000.

It is intended to sell "quick frozen" vegetables individually, packed in ½ or 1 kg polyethylene bags. Exports to the Middle East are aimed at, in direct competition with European manufacturers.

Slicing and dicing equipment has not apparently been bought and packing of the frozen vegetables is to be done by hand. It is doubtful, that, even with the low labour costs in Cyprus, such a labour intensive operation will be profitable.

Additional investment seems desirable for the installation of continuous slicers and dicers, and of an automatic filling machine, as some 1,500 packs would be produced per hour. Other equipment such as peelers, blanchers and general work tables are available either at VIAGREX, its sister company at Limassol, or at the SEVEGEP's plant itself.

A peeler costs approximately C£ 10,000 and a slicing and dicing machine with attachments, C£ 7,000, so that the total additional basic cost of the equipment would be of the order of C£ 25,000.

An interesting development is the proposal of Oxygen-Acetylene Industries Ltd. to manufacture high purity liquid nitrogen at the rate of 1,200 m³/day. This is approximately 1 ton of liquid nitrogen capable of freezing 1 ton of food per day. For instance, this quantity of refrigerant would be adequate for freezing trout from the Troodos fish farms. Alternatively, if additional throughput is required on the SEVEGEP blast freezer, the liquid nitrogen could be used in conjunction with the freezing facilities, either as a pre-cooler or an after cooler. Because of dependence on one single source of liquid nitrogen, it would be advisable to use this refrigerant as a complementary material.

Due consideration should also be given to the utilising of the 3 cold stores of the Cyprus Canning Plant at Limassol which have a stated capacity of 1,000 tons of produce. The stores can be operated at minus 25°C.

Because of the greater market value of frozen fruits and vegetables as compared with canned products, it is suggested that the Cyprus Canning Co. should consider diversifying their activities into the field of frozen food.

Initially a freezing capacity of about 1½ tons per hour would seem to be adequate, entailing an investment comparable to that of SEVEGEP. Total capacity would be initially about 2,000 tons per annum and the freezer would be better situated than that of the VIAGREX plant as it would be nearer the growing area and closer to the port of Limassol.

The basic cost of the extra equipment required would be of the order of C£ 100,000, including a semi-automatic polyethylene bag filling unit. Existing cold stores and various auxiliary equipment appear to be of adequate capacity.

While it is appreciated that better prices can be obtained at certain times of the year by exporting fresh fruit and vegetables, freezing offers an economic method of preservation and marketing when the price of the produce falls. Fruits which can be advantageously frozen are raspberries and strawberries and the proposed horticulture schemes could ensure the availability of sufficient quantities of these as well as other fruits suitable for quick freezing.

II.1.4.4 CANNING

The fruit and vegetable canning sector of the food processing industry has suffered considerably from the invasion.

Although some factories are flexible multi-purpose units and are said to be capable of producing nearly 50 product lines, the tendency has been for the main factories to concentrate on citrus products, either as juice or segments. Because of the loss of over 70% of the total citrus production, all factories are operating well under capacity or not at all. A further problem is that another product, canned table grapes for fruit cocktails, is also suffering from the decline of the canned fruit market in Europe.

The main canning plants in the Government controlled area are :

<u>Company</u>	<u>Location</u>
KEAN	Limassol
CYPRUS CANNING CO	Limassol
SEVEGEP (VIAGREX)	Limassol
SEVEGEP	Astromeritis
SONCO	Nicosia

All the above plants were visited by members of the Survey Team. Both the Cyprus Canning Co. and VIAGREX plants were then canning tomato products and the quality of the raw material was poor; to judge from the colour, the puree produced did not appear to conform to international standards.

VIAGREX had started canning a limited quantity of grapes. As most of this fruit is grown in the south of the Island, diversification into grape juice, in single strength and concentrate for exports to Arab countries will be advantageous. SEVEGEP intend to produce grape juice in 185g and 260g cans with aluminium tear-off tops. Initial sales target is 200,000 cases per annum, to be extended to 1 million cases after 3-4 years.

With the development of the proposed irrigation projects and the anticipated increase in horticultural production, a rationalisation of production lines seems to offer the best short term solution. Thus, the existing citrus segment processing lines could be adapted to the processing of certain vegetables, such as broad beans, beans, okra and canned peeled tomatoes. Furthermore, the plants capable of processing vegetables (mainly three) are generally limited to a capacity of 1-2 tons per hour due to bottlenecks caused by the size of items of equipment such as blanchers and peelers. A relatively modest investment would be necessary, involving the installation of additional equipment, including slicers and dicers.

A detailed study of the status of the canning industry would be necessary to bring about the best possible results. It should take into account the availability and price of horticultural products which will become available, particularly in the Paphos and the Larnaca areas.

Can Manufacturing

There is one plant producing cans, located in Limassol. Capacity is stated to be up to 400 cans per minute, but the output is only 20% of that capacity (equivalent to 30 million units per annum). The operation is not profitable at present and, although it will tend to improve with the expansion of the food canning industry in Cyprus, some matters should be given special consideration now.

The quantity of reject cans is high and the quality of certain sizes is poor. A figure of 25% was mentioned for the rejects. The exact cause of this high reject rate is not clear, but quality control is not effected on the slit plate, which is cut and lacquered in Greece. It is possible that the problem is caused because some deliveries of plate are of poor quality, coupled with the inadequacy of some parts of the can making line, most probably the fixed head seamer. A new seamer would cost about C£ 20,000.

Although the equipment is only 4 years old, the company is considering the acquisition of a new line. It is recommended that the decision should be postponed until such time as a can-making expert examines the existing production facilities and assesses the optimum size and type of any additional equipment or new sections of the plant which would be required. This expert would also devise effective maintenance and quality control schedules and procedures.

Such a study should ideally be conducted in conjunction with the suggested study of the canning industry already mentioned. It should take into account the additional demand for cans by the proposed pork canning plant, as well as for the aluminium tear-off top cans for grape juice. The latter cannot be supplied by the can making plant and the containers will have to be initially imported. A target figure of 1 million cases of grape juice cans per annum would correspond to 48 million units.

II.1.4.5 DEHYDRATED PRODUCTS

Vegetables

The intensive horticultural schemes in conjunction with adequate irrigation inputs in the Paphos and Limassol areas will ensure the availability of a wide range of produce, particularly vegetables, virtually throughout the year. Among the vegetables which are suitable for dehydration, the following have been indicated by the Agricultural Research Institute.

<u>Produce</u>	<u>Season</u>
Broad beans	April-June
Onions	February-May
Carrots	September-May
Cauliflower	September-May
Celery	December-May
Peppers	May-October

Discussions with the Department of Agriculture showed that potatoes should be exported as an early vegetable. Late varieties are low yielding and would not offer a particular attraction for dehydration due to higher costs. Other vegetables, such as turnips and parsnips could be grown to a limited extent for dehydration purposes; processing facilities should also be capable of handling some quantities of tomatoes, garlic and herbs (thyme and sage).

The demand for "dehydrates" in West European countries is quite substantial, the main outlets are prepared soups, and other "packet" or canned ready-to-serve meals. As in the case of canning, the success or otherwise of a dehydration operation will depend primarily on the quality, variety and price of the input materials. Until such time as the Paphos and Limassol horticultural schemes become operational, it would be difficult to suggest a specific plant capacity and product mix.

The installation of a small pilot drier is recommended in order to ascertain the quality of the product and to derive fundamental design data for a commercial unit best suited to the circumstances. A conventional hot air drying system would be more suitable as freeze drying is much more costly; so is spray drying.

A suitable pilot batch drier would be of the tray type with a loading capacity of 50 kg of material. It would cost approximately C£ 3,000. Initially, washing, peeling, top and tailing could be carried out manually. Slicing/dicing and blanching equipment would cost about C£ 1,000, and packing could also be manual. About six operators would be required for the pilot plant.

As onions are particularly difficult to dehydrate, it would be appropriate to design the larger scale commercial unit on the processing of that product (for instance, a drier handling 1 ton/hour of onions would dehydrate almost 2 tons of diced carrots).

Once basic data are derived from the pilot unit, consideration should be given to the installation of a 15-20 ton/day vegetable dehydration plant. It would consist of feeders, inspection and work tables, cutters, dicers, blancher, band drier and auxiliary equipment, with a basic cost of the order of C£ 250,000. Labour requirements would be about 30, and management/administration would employ 5-6 people.

The first expansion in vegetable production will take place in the Paphos area, and consideration should be given to installing the plant near to the growing centre.

As in the case of pork products, a joint venture with an international group, which would supply know-how and guarantee export outlets, would be advantageous.

Raisins

The production of grapes in 1975 is estimated at 0.2 million tons, made-up as follows:

<u>Variety</u>	<u>%</u>
Mavro	75
Xynistre	10
Sultana	10
Other	5
	<u>100</u>

At the end of the current season, 12,000 tons of table grapes were shipped to the UK under refrigeration and 800 tons by air freight, at f.o.b. prices varying from C£ 80 to C£ 120 per ton, according to quality.

Raisins are generally made from Mavro (dark red) grapes, and production in 1974 was 10,000 tons. Output in 1975 is expected to be substantially lower.

There have previously been no surpluses of Sultana (white, seedless) grapes for the production of raisins, but several hundreds of tons are said to be available in 1975.

F.o.b. prices for Cyprus raisins have varied widely over the past few years, from C£ 80/ton in 1972, C£ 160/ton in 1973, down to C£ 130 in 1974. Mavro raisins are exported in bags, and sultanas in 12-15 kg boxes.

Grapes sold for wine production currently fetch a price of C£ 32/ton (compared with C£ 60 for table grapes). About 3 tons of fruit are required for one ton of raisins, and drying appears to be economic if export prices are about four times the cost per ton of grapes. If efforts to establish an export market for grape juice prove to be successful, the production of raisins would consequently decline.

Should the production of grapes increase beyond the anticipated sales level (for wine, table grapes and juice), the price of the raw material will tend to drop, and this would enhance the competitive position of raisins.

For the production of raisins, fully ripe grapes are picked in bunches and sent to a central collection point where they are dipped in a potash aqueous solution containing some olive oil. They are then removed and allowed to mature and dry on hessian or plastic mats in the sun for a period of 8-10 days. The main stems are subsequently removed and the raisins placed in well ventilated stores, until purchased by merchants, who remove any remaining small stems, before cleaning, sorting and packaging (all these operations are carried out by hand).

The processing, handling and packaging methods used at present could be appreciably improved. Due attention should be given to hygienic conditions and the use of attractive packaging (say 250g and 500g packs), which would stimulate export opportunities. Possible processing improvements might entail controlled and accelerated thermal dehydration in a tunnel type of drier, mechanised de-stalking and packing.

The design of a pilot experimental unit is recommended, possibly under the auspices of the Agricultural Research Institute, in association with Co-operative Societies. Any commercial scale plant which might eventually be installed would be well utilised, as grapes are available over 8 months of the year.

Miscellaneous Agricultural Residues

Valuable research has been carried out by the Agricultural Research Institute on the value of some by-products and residues in the animal nutritional field. Experiments have been confined so far to cattle and sheep but a fairly wide range of materials has been investigated in depth. These mainly include citrus peel and pulp, grape marc, vine canes, carob meal and barley straw.

The work is well documented and will not be discussed further in this report. It is, however, stressed that the maximum utilisation of such wastes should be fully investigated.

Authoritative sources in Cyprus have indicated that milled vine canes can be used in pig diet and grape marc and citrus peel can be incorporated in the daily intake at a maximum rate of 15-20%. Cattle, sheep and goats have tolerated 30-40% of these residues in their rations. An expanded pig industry might require some 100,000 tons per annum. Of this, dried agricultural residues mentioned above could well be used to the extent of 20,000 - 30,000 tons.

The availability of vine canes is estimated at about 50,000 tons per annum, and that of cereal straw would probably exceed 70,000 tons annually. The possibility of treating these by-products with a dilute solution of caustic soda to improve the feeding value should be investigated. The process is simple and consists primarily of spraying coarse straw with the caustic solution on a moving bed, followed by ageing and baling.

The setting-up of a limited number of processing/drying units suitably located with respect to the sources of raw materials deserves close examination.

II.1.4.6 VEGETABLE OILS AND FATS

Present Situation

This group falls under ISIC Sectors 209-210 (Miscellaneous Food Preparations) with a total gross output of C£ 9,055,000 in 1973, and of C£ 7,386,000 in 1974.

Referring in particular to edible oils, one olive oil manufacturing unit out of two employing over 4 persons was lost, and the only two units which were refining other vegetable oils with the same size of employment were also lost. In 1973, the total gross output of these manufacturing activities amounted to C£ 1,219,000 (ISIC 209.1 - 209.2). Apart from olive oil, there are no vegetable oil extraction facilities.

Data derived from the Household Survey 1971, on the consumption of oils and fats in Cyprus suggest a total expenditure for the island during that year of C£ 2 - C£ 2.5 million at retail price levels. In 1973, this value must have substantially increased due to price rises of these commodities on the world market.

An examination of the gross output of the olive oil sector and the retail price of the oil in 1973 suggests that some 700 tons were consumed that year. To this must be added quantities produced at village level, probably of the order of 300-400 tonnes. Production has now considerably declined due to the loss of a large proportion of the olive trees in the occupied area, estimated at over 40%.

Olive oil is used traditionally in Cyprus mainly as salad oil, almost to the extent it is produced. However, before the invasion, other vegetable oils had gradually substituted it on account of cheapness. About 10,000 tons of all other oils were imported in 1973, including crude oils for further processing into refined products (rape, soya, groundnut, sunflower, maize and cotton seed oil.). In 1974, imports of these oils declined to 6,500 tons approximately.

The above data indicate that the total demand for finished edible oils in the Government controlled area is around 8,000 - 9,000 tons per annum.

Imports of vegetable fats were about 1,300 tons in 1973 and 900 tons in 1974. Trade and manufacturing sources place the annual demand for the Island at 1,200 tons of margarine and 600 tons of other fats of vegetable origin. The latter are not produced in Cyprus and a continuous margarine formulation (blending) plant with a daily capacity of 1 tonne, situated 8 miles from Nicosia on the Larnaca road, was lost. The unit was part of processing facilities for the refining of imported crude oils by a batch process (25-30 tons per day). A new 50 tons per day continuous refining plant, including neutralisation, bleaching and deodorising was being installed shortly before the Turkish invasion.

Suggested Course of Action

i) Raw Materials to be processed

With the decline in olive oil production, practically the entire demand for edible oils will have to be met by imports either of crude oils to be finished and packaged locally or of appropriately selected oilseed to be processed into oils and oilcakes. The value added in the first case would be small, and it would be desirable to process as much oilseed as possible, especially since substantial quantities of oilcakes are required for pork and poultry production. (Imports of oilcakes and other vegetable residues amounted to about 16,400 tons in 1973 and 14,800 tons in 1974, at an annual value exceeding C\$1 million.)

It would be advantageous to concentrate on sunflower seed, which could be imported from the Eastern Bloc, followed by soya bean, a valuable source of animal feed protein. Other oilseeds which could also be processed are rape seed (from Western Europe, Canada) groundnut and sesame, although the latter two are expected to be processed on a large scale in Sudan within the next few years.

It is suggested that the productive olive trees for both oil and table olives should be retained, and to devote any new planting for the production of table olives. The possibility of grapeseed oil extraction should be examined (see (ii) below).

The production of margarine should be resumed and expanded to meet a probable increase in demand as a substitute for butter which is being imported. The dairy industry in the southern part of the Island is encountering serious difficulties and milk surpluses are unlikely to be available for butter production in the foreseeable future. Whether margarine production should be confined to the blending of imported fatty components (hydrogenated palm oil and fish oil, and coconut/oils mainly palm kernel oil) or combined with a larger operation, producing a range of hydrogenated fats from unsaturated oils, will have to be determined at a later stage in the light of developments in the home market and of the performance of the vegetable oil industry.

ii) New Manufacturing Facilities

The shortage of both vegetable oils and oilcakes for internal consumption is conducive to importing oil seeds and processing them locally.

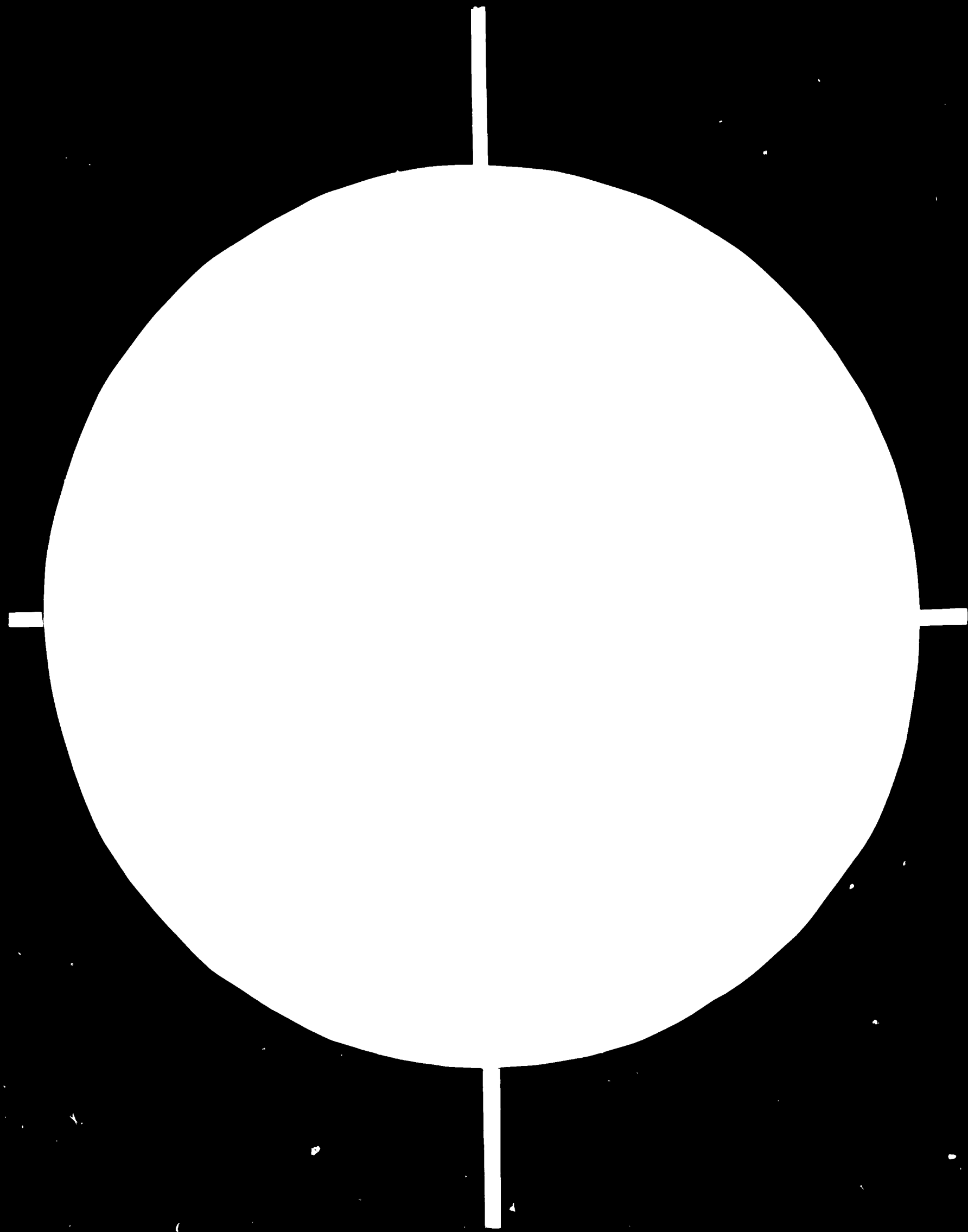
Oil production could be carried out either by the expeller (screw press) method or by the continuous solvent extraction process using hexane.

The latter is more flexible with regard to the range of seeds treated but it is characterised by a relatively higher capital cost and steam consumption. The former is not economically suited to low oil content raw materials, such as uncorticated cottonseed, soya bean, maize germ or grapeseed, if these were to be exclusively used throughout the year, and oil yields are always lower than by solvent extraction. For high oil content seeds, a combination of pre-pressing and solvent extraction is often advantageous.

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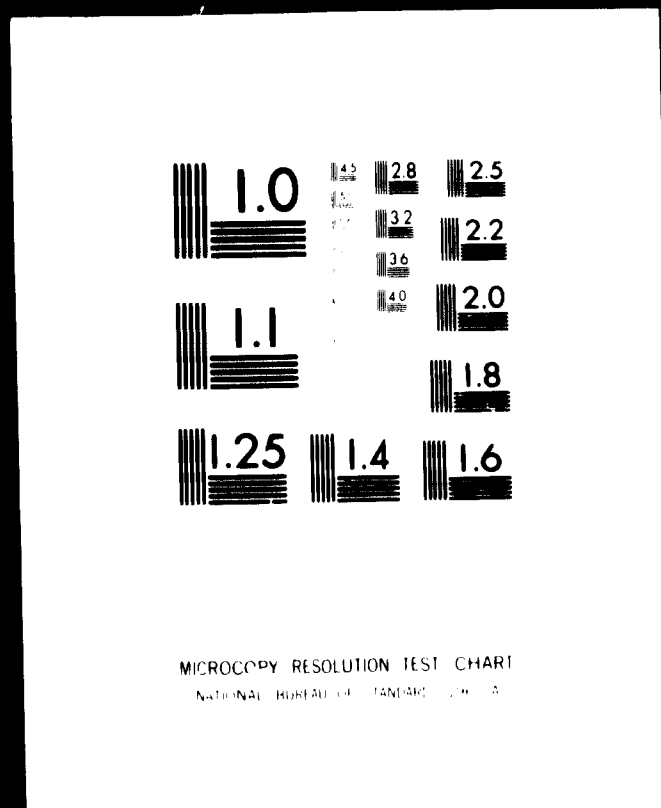


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The ratio of oil and cake (or extracted meal) produced through either process depends on the input mix. For instance, if 10,000 tons of sunflower oil were to be obtained annually, some 25,000 tons of high oil seed would have to be crushed or extracted, after decortication. Allowing for husks, the corresponding quantity of oilcake would be in the neighbourhood of 7,000 tons. If, on the other hand, only soya bean were processed, the seed requirements would be around 50,000 tons and the oil cake obtained would amount to 40,000 tons.

Aiming at an annual production rate of 9,000-10,000 tons of oil (which seems to be the level of demand in 2-3 years time) and assuming an input ratio mix of sunflower seed : rape seed : soya bean of 3:2:1, the quantity of cake produced would be 14,000-15,000 tons. There is little doubt that the latter would be absorbed by the animal production sector in the near future, but any surplus which may arise could easily be exported to a number of countries in the Middle East, mainly as a poultry feed component.

The choice between the expeller and the solvent extraction process requires further investigation. It seems, however, that the quantities of seeds to be processed would not warrant the installation of a solvent extraction plant. The following indicative processing scheme for oil production and refining is based on the expeller process.

The facilities should be designed to process sunflower, entailing the installation of decorticators. The sunflower "meats" or cleaned rape seeds and soya seeds would be cooked and pressed, and the crude oil neutralised in a continuous installation of the centrifugal type. This would be followed by batch bleaching and deodorising and finally by packing. Except the latter operation, all other sections would run 24 hours/day, 5 days a week.

The main machinery and equipment required are listed below :

- Seed cleaner
- Sunflower decorticators (3)
- Cooker and drier
- Expellers (4)
- Cake cooler
- Oil screening tank
- Continuous 2-stage degumming
and neutralisation unit
- Batch bleaching vessel with
auxiliary equipment
- Filter press
- Batch deodorising vessel with vacuum and auxiliary equipment
- Boiler
- Storage tanks
- Conveying equipment
- Cake bagging unit

The basic cost of the above equipment is estimated at C£ 650,000. Total employment would be about 80 workers and other employees when operating over 3 shifts.

If it is assumed that 75% of the production is filled in bottles (it is suggested to use blow-molded clear PVC containers of 1 litre capacity) and 25% in 5 litre cans, then the basic cost of the packaging equipment would be of the order of C£ 100,000, of which half would be for the blow-moulding machine (to be operated continuously), and the balance the filling unit, label application equipment, case erection and closing (which would be semi-manual) and conveying equipment, operated over one shift. The blow-moulding section of the plant and the filling/packing line would employ about 20 people.

Consideration should be given to the possibility of securing blow-moulded PVC bottles from established plastics manufacturers. The cans are assumed to be purchased from a can making factory or imported.

While high priority should be given to the production of vegetable oils, the manufacture of margarine and hydrogenated oil for cooking fats would require further study, in the light of more precise data on market demand. It is suggested that provision should be made for this type of horizontal integration before implementing the project.

II.2

TEXTILES AND GARMENTSBackground

This group includes spinning, weaving and finishing of textiles (Industry Code 231), knitted fabrics and a range of finished knitted wear such as hosiery and underwear (Codes 232-239). The latter category somewhat overlaps with wearing apparel (Code 243).

Spinning is confined to acrylic and worsted spinning in a plant within the Nicosia area, with a nominal capacity of 0.5 ton/8 hours. The output of finished yarn has not, however, so far exceeded 200 kg/shift due to the low capacity of the twisting-winding-finishing lines. The owners propose to increase the throughput to that of the spinning section by installing new equipment. The capacity of the plant would then be 16 tons of acrylic tops per annum. The yarn is sold to jersey knitters who sell their finished products in Cyprus and abroad.

Weaving is limited to the manufacture of towels. In 1973, there were seven such units employing more than 4 persons. Three were lost in 1974. Only 15-20 looms are said to be left out of some 100. There is only one fabric dyeing unit employing more than 4 persons.

Gross output of spinning, weaving and finishing (Code 231) amounted to C£ 520,000 in 1972 and to C£ 619,000 in 1973. The loss of production as a result of the invasion in 1974, is estimated at C£ 424,000 or about 68% of the 1973 level.

Gross output of the knitting activities (Codes 232-239) amounted to C£ 2,858,000 in 1972, rising to C£ 3,477,000 in 1973. In 1974, 20% of the production was lost. Within this group, one sizeable hosiery unit and six units producing various knittings are now in the occupied area. In the Government controlled area, there are 4 hosiery units, 3 underwear units and 15 miscellaneous knitting units employing more than 4 persons.

The available machines are of the circular and flat type, both plain and jacquard, and Raschel type (although the latter two are limited in number), producing a wide range of knitted fabrics. Several of the knitting units are integrated, having their own garment-making yarn dyeing facilities. Apart from current cotton and nylon underwear, finished goods include hosiery, brassieres, lingerie, swimsuits, outerwear (jumpers, cardigans, T-shirts, etc.).

The turnover of one leading knitting/knitwear company is said to have exceeded C£ 1 million in 1973; of this, half was allegedly exported. Anticipated sales in 1975 are not expected to exceed 30-40% at that level. Another leading company, producing a narrower range of goods, estimates its turnover for 1975 at some C£ 200,000, of which about half would be exported (mainly brassieres and lingerie). This is substantially below previous years' performances. Current exports are mainly to Gulf countries, Libya and more recently Bulgaria.

In the wearing apparel sector, excluding footwear (Code 243), gross output was Cf 7,577,000 in 1972. It grew to Cf 8,561,000 in 1973 and declined by Cf 3,065,000 in 1974 (36% compared to the previous year) in the Government controlled area. Other made-up textile goods (Code 244) achieved a gross output of Cf 641,000 in 1972 (mainly pads and embroidered fabric), increasing to Cf 803,000 in 1973 and reducing by Cf 275,000 in 1974, i.e. by 34%.

Sector 243 had 158 units in early 1974. Forty one are now in the occupied area.

Export Trends and Prospects

Exports of made-up textiles (Division 656), consisting mainly of towels and table cloths, increased from C£ 15,700 in 1973 to C£ 48,200 in 1974. Exports of clothing (Division 84) slightly exceeded C£ 2 million 1973 and increased to C£ 2.2 million in 1974 in spite of the invasion. Export of individual items within this division for 1972 and 1973 are given in Table 40 ; those for 1974 and 1975 (December-May) in Table 41.

In 1973, the categories of clothing exports with a value exceeding C£ 0.3 - C£ 0.4 million were : women's, girls' and infant's coats, jackets, slacks, suits, dresses, trousers, blazers and jumpers (C£ 160,000 in 1974, C£ 223,000 during Jan-May 1975); dressing gowns, robes, bed jackets, similar indoor wear, swimwear. Exports approaching or exceeding C£ 0.2 million in value were : men's and boys' coats, jackets, slacks, suits, trousers, blazers and jumpers (C£ 184,000 in 1974, C£ 20,000 only during Jan-May 1975); shirts (C£ 105,000 in 1974); under garments, knitted or crocheted. Exports of brassieres exceeded C£ 100,000 in value.

An examination of the data contained in the Statistics of Imports and Exports, 1973, of the Department of Statistics shows the following major countries of destination for the main types of garments :

	<u>Countries</u>
Men's and boys' outer garments, excluding shirts	UK, Tanzania, Zambia, Libya
Women's, girls' and infants' outer garments	UK, Bahrain, Czechoslovakia, Kuwait, Saudi Arabia, Qatar, Dubai, Libya
Shirts	UK, Czechoslovakia, USSR, Kuwait, Libya,
Brassieres	Tanzania, Bulgaria, Libya
Knitted under garments	Tanzania, Kuwait, Libya
Dressing gowns, robes, etc.	Bulgaria, Czechoslovakia, Romania
Miscellaneous knitted outer garments.	USSR, Kuwait, Libya

Two major studies were carried out by independent Consultants on the export prospects for clothing from Cyprus, one to the UK and the other to West Germany. They were completed in 1972 and 1974 respectively. Although not entirely reflecting the present situation of the Cypriot industry and the market characteristics in those two West European countries, some relevant findings and comments are worthwhile mentioning.

The study relating to the UK market did not explore the competitive situation of Cypriot products in depth, but stated that prices were not on the whole particularly attractive at that time. However, interest was shown by buyers in some designs of blazers, jackets, shirts, blouses and nightdresses, and towels, because of price and/or quality. The report came to the conclusion that at that time export opportunities did exist and pointed out problems inherent to the fragmentation of the industry, the lack of effort to improve design and maintain consistent quality and standards, as well as haphazard marketing practices.

The study of the export potential of Cypriot clothing in West Germany revealed the trend towards increased imports of clothing mainly from Hong Kong, Poland and Yugoslavia and a significant decrease in the local garment industry due to competition. It highlights, however, the potential for Cyprus products in view of her proximity to Western Europe, association with the EEC and rising labour costs in the Far East. Suggestions embrace the reorganisation of the Cypriot industry, the adherence to higher standards of quality, the capability of respecting delivery times and the selection of most advantageous marketing channels (retail chains, buying groups, agents, etc).

The possibility of a major expansion in the export of garments from Cyprus seems to lie in the field of outerwear for both sexes and various age groups. The value of imports of "not knitted" outerwear alone to a number of countries in the Middle and Near East of interest are shown in Tables 42 and 43 for the period 1967-1971. Tables 44 and 45 show the volume of imported garments into selected countries, mainly European. The data relate to a wide range of types and qualities of products, within which there should be opportunities for Cyprus goods.

Given a continuing low wage level in Cyprus, as compared with other more advanced industrialised countries, and the support of an efficiently reorganised and expanded textile industry, the prospects of a substantial increase in the export of a range of Cypriot garments can become very promising. In support of this statement, a significant event took place a few months ago: a mission of Cypriot businessmen residing in the UK visited the Island to explore the possibility of participating in the local clothing industry, with a view to exporting made-up goods to the UK and possibly other West European countries.

The following suggestions and recommendations are put forward to achieve rapid expansion in the exports of textiles.

Suggested Course of Action

- i. Although not carried out in depth owing to the very nature of the assignment, the field investigation revealed that the knitting sector of the textile industry is on the whole adequately equipped. Capacity of circular knitting for current lines of underwear seems to be ample, especially as most of the units are not being fully utilised. Some of the knitting machines are, however, old, and they may have to be replaced at some later stage. There might also be a case for installing more double jersey machines for ladies' dresses using polyester yarn, as well as Raschel machines producing material for ladies' outerwear, lace fabrics, curtains and underwear from texturised polyester and nylon filament. This would widen the range of goods and enlarge the scope for exports.
- ii. The weaving sector is practically confined to towelling, and an appreciable number of looms are now in the occupied area. With certain pre-requisites being satisfied, which are elaborated upon later under this section of the report, the rehabilitation of towel manufacture merits serious consideration, with a possible expansion into the export market.

The establishment of new weaving activities should also be considered, to promote exports of a wider variety and quality of finished garments. The production of poplin for shirt making would not be justifiable on the grounds of minimum economic size. New shirt making units are being installed, almost entirely export-oriented, based on imported shirting materials (a medium quality shirt is exported at a c.i.f. price of C£ 1.200). Other woven fabrics could be advantageously produced from imported yarns and used captively in ready-made garments and textiles. Suggested lines are fancy weaving using dyed yarns for geometrical patterns for dresses, curtains, upholstery; high quality weaving for shirts, blouses, handkerchiefs, tablecloths, curtains, etc., using both yarn and piece dyeing, denim and drill (twill) for trousers, jeans, jackets and shirts.

Provided yarns are obtained at attractive prices through bulk buying and long-term agreements (this would also apply to knitting yarns), experience in some other countries has proved that the weaving of such fabrics could well be economic above a certain output. Bearing in mind that the materials produced would be made into finished articles, entailing an appreciable labour element which is relatively cheap in Cyprus, the success of such new activities is highly probable.

- iii. The next downstream type of operation, which is not keeping pace with the rate of production of knitted fabrics, is dyeing and finishing. Fabric printing is virtually non-existent and some goods are being sent abroad (to Greece and the Lebanon) for this purpose. Apart from yarn bleaching and dyeing carried out by a few vertically integrated knitting/knitwear units, there is only one knitted fabric bleaching, dyeing and finishing unit near Nicosia, capable of handling part of the

local requirements. The quality of the operation is on the whole satisfactory but finishing is limited to a narrow range of fabrics, and some synthetic fabrics cannot be finished to the desired standard due to the nature of the finishing equipment.

The expansion of the textile industry and of the associated garment making sector poses an important problem, that of printing and finishing of a variety of fabrics, both knitted and woven, should it be decided to embark upon the manufacture of the latter on a fairly substantial scale. Yarn dyeing for certain weavings would also be necessary, and printing should not necessarily be limited to locally produced materials. In fact, it might be found advantageous to import quantities of woven fabrics suitable for garment making from commercially reliable sources (cotton and synthetic, unbleached or bleached) to be finished in Cyprus.

Consideration should be given to setting-up a central bleaching/dyeing/printing/finishing unit, flexible enough to cope with a variety of materials and customers' requirements.

The establishment of such a "commission finishing" unit would be justified as it would process enough material to be economic, as opposed to individual units with smaller throughputs. Such an operation is particularly sensitive to economies of scale.

iv. The garment making sector seems to have so far an adequate capacity in terms of cutting, sewing, trimming and steam pressing equipment, although some is said to be old. Any major expansion in clothing would necessitate a reassessment of these facilities (together with the existing knitting machinery and associated equipment). The fragmented nature of this activity would call for a study in depth in the light of an overall development programme of the textile sector yet to be planned. It is likely that additional garment making equipment would be required.

v. From the above considerations it is evident that a detailed survey and a number of specialised feasibility studies are required for the textile industry in Cyprus. It would be beyond the scope of the present report to put forward detailed proposals in this field, but indicative levels of output, costs of machinery and equipment and job opportunities for possible new units are given in the following section.

1. Towels

The proposed mill would be capable of producing about 2,000 M² of towels per 8 hour-shift (both face and bath towels), which would be bleached or dyed in plain colours in a commission finishing factory. Brushing would be shared with other units.

Coarse cotton yarn would be used, and the average weight of towelling material would be 330g/M².

It is estimated that 50 x 75 inch wide Terry looms would be required, together with a pirn winder and a sectional warper with creel. A cutter and 8 sewing machines would be installed on the finishing line.

The basic cost of the above equipment is estimated at CE 325,000.

Based on an 8-hour shift operation total employment would be 60 people, including 50 operators and general labour.

It is likely that the mill should be run on two shifts after an initial 1-2 years' operation, and ideally over 3 shifts in due course.

2. Other Woven Fabrics

Consideration should be given to the setting-up of a separate weaving mill producing fancy weaves, denim and drills and high quality fabrics mentioned earlier in this section of the report. It is assumed that all the fabrics produced will be sold to the garment marking industry after finishing in a central unit.

i. Fancy weaving

A capacity of 800 M² of fabrics per 8-hour shift is suggested having an average weight of 120 g/M², using cotton and synthetic yarn. It is estimated that 30 x 56" looms with Dobby motions would be required. Sizing would be shared with other units, and yarn dyeing and fabric finishing commissioned outside.

ii. Denim/Drill

A capacity of 1,800 M² per 8-hour shift is envisaged at this stage, using cotton yarn. An average weight of material of 215 g/M² can be assumed. Yarn sizing would be shared, together with brushing/raising. 30 x 56" looms would be required, cone dyeing and fabric dyeing for drills, as well as finishing, would be commissioned outside.

iii. High quality weaving

A capacity of 1,300 M² per 8-hour shift is suggested, using fine cotton yarn. Average weight of the material would be 110 g/M². It is estimated that 45 x 56" looms with Tappet motions would be required. Sizing would be shared with the other weaving units. The material would be sent to commission dyers/printers finishers. One pirn winder would be installed, to be used by the three units.

Summarising the above, the machinery required would be :

30 automatic looms with Dobby motions

48 plain automatic looms

45 automatic looms with Tappet motions

1 pirn winder

1 sizing machine

2 washing jigs

1 brushing machine

The basic cost of the above machinery is estimated at
CE 400,000.

Total employment would be 120 persons when operating
over 1 shift. On a two shift basis (this should be aimed at after
2-3 years), the manpower requirements would be 220-230.

3. Central Commission Dyeing/Printing/Finishing Plant

The need for such a plant was emphasised in an earlier
part of this section of the report. The operations involved are
relatively capital intensive and cannot be carried out by any single
knitting or weaving unit.

Subject to the outcome of detailed investigations being
carried out on the present status and potential of the textile and
garment making industry in Cyprus, the following scheme is put forward
to indicate in broad terms the function of such a commissioning plant.

- i. Printing : The relative merits and disadvantages of
various methods should be related to throughput, the type
of material to be printed and the quality aimed at. To be
economic, transfer printing should involve a multiplicity
of designs. Although capital investment is low, operating
costs are high and the process entails the application of
delicate techniques.

Engraved or roller screen printing are highly capital
intensive and suitable for elevated throughput.

It is suggested to investigate the possibility of using an
automatic flat screen printing system which would be suitable
for knitted and woven fabrics. Screens are easily changed
and efficiency is high. A preliminary estimate of the capacity
required would be around 10 running metres per minute, with the
possibility of printing 6-8 colours, for a width of up to
66 inches. The basic cost of the equipment would be in the
neighbourhood of CE 80,000. This excludes the final washing
and drying stages of the fabric which can be carried out in a

multi-purpose bleaching, dyeing and finishing section described below.

ii. Bleaching, dyeing and finishing

This part of the plant would handle 10-15 metres/minute of tubular knitted fabrics for the bleaching and dyeing as well as the requisite quantities of yarn dyeing and warp beam dyeing for the weaving units mentioned above.

The plant should be flexible and deal with a variety of fabrics and finishes. It should be geared to the throughput of the weaving mills and include fabric scouring, bleaching, dyeing, as well as finishing through a stenter. Assuming inspection equipment is available, and excluding handling equipment which is difficult to assess at this stage, a typical multi-purpose unit would consist of the following main items :

- 6 jigs (scouring, bleaching, dyeing)
- 2-bowl padding mangle combined with a 3 bay pin clip stenter (capable of operating at high temperature for polyester materials)
- 2-bowl padding squeezing mangle combined with an 8-cylinder drying machine (multi-function unit)
- Washer for prints
- Hot oil boiler
- Steam boiler

The basic cost of the above equipment is estimated at CE 340,000. With the printing equipment, the total cost would be around CE 420,000.

Total employment would be about 30 over one shift, and 50 over two shifts.

Table 40

QUANTITY/VALUE OF DOMESTIC EXPORTS OF

TEXTILES AND CLOTHING-1972/73

Item No.	Commodities	1972		1973	
		Quantity	Value C F	Quantity	Value C F
		Sq.yds		Sq.yds	
652	Cotton fabrics, woven	118	125	675	335
653.7	Knitted or crocheted fabrics, not elastic nor rubberized	-	250	-	-
654	Tulle, lace, embroidery, ribbons, trimmings and other small ware	-	1,372	-	915
655	Special textile fabrics and related products	-	105	-	45
656.9113	Hand, face and bath towels, table cloths, table and kitchen towels and napkins	-	6,629	-	29,821
656	Other made-up articles, wholly or chiefly of textile materials n.e.s.	-	1,915	-	18,303
841.112	Men's and boys' coats, jackets, slacks, suits, trousers, blazers and jumpers	-	148,973	-	185,913
841.11	Other men's and boys' outer garments, not knitted or crocheted	-	43,809	-	86,057
841.122	Women's, girls' and infant coats, jackets, slacks, suits, dresses, trousers, blazers and jumpers.	-	356,254	-	434,233
841.12	Other women's, girls' and infants' garments, not knitted or crocheted	-	18,238	-	31,018
841.1311) 841.1411)	Shirts	doz 19,272	165,233	doz 24,065	286,808
841.142	Women's, girls' and infants' under garments, not knitted or crocheted (excluding shirts and pyjamas) and containing not less than 75 per cent by weight of silk or man-made fibre	" 97	1,022	" 352	2,374
841.13	Other men's and boys' undergarments not knitted or crocheted	-	7,430	-	3,245
841.14	Other women's, girls' and infants' undergarments, not knitted or crocheted	-	13,586	-	25,098

Item No.	Commodities	1972		1973	
		Quantity	Value CC	Quantity	Value CC
841.251	Brassieres	doz 15,095	58,275	doz 28,345	112,128
841.2	Other clothing accessories of textile fabric, not knitted or crocheted	-	9,100	-	19,192
841.3	Apparel and clothing accessories of leather	-	6,806	-	7,118
841.42	Stockings, etc. knitted or crocheted, not elastic nor rubberized	doz 4,498	9,334	doz 4,351	12,838
841.43	Under garments, knitted or crocheted, not elastic nor rubberized (not including shirts)	-	237,120	-	243,819
841.442	Dressing gowns, robes, bed jackets, negliges and similar indoor wear, swim-wear	-	183,394	-	316,489
841.44	Other outer garments, knitted or crocheted, not elastic nor rubberized	-	115,950	-	268,345
841.45	Knitted or crocheted fabric elastic or rubberized and articles thereof	-	7,990	-	1,100
841.52	Headgear, plaited	doz 173	2,101	doz 44	853
841.5	Headgear, n.e.s.	-	-	doz 1,188	4,050

SOURCE : Imports and Exports Statistics

Table 41

VALUE OF DOMESTIC EXPORTS OF
TEXTILES AND CLOTHING-1974/75

Item No.	COMMODITIES	C £	
		1974	Jan-May 1975
654	Embroidery	602	-
656	Made-up articles, wholly or chiefly of textile materials, n.e.s.	87,112	42,027
Div. 84	CLOTHING	2,201,389	858,138
841.112	Coats, jackets etc. for men and boys.	161,522	20,513
841.122	Coats, jackets etc. for women and girls.	646,387	222,181

SOURCE : Imports and Exports Statistics

Table 42

IMPORTS OF MENS AND BOYS OUTERWEAR (NOT KNITTED OR CROCHETED) INTO CERTAIN COUNTRIES
 from 14 major exporting countries (mainly OECD members)

'000 US \$

	1967	1968	1969	1970	1971	Major Supplier
Kuwait	1,274	786	849	1,292	982	France & UK
Jordan	55	273	244	104	55	
Libya	2,866	3,784	3,434	2,985	3,154	Italy
Iran	184	204	217	212	1,472	W
Iraq	73	67	106	105	14	UK
Saudi Arabia	265	487	438	564	183	Japan
Lebanon	880	1,212	1,438	1,198	1,651	Italy
Syria	16	24	32	22	22	UK
Egypt	19	4	21	12	38	UK
Sudan	57	50	75	31	7	UK
S. Yemen	261	333	43	31	15	UK
Ethiopia	414	408	244	310	337	UK
Algeria	4,236	1,578	1,705	854	676	France
Morocco	197	200	232	269	274	France
Tunisia	583	78	64	104	91	

SOURCE: U.S. Market Share Reports.

Table 43

IMPORTS OF WOMEN'S AND GIRLS' OUTER WEAR (NOT KNITTED OR CROCHETED)
INTO SELECTED COUNTRIES

from 14 major exporting countries (mainly OECD members)

000' U.S.\$

	1967	1968	1969	1970	1971	Major Suppliers	
Kuwait	1,873	3,237	2,711	2,923	2,845	Italy	
Jordan	51	74	304	107	126		
Libya	1,824	3,375	2,538	2,769	2,615		
Iran	94	127	104	145	182		
Iraq	97	131	118	67	37		
Saudi Arabia	464	431	838	628	799		
Lebanon	1,276	1,922	2,300	2,683	3,536		UK, France
Syria	19	23	21	12	32		
Egypt	1	3	5	28	21		
Sudan	12	308	22	17	3		
S. Yemen	2,136	1,681	2,314	970	824	UK France	
Ethiopia	457	349	411	387	231		
Algeria	2,875	1,280	1,071	434	114		
Morocco	86	154	247	227	285		
Tunisia	69	49	33	34	269		

SOURCE: U.S. Market Share Reports

IMPORTS OF CLOTHING AND ACCESSORIES (NOT KNITTED) INTO SELECTED COUNTRIES

'000 US \$

	1970	1971	1972	1973	1974	Remarks	
U.S.A.	568,399	629,938	681,901	NA	NA	36 Exporting Countries	
Belgium/ Luxemburg	97,392	133,959	198,942	297,000	371,800		
France	90,317	112,557	179,383	245,200	252,000		
West Germany	405,696	567,707	837,679	1,170,500	NA		
Italy	42,790	44,142	65,198	107,800	NA		
Holland	213,715	247,729	356,090	432,900	NA		
Austria	29,044	39,223	58,103	59,300	120,300		
Denmark	41,850	41,692	54,135	92,600	NA		
Finland	9,762	8,464	12,525	21,700	23,600		
Norway	47,603	56,473	78,409	99,000	117,500		
Portugal	2,983	4,531	5,949	11,400	NA		
Sweden	110,436	109,376	161,677	202,100	238,100		34 Exporting Countries
Switzerland	83,394	105,517	153,898	215,700	246,400		
United Kingdom	147,324 (CY 142)	216,566 (CY 308)	283,107 (CY 314)	450,500	528,800		
Greece	1,041	894	1,168	1,800	NA		
Ireland	11,816	17,004	21,108	28,100	NA		
Spain	4,642	5,396	8,398	14,800	NA		
Yugoslavia	1,488	2,048	957	NA	NA		

CY = Cyprus

NA = Not Available

SOURCE : UN and OECD Statistics

IMPORTS OF CLOTHING AND ACCESSORIES (NOT KNITTED) INTO SELECTED COUNTRIES

'000 US \$

	1970	1971	1972	1973	1974	Remarks	
U.S.A.	568,399	629,938	681,901	NA	NA	36 Exporting Countries	
Belgium/ Luxemburg	97,392	133,959	198,942	297,000	371,300		
France	90,317	112,557	179,383	245,200	252,000		
West Germany	405,696	567,707	837,679	1,170,500	NA		
Italy	42,790	44,142	65,198	107,300	NA		
Holland	213,715	247,729	356,090	432,900	NA		
Austria	29,044	39,223	58,103	59,300	120,300		
Denmark	41,850	41,692	54,135	92,600	NA		
Finland	9,762	8,464	12,525	21,700	23,600		
Norway	47,603	56,473	78,409	99,000	117,500		
Portugal	2,983	4,531	5,949	11,400	NA		
Sweden	110,436	109,376	161,677	202,100	238,100		34 Exporting Countries
Switzerland	83,394	105,517	153,898	215,700	246,400		
United Kingdom	147,324 (CY 142)	216,566 (CY 308)	283,107 (CY 314)	450,500	528,800		
Greece	1,041	894	1,168	1,800	NA		
Ireland	11,816	17,004	21,108	28,100	NA		
Spain	4,642	5,396	8,398	14,800	NA		
Yugoslavia	1,488	2,048	957	NA	NA		

CY = Cyprus

NA = Not Available

SOURCE : UN and OECD Statistics

Table 45

IMPORTS OF KNITTED CLOTHING AND ACCESSORIES INTO SELECTED COUNTRIES

'000 US \$

	1970	1971	1972	1973	1974	Remarks
U.S.A.	487,753	682,420	937,109	NA	NA	
Belgium/ Luxemburg	97,405	120,958	151,910	198,600	233,300	
France	136,932	165,493	226,984	267,500	284,600	
West Germany	486,579	616,591	806,230	972,500	NA	37 Exporting Countries
Italy	33,254	34,097	40,970	54,600	NA	
Holland	201,728	277,772	283,750	322,600	NA	
Austria	33,552	39,632	50,304	57,700	93,600	
Denmark	42,614	40,629	36,559	51,000	NA	
Finland	21,301	16,923	22,380	26,800	32,900	
Norway	61,450	68,753	70,908	78,800	97,500	
Portugal	4,291	5,994	7,325	13,400	NA	
Sweden	117,695	114,504	129,125	146,200	178,400	31 Exporting Countries
Switzerland	106,674	125,995	151,166	182,000	216,800	
United Kingdom	124,613	169,122	207,951	276,500	315,500	33 Exporting Countries
Greece	2,043	1,726	1,665	5,300	NA	
Ireland	11,551	14,586	18,922	27,000	NA	
Spain	5,827	5,371	6,180	10,000	NA	
Yugoslavia	8,013	11,685	10,596	NA	NA	

NA = Not available

SOURCE : UN and OECD Statistics

II.3

FURNITUREBackground

Within Sector 26 (Manufacture of Furniture and Fixtures), there were 575 establishments in 1972, of which 445 employed less than five persons. The former included mainly wood-based units (103 in number, employing five persons or more). Gross output of Sector 26 amounted to C£ 4,393,000 in 1972, to C£ 5,341,000 in 1973, and decreased to C£ 3,542,000 in 1974. The largest contribution was made by wooden furniture (sub-sector 260.1) and 30 units employing over four persons were lost in the occupied area. In 1973, some 2,900 persons were employed by the industry against about 1,800 in the period July-December 1974.

Imports of all types of furniture were about C£ 471,000 and C£ 786,000 in 1972 and 1973 respectively. They decreased to C£ 660,000 in 1974. The value of exports was about C£ 19,000 in 1972 and 1973, and C£ 29,000 in 1974. It reached C£ 76,000 during the January-May 1975 period. Exports were mainly to the United Kingdom and Libya.

Present Status of the Industry

The wood furniture manufactured by the enterprises visited during the field survey ranged from quality products fetching high prices and involving almost entirely skilled manual operations, to cheap lines such as simple chairs, camel backs and tables involving a fair degree of mechanisation. The middle quality items included a wider range, such as beds, chairs, armchairs, dining and sitting room sets.

One enterprise uses some selected local wood (pine and walnut), but the bulk of the requirements is imported wood such as white oak and beech. The company exports to the UK chairs with raffia seats at a price of about C£ 4.50 fms Limassol. Freight charges to the UK were said to be about C£ 480 per container, holding approximately 280 chairs.

Another furniture making concern produces good quality furniture but is experiencing difficulties in exporting its products to Libya and some countries of the Middle East because of severe competition from Italy which apparently subsidises these exports to the extent of 25%.

To judge from import figures, the local furniture industry was not so far capable of producing the lines required by the Cypriot buyers of the quality they expected. This tendency will probably change and a scope for expansion in this sector exists. Among the changes and measures which would be desirable to bring about such an expansion are the concentration on fewer product lines by individual manufacturers within the framework of their capabilities in terms of equipment, (technical advice would be required on machinery, plant layout and designs) some form of guidance from a "woodwork association", the provision of a central purchasing organisation ensuring a supply of carefully selected and graded materials and common wood drying and tool maintenance facilities; the latter could be accommodated within the proposed machine shop (see Section II.6).

Export Prospects

The idea of producing knock-down furniture for export seems to appeal to several concerns in Cyprus. Some developments taking place in wood-based industries would favour such a venture. Although most of the solid wood required would have to be imported for certain components, the recent establishment of a chipboard factory and of a veneer/plywood plant makes it sensible to consider the production of a limited range of simple items, such as chairs, tables, cupboards, desks, of the knock-down type. Most of these would utilise a relatively large proportion of the semi-manufactured boards and veneers. Both units mentioned above will be heavily dependent on exports. The annual capacity of the chipboard mill is 20,000 M³ of product, of which 7,500 M³ can be sold veneered, and that of the plywood unit 8,000 M³, well above the local requirements. Any captive outlets for further processing would enhance their chances of success and contribute to the development of the furniture sector.

Imports of furniture into selected countries are shown in Tables 46, 47 and 48. It can be seen that imports to some countries of the Middle East are quite substantial and show a rising trend.

Although export possibilities for expensive quality furniture to Arab countries exist, there seems to be a need for simple lines at a price accessible to the middle-income range of the population, whose purchasing power is increasing and who are enjoying an improved standard of living. It is believed that the types of knock-down furniture referred to above would find a market in such countries. Endeavours to secure design and marketing know-how from an established foreign group should be made, to promote the success of such an operation.

The adoption of continuous mechanised processes is not suggested. These would be capital intensive and necessitate high output levels. A labour intensive type of operation is recommended. An important element in the possible success of this export-oriented industry would be the lower freight rates for the components shipped in containers, compared with those from competitive sources of supply (see Tables 60 and 62).

Suggested Manufacturing Facilities

The exact output and product mix are difficult to determine at this stage, and so are the detailed break-down and nature of the machinery and equipment required. These will depend, among other factors, on the quality and complexity of the knock-down units to be produced, and on labour productivity. For instance, the degree of finish required (painting, laquering, veneering, etc.), will pre-determine the finishing line. In 1972 the gross output per man employed for the whole furniture industry in Cyprus was C£ 1,500 but this was an overall average for a large number of concerns, many of them very small. A modern unit in Cyprus could well achieve a minimum level of C£ 2,000 per man.

In order to indicate an order of magnitude for the cost of a manufacturing unit, a base figure compatible with the possible export market potential would be, say, 200 wardrobes or 180 side-boards or about the same number of desks per week, when operating over one shift. The plant would also be capable of producing tables, chairs, cupboards and other "module" units. In the list of equipment shown below, no allowance has been made for upholstered units. The annual requirements of main raw materials would be of the order of 250 M³ of solid sawn wood, plus about 45,000 M² of chipboard and plywood of various thicknesses. Emphasis is placed on the necessity of rationalising and optimising designs, and on the use of appropriate metal fasteners and fixtures which can be sub-contracted to outside metal working workshops).

A typical list of equipment which would be required is set out below:

Solid wood line

Cross-cut saw
 Straight line edger
 Planing/thicknessing machine
 Through feed moulder
 Band saw
 Router
 Spindle moulder
 Double ended tenoning machine
 Morticer (hand operated)

Panel line (assuming all panels already veneered)

Panel saw
 Double cross-cut saw
 Band saw
 Single end tenoner
 Double sided edge banding machine
 Router
 Sander (wide belt)
 Dowel boring and making machines

Tool room

Knife grinder
 Universal cutter grinder
 Bandsaw braising and sharp ending machine
 Finishing equipment (curtain coater, racks, spray equipment and booths)
 Miscellaneous spares and hand tools
 Miscellaneous items such as jigs, clamps, conveying equipment.

The basic cost of the above equipment is estimated at
 Cf 100,000.

The factory would employ about 100 workers per shift,
 plus 10-15 management and administrative staff.

Table 46

IMPORTS OF FURNITURE INTO SOME COUNTRIES
from major 14 exporting countries (mainly O'CD members)

000' US\$

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>Major Supplier</u>
Kuwait	4,964	5,012	3,687	3,227	4,163	U.K
Jordan	164	159	214	186	585	
Libya	7,850	10,552	9,241	5,638	8,099	Italy
Iran	913	1,068	1,514	1,212	4,396	
Iraq	219	231	343	189	142	
Saudi Arabia	5,603	5,324	5,246	5,100	5,288	West Germany
Lebanon	548	843	1,238	1,193	1,040	
Syria	36	48	73	55	80	
Egypt	44	197	112	336	170	
Sudan	59	127	128	38	37	
S. Yemen	513	286	311	109	96	U.K
Ethiopia	658	809	1,585	521	509	
Algeria	2,115	1,025	1,348	1,640	1,485	
Morroco	248	426	433	509	648	
Tunisia	299	537	578	857	449	

SOURCE: U.S. Market Share Reports

Table 47

IMPORTS OF CHAIRS AND PARTS INTO SOME COUNTRIES
from major 14 exporting countries (mainly OECD members)
'000 US\$

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>Major Supplier</u>
Kuwait	1,145	1,101	746	740	1,011	West Germany
Jordan	16	61	19	34	34	
Libya	1,267	2,167	1,730	738	1,002	
Iran	150	164	170	221	1,003	
Iraq	20	7	39	5	7	
Saudi Arabia	1,216	1,550	1,137	100	954	
Lebanon	135	108	227	259	340	
Syria	4	4	6	-	15	
Egypt	14	14	15	17	13	
Sudan	12	14	10	10	2	
S. Yemen	109	41	40	5	1	
Ethiopia	145	146	90	113	112	
Algeria	1,483	607	566	518	272	
Morocco	51	129	135	155	181	
Tunisia	87	101	84	240	126	

SOURCE : U.S. Market Share Reports

Table 48

IMPORTS OF FURNITURE INTO CERTAIN COUNTRIES'000 US\$

S.I.T.C.N ^o .	1970		1971		1972		1973	1974
	821.01	821.09	821.01	821.09	821.01	821.09	821	821
U.S.A.	NA	NA	NA	NA	NA	NA	NA	NA
Belgium/ Luxemburg	24,622	47,244	36,448	56,369	31,675	75,670	174,600	235,800
France	40,418	108,749	56,089	142,117	69,864	180,155	372,155	411,600
West Germany	62,709	74,041	87,634	110,575	118,821	144,372	401,000	NA
Italy	5,984	12,739	6,344	14,340	10,048	19,209	44,600	NA
Holland	53,746	86,345	54,572	105,636	70,191	140,491	297,900	NA
Austria	10,517	19,395	14,761	25,297	22,293	39,552	32,200	121,000
Denmark	12,512	19,010	12,175	20,175	14,365	22,346	72,000	NA
Finland	3,361	2,452	3,196	2,685	4,591	3,084	14,300	20,900
Norway	10,269	10,333	12,452	14,675	17,174	19,202	54,000	75,300
Portugal	529	1,593	695	2,014	1,367	2,803	6,400	NA
Sweden	17,366	21,041	17,229	22,381	21,351	29,296	69,600	106,500
Switzerland	28,244	40,858	35,668	52,296	48,812	71,185	183,400	210,600
United Kingdom	19,364	16,227	25,825	23,806	39,230	44,551	154,300	154,200
Greece	358	815	498	1,014	469	947	3,700	NA
Ireland	1,484	2,638	1,740	3,444	2,573	4,720	12,600	NA
Spain	945	3,978	1,483	4,488	2,848	6,425	18,800	NA
Yugoslavia	1,222	2,977	1,691	3,719	1,311	3,499	NA	NA

821 = All furniture

821.01 = Chairs and other seats and parts

821.09 = Furniture and parts n.e.s.

NA = Not available

SOURCES: UN and OECD Statistics

II.4

CHEMICALS

II.4.1

COPPER SULPHATEBackground

Copper sulphate is produced by the action of sulphuric acid on oxidized copper ores or on copper itself. It contains 25% wt copper. Total production in the Free World currently amounts to about 130,000 tons/year. The price today is approximately ££180 per ton, or ££730 per ton of contained copper, compared with a copper metal price of approximately ££480 per ton. Conversion of oxidized copper ores to copper sulphate is a relatively simple operation involving only a modest investment in plant.

Copper sulphate is used as such for the control of the bilharzia snail in irrigation canals in Egypt and Sudan, in agriculture as a fungicide, algacide and weedkiller, and in wood preservatives, electroplating, water treatment and in mineral concentration. It is also the starting material for a number of other copper compounds which are used for similar purposes: basic copper sulphate, basic copper carbonate, cupric oxide, copper naphthenate, Bordeaux mixture (copper sulphate and lime), Burgundy mixture (copper sulphate and sodium carbonate) and copper sulphate oxychloride.

Although the use of organic carbamates as fungicides reduced the quantities of copper compounds used in agriculture very considerably after World War II, copper compounds still have an important and permanent role in agriculture, and their use now appears to be on the increase. Copper compounds in low concentrations are essential to plant and animal life, and even in areas where there is no actual copper deficiency, the use of low concentrations of copper in fertilizers and some animal feeds has beneficial results.

Production and consumption of copper sulphate in certain countries in 1972 is given in Table 49. Among those countries near to Cyprus, Greece imports and uses between 2000 and 3000 tons of copper compounds annually; Egypt imports and uses nearly 1000 tons annually. According to a leading British manufacturer Cyprus is said to import between 200 and 300 tons a year of copper compounds for use in agriculture, although this could not be confirmed by Cyprus Government statistics.

U.S. prices of copper sulphate from 1972 to date are given in Table 50. U.S. prices are generally a little higher than world price since the domestic market is protected by import duties.

Table 49

PRODUCTION AND CONSUMPTION OF COPPER SULPHATE IN 1972IN SELECTED COUNTRIES - TONS

Country	Production	Consumption
Argentina	1,500	1,500
Australia	2,172	4,527
Belgium	8,500	1,507
Brazil	NA	5,780
Chile	100	100
France	NA	12,440
Germany	2,290	10,400
India	9,860	10,500
Italy	17,200	NA
Japan	16,847	16,304
Mexico	8,020	8,020
South Africa	3,000	2,000
Spain	4,000	4,000
Switzerland	420	817
U.K.	20,000	8,000
U.S.A.	38,052	37,487
T o t a l	131,961	123,382

Data supplied by "Conseil International pour le Developpement du Cuivre".

TABLE 50
PRICES OF COPPER SULPHATE

Year	U.S. \$ per 100 lbs	
	Low	High
1972	22.15	22.75
1973	22.75	27.5
1974	27.5	37.5
1975	Average: 35.2	

SOURCE: "Chemical Marketing Reporter" N.Y.

It is worth noting that prices of copper sulphate are less volatile than those of copper metal.

Most copper sulphate manufacturers subscribe to the International Copper Sulphate Development Association which is centred in Brussels and provides an information service to its members.

Proposed Manufacture in Cyprus

Cyprus has several natural advantages as a potential manufacturer of copper sulphate and allied compounds.

- i) The availability of copper ores and concentrates;
- ii) The availability in the near future of low cost sulphuric acid (from the 180,000 ton per year plant to be constructed by the Hellenic Mining Company).

It seems unlikely, however, that the manufacture and sale of copper sulphate alone would be viable commercially. Markets require a variety of copper compounds, so that users may choose from a range of compounds from each supplier.

Users also expect technical service from the supplier in advising on the best compound to employ for each application and how to apply it. It is suggested that basic copper sulphate and basic copper carbonate should be offered as well as copper sulphate.

An arrangement with a European manufacturer of copper sulphate and allied compounds for the supply of expertise in manufacturing and marketing is therefore desirable.

The following paragraphs examine the technology of manufacturing copper sulphate. The capacity of the plant has been rather arbitrarily taken as 2,500 tons/year (equivalent to 625 tons/year of copper). This size is not so large as to raise marketing problems or securing the requisite quantities of raw materials, and not so small as to be uneconomical with the proviso mentioned above.

Cupreous Raw Material

Several sources of raw material have been considered, including (i) partially oxidized ore from the mines previously worked by Cyprus Mines Corporation (ii) a roasted mixed pyrite chalcopyrite ore which might be available from the proposed new sulphuric acid plant (iii) copper (chalcopyrite) concentrates and (iv) copper cement.

While materials (i) and (ii) would be cheapest in terms of copper, the copper contents are low (about 1.5% wt.). The solutions obtained by extraction of these materials with sulphuric acid might be contaminated with iron sulphate and other impurities and be low in copper content. They are excluded at this stage, though it is possible that closer study might show them to be viable.

Cement copper, formed by precipitation of copper from hydrometallurgical operations and from mine water with the aid of scrap iron, would be a suitable raw material. At present, since the closure of Cyprus Mines operations, it does not seem to be available. It might be justifiable for other mining companies to make cement copper simply as a raw material for copper sulphate production.

Copper concentrates are produced by Hellenic Mining Company from mixed pyrites by flotation. They consist mainly of chalcopyrite, Cu Fe S_2 , and contain 20 to 22% copper. This material is at present all exported. There are various ways in which it could be converted to copper sulphate. The method suggested here is by flash roasting followed by preferential solution of copper oxide in dilute sulphuric acid. The solution is concentrated, copper sulphate crystallized, separated and dried. Scrap iron is added to the impure solution after crystallization to recover copper as metal and this is added to the feed to the roaster.

Some ferric oxide dissolves at the same time as copper oxide, but as the acid in solution becomes used up, the copper oxide is preferentially dissolved and iron oxide is thrown out of solution again.

The most likely source of concentrate would be derived from Hellenic Mining Company's Kalavassos mine, which is also intended to supply the iron pyrites as a source of sulphur for the 180,000 ton/year.

sulphuric acid plant to be constructed. The present intention is to process the mixed chalcopyrite-pyrite ore by flotation to yield a chalcopyrite concentrate containing 20 to 22% copper. This will be exported for smelting and an iron pyrite concentrate containing 48% sulphur will be used for sulphuric acid manufacture.

Suggested Manufacturing Facilities

The copper sulphate plant should ideally be located in the proximity of the proposed sulphuric acid plant, so that the SO₂ rich gas from the roaster can be utilised by the sulphuric acid plant. If this were not found to be practical, the gas could be used for the production of sodium bisulphite, which would be readily taken up by the local and export markets.

The copper sulphate plant would initially be operated on a day shift, to produce about 2,500 tons of product per annum. All operations are of the batch type. The output of the plant could easily be increased to 7,000 tons per annum by working over three shifts.

The product should be a 99% purity copper sulphate pentahydrate, and an overall 90% yield on copper contained in the concentrate can be expected.

Plant equipment would comprise mainly the following items:

- Fluidized bed roaster
- Leaching tanks
- Solution filters
- Vacuum evaporator/crystalliser
- Condenser
- Centrifuge
- Drier
- Product hoppers
- Bag filling equipment
- Waste treatment unit
- Miscellaneous pumps
- Boiler

The total basic cost of these items is estimated at C£160,000. It is estimated that 20 persons would be employed.

Because of unknown factors, particularly about the chemical and physical characteristics of the copper concentrate and its behaviour on roasting, some "bench tests" would be required to derive the necessary process design data. Such tests should not be confined only to the raw material suggested to be treated, but also cover other cupreous materials such as cement copper and any utilisable by-products from the Hellenic Mining Company's operations, which might prove more economic to process.

At a further development stage, other copper chemicals derived from copper sulphate could advantageously be produced, principally basic carbonate and basic sulphate. The additional plant required would consist essentially of two stirred batch reactors, solution tanks, filters, a drier and grinding/bagging equipment. For an output of 1,000 tons of these copper-based derivatives, such a general purpose plant would cost around C£100,000 (basic equipment only) and would employ 10-12 persons per shift.

II.4.2

SODIUM BICHROMATEBackground

The utilization of chromite ore is fairly recent. It has three principal uses, refractory, metallurgical and chemical, each with its particular requirements. The main specifications are given in Table 51.

Table 51

MAIN SPECIFICATIONS OF CHROMITE ORE

Grade	Cr ₂ O ₃ % W	SiO ₂ % W	Al ₂ O ₃ % W	Ratio Cr:Fe	Physical Properties
Refractory 1	48-52	1.5-3.0	15-20		Lumps & concs.
" 2	40-44	3.5-5.0	15-20		
" 3	30-32	Max 5	18-20		
Metallurgical	40-48	Max 8		2.5-3.0	Hard Lumpy.
Chemical	Min 44	Max 5			Fines and friable

About 15% of all chromite ore mined is used for chemical manufacture; it is nearly all converted first to sodium bichromate Na₂Cr₂O₇·2H₂O. In this form it is the starting material for other chromium chemicals. Most chromite used in chemical manufacture is obtained from the Transvaal.

The price of sodium bichromate has been rising recently, from \$0.16 per lb in 1972 to \$0.25 per lb in 1975. World production is estimated at approximately 300,000 tons/year. The main producers of sodium bichromate are the USA, the UK, the USSR, Japan, South Africa, Germany and Czechoslovakia though there are several other small producers.

The principal end uses of chromium chemicals (derived from sodium bichromate) are for pigments, corrosion control, surface treatment of metals, leather tanning, mordants for textile dyeing, wood preservatives, fungicides and miscellaneous chemical uses. Pigments include chromic oxide green, chrome yellow (lead chromate), zinc yellow (basic potassium zinc chromate), molybdate orange (combination of lead chromate and molybdate) and chrome green (mixture of lead chromate and iron blue).

Chromite has been mined and exported from Cyprus since about 1972, originally by the Cyprus Chrome Company Ltd., now under the control of Hellenic Mining Co. Ltd. The ore is mined on the northern slopes of Troodos and is of good quality and is all exported, mainly for use in refractories. Analyses are given in Table 52.

Table 52

ANALYSES OF CYPRUS CHROMITE (% WEIGHT)

Constituent	Best Selected Grade	Usual Production	Normal Range	
			Max	Min
Cr ₂ O ₃	56.2	)	50	4.0
Al ₂ O ₃	12.3	48 58 min	16.5	9.5
Fe ₂ O ₃	3.8)		
FeO	12.4		17	12.5
CaO	0.1		0.3	0.1
MgO	13.8		21	13.5
SiO ₂	0.1	3.5	9	3
TiO ₂	0.81			
Mn	0.14			
CO ₂			0.3	0
Ratio Cr/Fe		2.75	3.14	2.47

The ore exports consist partly of hand picked lumps and partly of concentrates obtained after crushing and treatment by wet classifiers and tables.

Annual exports in the last four years are given in Table 53.

Table 53

EXPORTS OF CHROMITE ORE FROM CYPRUS

Year	1971	1972	1973	1974
F.o.b. Value				
Long tons	41,268	23,306	29,907	24,458
C £	609,662	346,360	382,499	368,314
Average Price C£/ton	14.8	14.9	12.8	15.1

SOURCE: Annual Report of the Senior Mines Officer, 1974.

Judged from the analyses, most of the treated ore appears suitable for the production of sodium bichromate.

The production of 1 ton of sodium bichromate (the value in 1974 was about £200 per ton) requires approximately 1.4 tons of chromite, costing approximately £20 per ton, in addition to other chemicals.

The return on chromite mined would thus be greatly enhanced by converting part of it to sodium bichromate in Cyprus. The conversion of chromite to higher value materials would also help to conserve reserves of Cyprus chromite. The known reserves are not large, probably not more than 100,000 tons, although in other parts of the world fresh deposits have often been discovered in the past as old ones were worked out.

Process Description

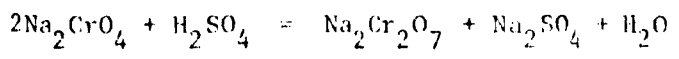
Chromite is crushed and ground to 150-200 mesh powder in an air swept ball mill. It is mixed with soda ash and pulverized lime and recycled filter residue in controlled proportions. The mixture is blended in a rotary mixer and fed to a rotary kiln. The kiln is fired with fuel oil using excess air, and the charge is heated to 1100 to 1200°C for approximately two hours. The chromite reacts with soda ash and oxygen in the air to give sodium chromate, ferric oxide and carbon dioxide.

The use of lime reduces the consumption of soda ash. Without it, an excess of soda ash is required to react with aluminium oxide as well as chromium oxide. It also prevents the mixture fusing or becoming sticky in the kiln. The roasted ore is cooled in a rotary cooler by air then fed into a continuous leacher consisting of a wet pulper, a thickener and a washing centrifuge.

The exact proportions of soda, lime and recycle material used depend on the analysis and nature of the chromite. This must be determined experimentally.

The solution from leaching contains about 30% of sodium chromate with excess alkali, sodium aluminate, sodium silicate and other impurities. The use of lime in roasting reduces the impurities present after solution.

After preliminary purification to remove alumina and silica, the solution is concentrated to a sodium chromate content of 40 to 45%. It is then treated in a stirred tank, usually with sulphuric acid, to convert the sodium chromate into bichromate.



The solution is concentrated in a multiple effect vacuum evaporator to a slurry containing sodium sulphate crystals. The slurry is thickened and the sodium sulphate is separated, washed in a centrifuge and dried. The solid and impure sodium sulphate containing about 0.2% of sodium bichromate may be sold as chrome salt cake for use in the paper industry.

Hot concentrated bichromate solution containing 80 to 85% $\text{Na}_2\text{Cr}_2\text{O}_7 \cdot 2\text{H}_2\text{O}$ is filtered, cooled to about 35°C and crystallized. The crystals are separated in a centrifuge. The crystals are dried, screened and packed. The overall recovery of sodium bichromate is about 80% of the chromium contained in the ore. The supply of water and the disposal of effluents must be considered in siting the plant.

Process Plant and Equipment Required

The production facilities would include the following main equipment :

- Rotary kiln
- Air blower
- Flash drier
- Air driers (2)
- Solid cooler
- Waste heat boiler
- Evaporators (2)
- Vacuum crystalliser
- Ball mill
- Wet mills
- Centrifuges (4)
- Various holding tanks and hoppers
- Bag filling equipment
- Miscellaneous equipment

An annual capacity of 5,000 tons of bichromate is suggested. The basic cost of the above equipment is estimated at C£450,000.

The plant would be operated over three shifts and would employ 60 people.

II.5

NON-METALLIC MINERAL PRODUCTS

II.5.1

ASBESTOS PRODUCTS

Asbestos has been mined in Cyprus at Amiantos since 1904. The operation is carried out exclusively by Cyprus Asbestos Mines Ltd, a company owned jointly by Swedish, Danish, British and Irish interests. The asbestos is mined by open cast methods, milled and separated into grades. The bulk of the asbestos falls into two grades which correspond in fibre length to the Canadian grades 4T and 5R. The fibres are short and rather weak compared with Canadian or indeed most other asbestos. Cyprus asbestos is nearly all exported and used in admixtures with better grades of asbestos in the manufacture of asbestos cement sheets (plain and corrugated), pipes, guttering and tanks.

The tonnage, value and average price of the asbestos exported are given in Table 54.

Table 54

EXPORTS OF ASBESTOS

Year	1971	1972	1973	1974
Tons	23,237	26,124	31,480	36,579
Value 1000 Cf	1,353	1,560	1,694	2,085
Average Price Cf/ton	58.5	59.5	54.0	57.0

SOURCE: Annual Report of the Senior Mines Officer, 1974.

The average price of Cyprus asbestos has not risen over this period in line with other commodities, presumably due to lower quality compared with competitive sources of supply.

Production is now being increased to between 40,000 and 45,000 tons per year.

Only a small part of this asbestos, about 240 tons/year of the better grade, is used in Cyprus. It is purchased at about Cf 65 per ton by the Cyprus Cement Co. Ltd. for their asbestos cement plant at Moni.

Current production at this plant runs as follow :

<u>Products</u>	<u>tons per year</u>
Corrugated sheet	1620
Flat sheet	80
Moulded pipes (low pressure)	200
Moulded tanks	200

Commercial asbestos sheets should comply with appropriate international standards, ISO/R 393, 394, 395 and 396 or the corresponding U.K. standards BSS 690 parts 1 to 5. These cover corrugated sheets and compressed and semi-compressed flat sheets, as well as slates and lining sheets and panels. The specifications include such features as composition, standard dimensions and tolerances, breaking load, bending strength, density, water absorption, resistance to acidified water, impermeability and resistance to frost.

It is understood that the Cyprus asbestos cement sheets do not conform with these specifications, but this may be largely due to a lack of adequate quality control. Corrugated sheets are made in one standard width (40½ inches) and thickness (6 mm) in lengths of 4 to 8 ft and are sold at a price of 152 mills per foot length.

Flat sheets are made also in one width (4 feet) and thickness (6 mm) in lengths of 2 to 8 ft at a price of 222 mills per foot length. Pipes for rainwater are made in diameters of 3 and 4 inch and water tanks are made in sizes of 60 to 110 gallons. Roof ridges, guttering, finials, pipe and gutter bends, tank covers and flower pots are also produced.

The plant employs the Hatscheck process and is old, though the process is basically sound. Output appears capable of appreciable expansion, by multiple shift working. Two factors contribute to the low quality of the present products:

- i) The asbestos used is 100% Cyprus. Most asbestos cement plants use a blend which includes a percentage of better material.
- ii) Operation on one shift only results in frequent start-ups and shut-downs; hence the quality of the products varies. More regular quality would be achieved by continuous production.

The products do not appear to be exported at present. One reason for this is that all cement made by the company can readily be sold as such. This situation may change once the current cement plant expansions come into operation.

Two other types of asbestos cement products are in present demand in Cyprus and markets served by Cyprus firms.

- i) High pressure asbestos cement pipes for water supply and sewers. These cannot be made on the existing plant. A new plant employing Maaza and/or Magnami machines would be required. The feasibility of such a project was studied by the Ministry of Commerce and Industry in cooperation with UNIDO in 1973, early 1974. The minimum plant output needed to make this project viable in Cyprus was found to 10,000 tons/year. Demand in Cyprus was not expected to reach this level even by 1986, unless extensive new water supply and irrigation projects were undertaken. Further adverse factors were surplus capacity at that time in Greece, Yugoslavia and Egypt, and the policy of subsidising exports in those countries.

The position has now somewhat changed. New development schemes have been approved for the Larnaca and Paphos districts, each of which is expected to utilize about 10,000 tons of asbestos cement pipes. The surplus capacities in neighbouring countries are also now being largely utilized for their domestic needs.

- ii) Asbestos cement boards used in composite wall panels for prefabricated housing in the Middle East. A leading Cyprus firm has plants making prefabricated panels in several countries of the Middle East. Their future requirements for 6 mm boards are estimated at between 2000 and 3000 tons per year. These boards are sanded and of a better quality than those produced in Moni and they are all imported from West European Countries. Recent import prices of Cf 0.750 per m² were quoted. In addition there is a limited demand for insulation board of higher asbestos content and lower density than the product required for panelling.

From discussions with a large international producer of asbestos cement products, it appears that it would be possible to make the boards required for wall panels as well as insulating boards in the plant at Moni. A modest extra capital investment would be needed, i.e. about Cf 40,000 for sanding machine with dust extraction, and Cf 10,000 for a new press. A proportion of the asbestos used, about 40%, would also have to be imported material of better quality. A know how agreement with such an international firm (which might become a participant in the venture), would be necessary. A thorough inspection of the Moni plant by the firm supplying the know-how would be needed to establish the feasibility of this tentative proposal.

Provided it is technically feasible to adapt the Moni plant to the manufacture of asbestos sheets suitable for composite wall panels, there are two reasons which may ensure that it is viable :

Transport costs from Western Europe amount to about 40% of the cost of the asbestos cement sheets now used for composite wall panels. Transport costs from Cyprus would be very much lower.

The Moni factory would be much better utilized (i.e. on three shift working) and the quality of the existing products should also be improved.

As an order of magnitude estimate, the sales revenue of the Moni factory might be increased by some Cf 400,000 per year by this operation.

It is recommended that the proposal be studied in depth in consultation with a potential supplier of know-how, entailing a thorough examination of the present plant at Moni.

11.5.2

GYPSUM PRODUCTSBackground

Deposits of gypsum of high quality are widespread in Cyprus. From data supplied by the Department of Mines, there are reserves of over 100 million tons in the Government controlled area. About 30% of these have been sold or leased. Of the unclaimed deposits, probably half could not be exploited for environmental reasons. Thus the total available reserves amount to over 65 million tons. The bulk of the gypsum is crystalline selenite but it also occurs as alabaster and as massive rock gypsum.

Gypsum is also quite widely distributed throughout the Middle East though not so developed as in Cyprus. The main constraints on the exploitation and export of Cyprus gypsum have been the high costs of handling, transport and loading at Cyprus ports. Bulk loading facilities are essential for the economic export of gypsum.

Before the closure of the Suez Canal, Cyprus gypsum was exported to the Far East at low cost as ships' ballast. Sales of Cyprus gypsum to many important markets were prevented for many years by the closure of the Suez Canal, but markets such as Sri Lanka are now again accessible.

Two main gypsum quarries are now being worked by different companies, one near Vassilikos and the other north west of Larnaca. Typical analyses are given in Table 55.

Table 55ANALYSES OF CYPRUS GYPSUMS-% WEIGHT

CONSTITUENT	LOCATION			
	near Vassilikos		near Larnaca	
	High Quality	Low Quality	High Quality	Low Quality
CaO	32.6	32.8	32.79	32.58
SO ₃	-	-	45.80	45.76
SiO ₂	1.08	1.56	0.08	0.16
Fe ₂ O ₃ +Al ₂ O ₃	0.06	0.32	0.07	0.12
MgO	-	-	0.12	0.10
CO ₂	0.25	1.34	0.41	0.22
Na ₂ O+K ₂ O	0.01	0.01	-	-
H ₂ O	20.0	19.44	-	-
Gypsum equivalent	98.66	95.58	98.45	98.35

The Vassilikos material is mainly used as an ingredient for cement, in which 3 to 5% is incorporated to retard setting. Vassilikos has bulk loading facilities for the export of cement but with the expansion of its cement factory it is doubtful whether there will be much capacity available for the bulk loading of gypsum as well.

Exports of raw gypsum (mainly from the Vassilikos area in recent years) were as follows :

Table 56

EXPORTS OF RAW GYPSUM

Year	1971	1972	1973	1974
Quantity, tons	nil	nil	21,694	10,544
Value, C£ f.o.b.			44,810	22,363
Price, C£/ton			2.1	2.1

SOURCE: Annual Report of the Senior Mines Officer, 1974

The main producer in the Vassilikos area quarried approximately 14,000 tons of rock in 1974 of which half was exported and half was used locally.

The main and most up to date calcining plant is on the site of the gypsum deposits near Larnaca, though there are several smaller and less efficient plants elsewhere (mainly in the Limassol area). The plant at Larnaca has a capacity of 12,000 tons/year of gypsum plaster, but is now operating at only about 3,000 tons/year, due to cut backs on building in Cyprus.

Three grades of plaster are produced at the Larnaca plant :

- i) Building plaster sold in paper bags at C£8 per ton, (of which the bags represent C£3 per ton).
- ii) Casting plaster; high quality, decorative, sold in paper bags at C£ 14 per ton.
- iii) Light weight premixed insulating plaster containing expanded perlite sold in paper bags at C£ 25 per ton.

Exports of plaster are small. This is mainly because it is easily hydrated and spoiled when handled in paper sacks.

The possibility of producing gypsum wall and plaster board has been considered. This manufacture is highly capital intensive and must be carried out on a large scale, at a rate of some 4-5 million m² per year, entailing a basic equipment cost of US \$ 3 million or more. This would be far too large for the Cyprus market, and could only be justified on the basis of exports. Plaster board is still a novel material in the Middle East, and it is premature to consider the setting-up of a large scale export-oriented manufacturing unit in Cyprus. The possibility of using a plaster composite in place of chipboard for sandwich wall panels of prefabricated houses could well be studied further, in consultation with a major building contractor in Cyprus, although any possible usage of plaster

composite would be detrimental to the economics of local chipboard production.

Recommendations

The main possibilities for the expansion of the Cyprus gypsum industry lie in exports both of raw and calcined gypsum.

Since bulk handling facilities are essential for the economic export of raw gypsum, the development of this trade should be concentrated on quarries near these facilities (i.e. Vassilikos and Moni).

Unless the prospects of exporting really large tonnages arise, it would not seem justified to spend large amounts of money to develop similar bulk handling facilities at Larnaca, unless these can also be used for other minerals, e.g. bentonite.

There appears to be some potential for the export of various grades of gypsum plasters made near Larnaca. Consideration should be given to the utilisation of moisture resistant bags such as polyethylene lined paper or all plastics bags for exports.

II.5.3

MINERAL PIGMENTSBackground

Cyprus is the main world supplier of natural umber and also supplies siennas and ochres. The latter two are said to be derived from the same quarry and the materials appear to be almost identical; both are referred to in this section as siennas. The colours of umbers and siennas are modified by burning, which is usually carried out in wood fired kilns. A rotary oil fired kiln is being installed by one manufacturer. Umbers which are quarried mainly in the Troulli area north east of Larnaca contain about 50% ferric oxide and 12% manganese oxide. Raw umber is light grey, burnt umber is dark brown.

Siennas are stated to be quarried near Skouriotissa close to the copper mine. They contain about 70% ferric oxide and fewer than 1% are yellow; burnt siennas are red. Three companies in Cyprus export umbers and siennas. The raw materials are owned and quarried by the Umber Corporation of Larnaca, which is jointly owned by the three manufacturers.

Some of the quarries fell into Turkish hands during the 1974 invasion, but the processing plants were not affected. Production of umber and siennas has continued throughout 1974, although the loss of some quarries caused difficulties in the supply of certain shades. Production of umber amounted to 13,000 long tons in 1974, compared with 23,000 long tons in 1973. New deposits have been located in the Government controlled area.

Of the three companies producing umbers and siennas, two sell only unground umbers (both raw and burnt). The third supplies umbers and siennas, both raw and burnt, mainly in the ground state and colour matched. Ground umbers and siennas are sold as pigments to the users, i.e. to paint and plastic manufacturers and for colouring bricks and other building materials. Unground umbers and siennas are sold to pigment manufacturers in the U.S.A., Europe and Japan. These pigment manufacturers are in competition with the Cyprus firm which supplies powdered pigments.

Sales of Cyprus umbers and siennas had been growing in recent years up to 1974, when they were affected by the world depression. Data are given in Table 57.

Table 57

EXPORTS OF CYPRUS MINERAL PIGMENTS

Year	1953	1962	1971	1972	1973	1974
<u>Quantity, tons</u>						
Umber, raw, unpowdered			487	1,391	1,021	
Umber, burnt, unpowered			5,577	7,473	9,896	
Umber, total unpowdered			6,064	8,864	10,917	
Umber, raw, powdered			53	127	194	
Umber, burnt powdered			766	1,274	1,364	
Umber, total, powdered			819	1,401	1,558	
Umber, total, all ports	4,899	4,348	6,883	10,265	12,475	10,655
Siennas (Ochres)			174	862	630	563
<u>Values, C f</u>						
Umber, raw, unpowdered			4,706	17,958	13,213	
Umber, burnt, unpowdered			85,247	127,541	185,649	
Umber, total unpowdered			89,953	145,499	198,862	
Umber, raw, powdered			1,542	4,812	6,961	
Umber, burnt, powdered			24,389	48,951	56,574	
Umber, total, powdered			25,931	53,763	63,535	
Umber, total, all sorts	31,330	56,602	115,884	199,262	262,397	301,014
Siennas			15,560	28,189	25,077	36,251
<u>f.o.b. Prices C£/ton</u>						
Umber, raw, unpowdered			9.66	12.9	12.9	
Umber, burnt, unpowdered			15.2	17.0	18.8	
Umber, total, unpowdered						
Umber, raw, powdered			29	38	36	
Umber, burnt, powdered			31.5	38	41	
Umber, total, all sorts	6.4	13	16.8	19.4	21	28.4
Siennas			32.8	32.7	39.8	63

SOURCE: Annual Report of the Senior Mines Officer, .1974

The figures in Table 57 show a steady expansion in the volume of Cyprus pigments exported over the last 20 years. They also show a fourfold increase in price. This increase appears to have more than matched the rate of inflation over the period, so that the price has probably increased in terms of real value. Pigment users in the UK speak of Cyprus umbers as being in very short supply. The increase in demand over the past 20 years has probably resulted mainly from a need for inorganic pigments from the plastics industry. Thermoplastics such as polypropylene are processed at temperatures which can cause degradation and loss of colour of organic pigments and hence inorganic pigments (which may be natural or synthetic) are preferred.

Cyprus pigments are undoubtedly in competition with synthetic pigments based mainly on iron oxide. The figures in Table 57 suggest that Cyprus umbers can hold their position in competition against the natural product.

While all powdered pigments in the above table are grouped together irrespective of particle size, there is an increasing demand for finely ground or micronized pigments. Current f.o.b. prices for standard ground Cyprus umbers (99% passing 300 mesh) are about Cf 64 per ton, whereas a micronized grade (100% passing 400 mesh) fetches Cf 72 per ton. By contrast, unground umbers are sold at Cf 25 per ton.

Ground versus Unground Umbers

We understand that umber development is to be investigated under a UNIDO Special Industrial Services (SIS) project. The following comments, however, appear to be relevant at this stage.

The large difference in price between ground and unground umbers suggests the desirability of concentrating on the sale of ground umbers in preference to unground umbers. Examination of the umber production facilities in Cyprus, showed that the only firm grinding umbers has two old mills, still in good working condition, each with a capacity of 1 ton/hour of ground product. These are far from being fully utilized even on day working. It is possible that by two shift working, a grinding capacity of 6,000 tons/year can be reached.

The present cost of grinding (excluding depreciation and interest charges on capital) is estimated at about Cf 8/ton.

The sales expenses of ground umbers are on the other hand probably much higher than those of unground umbers. The latter can be sold in bulk to a small number of pigment manufacturers, with no guarantee as to colour. Ground pigments, by contrast, are sold to a large number of diverse users, to close standards of colour, particle size and general characteristics. The sale of ground umbers requires closer contact between the supplier and the customer than does the sale of unground products and technical back-up is required on the part of the supplier. It is felt that there is a case for the Government to encourage export of ground mineral pigments in preference to unground pigments. A tax on the export sale of unground pigments is one measure that could be taken.

Since there seems to be adequate calcination and grinding capacity in Cyprus (subject to confirmation at a later stage by a UNIDO expert) a close co-operation between the existing businesses would be most desirable.

Steps should be taken to improve service to customers, to standardize colours and to widen the range of colours available. The setting up of a small control laboratory with one or two experienced staff is recommended.

Extension of Pigment Range

In addition to the sale of umbers and siennas, small amounts of terre verte, a high grade celadonite, have been collected from the northern Troodos slopes and exported as an inert green pigment for paints. Chalk suitable for writing and putty is also available in many parts of the island. While the exports of these materials should be encouraged, the possibility of making chrome pigments, yellows, greens and oranges, as discussed in the section dealing with sodium bichromate manufacture, is of far greater significance. These pigments generally command higher prices than mineral pigments, but since the colours are different, they are not in competition. Chrome yellow in particular has a good market, being employed almost universally in road marking.

Thus, there appears to be great scope for the extension of a scientifically based inorganic pigment industry in Cyprus, utilising partly indigenous earth pigments and partly indigenous chromate to chrome pigments via the intermediary of sodium bichromate.

II.5.4

CERAMIC PRODUCTSBackground

The value of imports of porcelain and china household ware into Cyprus exceeded C£ 300,000 in 1973 and 1974, but the corresponding figure for the first five months of 1975 was as low as C£ 46,000. The reduction of imports is not only attributable to the decline in the hotel industry, but also to an accumulation of stocks held by dealers carried over from last year and to a reduction in household expenditure on these items which is unlikely to last for long. Other household ware of ceramic materials was imported to the extent of approximately C£ 115,000 between January-May 1975.

Imports of glass tableware and other glass articles for household, hotel and restaurant use were also quite substantial, in excess of C£ 650,000 in 1973 and in 1974, reducing to C£ 115,000 between January-May 1975.

Cheap porcelain is mainly imported from China, Japan, Czechoslovakia and Bulgaria. It appeared from discussions with a leading dealer in Nicosia that the Chinese materials are the cheapest, about half the price of those originating from Eastern countries; they have, however, defects and are regarded as being of third choice quality. Medium quality items are much more expensive than, say, Czechoslovakian goods.

Indicative prices of coffee or tea cups and saucers (simply decorated) from China or Japan vary from US\$ 2 to US\$ 3 per dozen, cif Cyprus port. A popular 8 inch plate (decorated) would cost around US\$ 2.50 per dozen. Freight rates at present exceed US\$ 230/ton (1.7 cubic meter packed), and import duty from outside the EEC and the Commonwealth is 24% (against 16%).

Suggested Manufacturing Unit

Ceramic tableware is not produced in Cyprus, because of the lack of proven deposits of the necessary main minerals and raw materials. The production of ceramic glazed wall tiles and of floor tiles is to be investigated by a UNIDO expert in the near future, so is the development of bentonite and terra umbra, both under Special Industrial Services (SIS) projects. Authoritative views rate high the probability of finding deposits of suitable clays and kaolin.

While the market for glazed tiles is largely dependent upon the degree of activity of the building industry in Cyprus, which is now suffering severely from the effects of the invasion, some selected lines of tableware are most likely to regain their importance in the near future, at least in the household sector. It is not suggested to envisage the possibility of producing high quality porcelain or china articles, not even hotel tableware, because of the technical problems involved (low porosity would be essential). The possibility of manufacturing dinner sets must also be ruled out at this stage.

It is proposed to produce simple items fitting within the framework of traditional eating habits. These would mainly include coffee and tea cups and saucers, and a limited range of sizes of plates (for main course dishes and for "mezzes"). These types of items are widely used in the Eastern Mediterranean and many Arab countries. To a lesser extent, other tableware items such as sugar and milk bowls, as well as some castware (ashtrays and inexpensive decorative items) having household and tourist outlets, could also be produced.

The main raw materials needed are ceramic clay and glaze which are easily available from several countries, including the United Kingdom, a main source of supply. Bulk deliveries would no doubt minimise the cost of freight to Cyprus. Should adequate deposits of suitable clays be found, at a later stage, this industry, which is particularly labour intensive, would no doubt considerably benefit from improved economic conditions.

An annual production level of 2 million pieces is put forward (one shift basis), of which some 50% would be coffee and tea cups and saucers, 40% plates and the balance decorative items. Most of the tableware would be white and single colour glazed, and some would be gold or platinum decorated. Cast-ware items would be decorated by hand.

The plant would consist of the following main machinery and equipment:

- Mixer and blunger for body preparation
- Handle casting unit
- Cup making machine and drier
- Semi-automatic flat making equipment
- Turntable units and drier for castware
- Slip decoration equipment, including sprayers
- Biscuit kiln and brushing machines
- Glazing line with tubs, mangle driers
- Glost kiln and ginetting machine
- Enamel kiln and polishing machine
- Packing section, including conveyors
- Miscellaneous auxiliary equipment, work benches
- pallet trucks, etc.

The estimated basic equipment cost is of the order of CE 90,000. The factory would employ 130 people, including about 100 operators (of whom half could be female).

Table 58

EXPORTS OF PORCELAIN & CHINA HOUSEWARE INTO SELECTED COUNTRIESfrom 14 major exporting countries (mainly OECD members)'000 US\$

	1969	1970	1971	Principal Suppliers
Kuwait	279	649	345	Japan
Jordan	95	45	139	Japan
Libya	148	108	195	Japan Italy
Lebanon	275	409	559	Japan West Germany
Syria	121	51	53	Japan
Egypt	43	63	16	West Germany U.K.
Sudan	56	46	19	U.K.
S. Yemen	39	22	11	Japan
Ethiopia	75	146	280	Japan
Algeria	235	348	227	West Germany Italy
Morocco	319	412	357	Japan, France
Tunisia	165	159	174	Switzerland, West Germany, France
Iran	2,670	2,655	3,371	Japan, West Germany
Iraq	165	14	9	U.K.
Saudi Arabia	271	311	377	Japan

SOURCE: U.S. Market Share Reports

Table 59

IMPORTS OF COARSE CERAMIC HOUSEWARE INTO SELECTED COUNTRIESfrom 14 major exporting countries (mainly OECD members)

'000 US\$

Markets	1969	1970	1971	Principal Suppliers
Kuwait	73	76	33	U.K.
S. Yemen	9	1	2	U.K.
Jordan	17	8	6	Japan
Libya	86	33	56	Italy U.S.A.
Iran	307	227	165	Japan
Iraq	29	15	7	U.K.
Saudi Arabia	40	10	32	U.K. Italy
Lebanon	92	109	122	Italy U.K. Japan
Syria	8	-	5	Italy
Egypt	5	6	-	.
Sudan	18	12	13	U.K.
Ethiopia	40	15	10	U.K. Italy
Algeria	44	111	208	West Germany, Italy
Morocco	133	202	227	France Japan
Tunisia	18	21	19	France

SOURCE : U.S. Market Share Reports.

II.6

METAL PRODUCTS - MACHINERY AND EQUIPMENTBackground

It would be convenient to group various metal-based industrial activities under this heading (Sectors 35 to 38) as several of them are inter-dependent or fully integrated, producing finished products from basic metal or semi-finished metal products.

Industrial Sub-sector 350 includes blacksmithing, tinsmithing, coppersmithing, comprising a relatively large number of small establishments; aluminium utensils; nails, bolts and nuts; steel wire, steel tubes and miscellaneous products. Gross output in this sector reached C£ 5,340,000 in 1973 and decreased to C£ 4,170,000 in 1974, which does not seem to be an excessive loss of production, considering the general drop in industrial activity as a result of the Turkish invasion. (It should be noted that about 50% of the gross output is attributable to black/tin/coppersmithing activities.)

Sub-sector 351 includes aluminium products (containers) and anodising. Gross output decreased from C£ 1,244,000 in 1973 to C£ 1,013,000 in 1974, to the same extent as Sector 350.

A more pronounced decrease in the production of machinery excluding electrical (Sector 36) took place in 1974 (a gross output of C£ 2,071,000 compared with C£ 2,873,000 the previous year). This was largely due to the loss of 24 machine shops employing more than 4 persons. (The value of output of machine shops was 65% of the sector's total in 1973.)

Sector 37, incorporating the manufacture and repair of electrical machinery and equipment, suffered little loss in 1974 (less than 10%). Apart from the manufacture of batteries and light signs and fittings, the main contribution to the gross output (C£ 1,149,000 in 1973) originates from repair services.

Sector 38 covers a wide range of activities from the repair of motor vehicles (80% of the gross output in 1973 totalling C£ 4,591,000), motor car (trucks) assembly and body-making, to fishing boat building and repairing. Gross output of this sector decreased from C£ 4,591,000 in 1973 to C£ 3,514,000 in 1974, mainly as a result of a slow-down in motor car repairing.

Present Situation

There are six main iron foundries, two of them utilising cupolas and the rest furnace oil heated crucibles. The largest foundry is located in Limassol and has an iron casting capacity of about 40 tons per week over one shift. All existing foundries also cast copper-based alloys to a limited extent.

The foundry in Limassol mentioned above is coupled with fabrication and machine shops facilities producing centrifugal and turbine water pumps, as well as concrete mixers, mobile hoists, a wide range of cast iron fittings, sluice valves, hydrants, check valves, manholes, trench covers and similar products. This concern achieved half of the domestic exports of pumps two years ago. Another pump manufacturer of lesser importance is located in Limassol and three others in Nicosia, but most of them concentrate on the production of spare parts for pumps.

The current home demand for pumps is estimated at 12,000 units/annum by the UNIDO Industrial Development Services, most of which can be satisfied by at least two main producers. This, however, would be achieved at the expense of the export market, estimated at C£ 70,000 during the first three months of 1975. The expansion of pump manufacturing facilities within existing units is recommended, but an improvement in foundry practices, quality control and production planning would be essential.

Many of the machines in machine shops are outdated or inadequate, and some were acquired on the grounds of relative cheapness rather than optimum performance. There are no jobbing shops in the proper sense, capable of taking substantial orders for a variety of metal fabrications or for the systematic repair of mechanical parts of industrial machinery.

Few of the engineering units carry out quality control and in the case of foundries, metal and sand wastes are high.

The adherence to standards, under the guidance of the Cyprus Organization for Standards and Quality which is in process of being established, would no doubt promote the development of engineering industries. The necessary skills do exist and management, although as a whole not fully aware of problems inherent in their operations, is receptive to new ideas and suggestions for improvement.

Suggested New Metal Working and Engineering Unit

During the course of the field investigation, a number of manufacturing possibilities within this category of activities were explored. It became apparent that most of the established sub-sectors have, within their own production lines, an adequate capacity to meet the present home demand which has generally shrunk as a result of the invasion, specially those connected with the building industry and consumer durables, in particular aluminium products, steel wire and tubes, refrigerators, etc. These industries are essentially of the import substitution type and export opportunities are virtually non-existent.

One important group of metal products which is barely handled by the industry is "tools for use in the hand or in machines" (sub-division 695 of the imports classification). In 1973 the value of imports of these implements was C£ 0.6 million; in 1974 it was C£ 410,000 and C£ 115,000 during the first five months of 1975. Other miscellaneous items made of steel, such as tanks (imports amounted to C£ 210,000 in 1973) and miscellaneous simple agricultural implements are required.

In the field of steel tanks, there is a need for efficiently designed portable charcoal kilns for the carbonisation of part of the small pine branches which are not suitable for chipboard manufacture. A part of the quantity available is used as firewood in villages and some charcoal is made by the antiquated, low yield pit method. An expert is currently advising the Forestry Department on the use of a portable charcoal kiln inspired from a design developed in Uganda (Mark V). It appears from discussions with the Department that up to 50,000 cubic metres of green pine trimmings would be available annually, which could potentially be converted into about 3,000 tons of charcoal. The carbonisation cycle of the portable kiln is about 30 hrs and its output is 300-400 kg per charge. Some 60 such kilns would be needed and, assuming a life of 3 years, the manufacture of 20 units per annum would be indicated. The cost of a kiln would be around C£ 300.

Conversion of waste wood into charcoal would ensure the maximum utilisation of forest resources by conversion into a useful fuel, which can be stored indefinitely. The above tonnage is believed to be utilisable in Cyprus, for barbecues and also as a heating fuel in villages. Exports of a graded lump material in paper sacks to some Arab countries is a definite possibility. Trade sources indicate a price of C£300-C£400 per ton cif Gulf ports, and a current import level of tens of thousands of tons into the Arabian Peninsula.

The fabrication of charcoal kilns and steel tanks and bins requires primarily the use of rollers for plate/sheet bending, together with cutting and welding facilities. It is suggested to fabricate these items together with simple agricultural tools such as mattocks and machettes, hand tools (sledge hammers, pliers, shears) by forging of imported billets, and a variety of items made of steel as required, such as wheelbarrows and ploughs made from plate/sheet and angle. The fabrication shop should be coupled with a general repair and workshop operating on a jobbing basis for industrial concerns and the agricultural sector.

Discussions with the Department of Agriculture suggest that air heaters would be required for greenhouses. In the Paphos area, 1,000 heated greenhouses of 1 donum each would be set up, each having its

individual heater. The latter is said to have a capacity of 0.5 million BTU/hr, to be oil-fired and to cost Cf 800 imported.

It can be assumed that more greenhouses will be built as the implementation of the Paphos scheme progresses, reaching possibly 2000 units in due course. If the life of a heating unit is, say, 15 years, then it would be worthwhile fabricating certain components for 300 units per annum, importing the other parts (fans, pumps, burner) and assembling the units in situ. The parts which can be fabricated in the above mentioned workshops would be the heat resistant steel plate heat exchanger, the shell and the ducting out of steel sheet. A reasonable guess on the saving thus achieved would be some Cf 100 per unit (mainly attributable to lower labour costs).

A list typifying the basic equipment required for such a multi-purpose unit follows:

Fabrication Shop

Drop hammer
Welding bays with 2 arc welding sets
Transformers
Oxyacetylene burners (3)
Anvil
Forge
Cranes (2)
Extraction and blower fans
Bending rolls
Angle cutter
Marking-off tables
Angle grinders (2)
Guillotine
Profile burning machine

Machine Shops

Turning Lathe, 15' between centres
Horizontal milling machine with dividing head
Pillar drilling machine
Shaping machine, 24" stroke
Vertical borer
2" screwing machine
Planing machine
Grinding machine
6" hacksaw
8½" Centre height x 100" gap bed centre lathe
5 ton overhead crane, 40' span, single girder,
floor operated control
4 x 1 ton jib cranes, manual slewing power
travel and hoist

The basic cost of the equipment listed is estimated at CE 180,000.

The facilities would employ about 130 persons on a one-shift basis, of whom 15 would occupy managerial, administrative and clerical posts.

It is suggested that the above fabrication/machine shops should be located in the Nicosia area where demand is highest for manufactured products within the range mentioned previously and for the repair of industrial machinery.

In the context of engineering and repair workshops, reference should be made to a pre-investment study carried out recently by Consultants on the establishment of shipbuilding and repair facilities in Cyprus, taking advantage of the re-opening of the Suez Canal and the expected increase in the movement of small ships in the Mediterranean. The project is highly capital intensive, although it would create several thousands new jobs.

It is felt that the success of a shipbuilding industry as such in Cyprus is problematic for a number of reasons, mainly the slump of this industry in the world at large and, the costly, highly specialised and fluctuating nature of this type of activity.

It is suggested that the possibility of ship repair of the simple type be investigated as a first stage, entailing general mechanical and electrical repairs of a selected nature, excluding such items as the hull, main shaft or the propeller. In this area of activity, there may be a better chance of success, taking advantage of certain practical difficulties inherent in shipyards in other Mediterranean ports.

II.7

PLASTIC PRODUCTSBackground

Before the Turkish invasion, Cyprus had several plastics factories covering a wide range of products, raw materials and processes. All raw materials were imported. The factories produced mainly for the home market. The industry was protected by import duties ranging from 20 to 40% on products while the raw materials were generally admitted duty free.

The main and most modern factories were in Famagusta, and for the most part they processed thermoplastics. They included the following processes and products.

Process	Products
Injection moulding	domestic buckets, chairs, bowls, cups, and various small articles; industrial crates, trays, cases.
Extrusion	pipes, conduits, sections
Circular film extrusion	blown film, mainly for bags and packing.
Blow moulding	bottles, containers.
Film tape, woven	woven PP sacks (2 factories)
Polyurethane foam casting	structural foamed articles, furnishings.
Glass reinforced polyester	boat hulls and fittings, garden chairs.

These factories were lost.

There were several other factories in the Nicosia area which were also lost. The processes and products included those shown in the following tabulation.

Process	Products
Injection moulding	large mouldings, domestic and industrial.
Extrusion	sections - venetian blinds, ball point and felt tip pens.
Circular blown film	bags, agricultural film for greenhouses
Expanded polystyrene	blocks, ceiling tiles, packing materials.
Glass reinforced polyester fabrication	tanks (domestic and industrial) small pleasure boats.

Factories remaining in the Government controlled area in Limassol, Larnaca, other parts of Nicosia and elsewhere are engaged in the following activities.

Process	Products
Extrusion	pipe and conduits up to 6 inches
Injection moulding	domestic and industrial articles, wide range of sizes - toys.
Blow moulding	bottles and containers up to 12 litre capacity.
Blown film	bags, packing material, agricultural film.
Polyurethane casting	shoe soles, shoe fabrication, (PVC - rubber compounds)
Injection moulding	
Lightweight polyurethane foam	mattress carcasses, cushion filling

Production of woven PP sacks, and expanded polystyrene was completely lost. Some factories in Nicosia were left in the neutral zone, and much of the equipment has been recovered and is being re-established in temporary premises. These include glass reinforced polyester tank and boat production.

Simultaneously with these production losses, the Cyprus market for most domestic plastic articles has shrunk considerably. Many articles whose production capacity has been lost now have to be imported. But some factories in the Greek sector which supply other domestic articles are now running very much under capacity. This applies particularly to polyurethane mattress carcasses and upholstery. The factory in Larnaca is now producing about 100 tons/year of foam material, working 2 or 3 days per week on day shift only. It supplies practically the entire present Cyprus market for mattress carcasses and cushion and upholstery fillings. It has a potential output with shift working of approximately 600 tons per year. The material has a very low bulk density and it is not economic to transport it over long distances. The business also appears to be too small to mount an effective export drive.

Steps have been taken to re-establish several of the occupied businesses with the aid of government loans in Nicosia, Limassol and elsewhere: plants for large diameter extrusion blown PE film for agricultural use, expanded polystyrene packaging material, injection mouldings, extruded pipes, printed film bags, blow moulded bottles and vacuum formed articles.

In the present situation, it is very difficult to judge how far local production will satisfy local demand for these articles. World wide, there is today surplus productive capacity for many plastic articles. Since all plastic raw materials are imported into Cyprus, profit margins on most plastic articles are modest and result mainly from the higher import duties on the articles as compared with the raw materials.

The economic penalties of surplus capacity are generally more serious than those of under production with resultant imports.

The difficulty of equating production to domestic requirements is illustrated by the agricultural film (mainly polyethylene) used for greenhouses. The present demand is not known with certainty, but is said by some to amount to 1000 tons per year. This is based on complete replacement of the film every year. Present productive capacity amounts to about 180 tons per year. One factory is increasing its capacity by capital generated internally. There is also an application for a government loan by another business for C£ 200,000 to establish a large new plant (capacity not known) to replace one that was lost.

It seems, however, that if domestic consumption is genuinely 1000 tons/year, there is probably a good deal of wastage in using the material. Consumption might be considerably reduced by improved methods of utilization or by using different and thicker material, for example corrugated PVC sheeting instead of blown PE film. This example illustrates one of the difficulties of forward planning.

In addition to the industries being re-established with the aid of government loans, several businesses which were not affected by the Turkish invasion are in the process of expanding or branching into new lines with capital generated internally. One example is the production of rigid polyurethane window frames and front doors. They can be produced as cheaply as wooden ones to which they are in many ways superior, since they are rot proof and neither swell nor warp with changes in humidity and temperature.

Except for a few of the larger manufacturers, there appear to be very limited exports of plastic articles from Cyprus to neighbouring countries.

The small size of most businesses is one obstacle to exports. A second one is the frequent lack of standards and inspection of articles before they leave the factory. One solution that is being attempted is the export of plastic articles through specialised exporting companies. It is understood that the Association of Cyprus Plastic Manufacturers is studying closely the problem of exports.

Suggestions and Recommendations

It appears from the field investigation that adequate capacity exists for most plastic products required locally. Should demand increase, the existing units could easily be operated at full capacity by increasing the number of shifts. Other products which could be manufactured locally are mentioned below.

i) While in Cyprus, the Team was able to advise the Department of Fisheries on the manufacture of floats for fishing nets. Large numbers of small plastic floats are used, about two million per year of the smallest size and one million per year of a slightly larger size. These are imported at a total cost of approximately C£80,000 per year. The floats are made of expanded polyurethane. A manufacturer of shoe soles in Cyprus is using similar material on the same type of equipment as that required to make the floats. A meeting was arranged by the Team between representatives of the Department of Fisheries and of the shoe sole manufacturer and negotiations for the manufacture of the floats in Cyprus were started.

ii) Another problem faced by the Cyprus fishing industry is the replacement of boats lost as result of the Turkish invasion. Out of 420 boats, approximately 180 were lost. There is a current programme of replacing fishing boats, mostly of 27ft. at a rate of 50 per year. This level of domestic demand is likely to continue almost indefinitely, as by the time that the lost boats have been replaced, others will be in need of replacement.

The construction of glass reinforced polyester (FRP) boat hulls is being considered by the Department of Fisheries and tentative arrangements for their manufacture by the firm formerly making pleasure boats in Nicosia are under discussion.

In 1974, Cyprus had a small industry making FRP articles, boat hulls, tanks and garden furniture. A firm in Famagusta was making pleasure boats ranging from 2.5 to 10 metres. It employed 17 men, and had a sales revenue of about C£75,000 in 1973.

A firm in Nicosia made small boats and tanks, both domestic and industrial. In 1973/74, it is said to have sold tanks worth about C£70,000 and 20 small pleasure boats of about 4.5 metres. The factory, which is now in the neutral zone, has been lost, though some of the equipment has been recovered. The owner is applying for land to build a new factory south of Nicosia and in the meantime is attempting to revive his activities with a skeleton staff in unsuitable rented premises.

A third small enterprise south of Famagusta produces garden furniture.

The main opportunity for FRP fabrication in Cyprus is the replacement of fishing boats lost during the invasion as well as through age, wear and accident. It is also intended to build and commission somewhat larger fishing boats than the present ones (about 10.5 metres as compared with 8 metres), with a cabin and a wider fishing range (100 miles compared with 40 miles).

The present proposal, which results from discussions with the Department of Fisheries, is for a factory to produce 15 FRP fishing boats per year of 8 metres and 10 FRP boats per year of 10.5 metres, equipped with diesel engines (60 and 100 HP) and capable of a cruising speed of 12 knots, and with hydraulic winches.

FRP hulls are generally lighter than wooden ones of the same dimensions, easier to keep clean and maintain, and last longer. Their only disadvantage, compared with wood, is that they are more easily abraded when beached on shingle. This can be overcome by providing them with wooden keel shoes and rubbing strips or beltings and wooden or rubber fenders.

The smaller boat would be a day boat with a range of about 40 miles. It would carry only simple navigation equipment and plain fish tanks, without ice or refrigeration. It would have a simple deck house for shelter only.

The larger boat would have a range of about 100 miles. It would have simple sleeping, cooking and toilet facilities and be designed to stay out of harbour for 3 to 4 days. It would also have an insulated fish tank provided with ice or refrigeration.

The boats would be made to an approved design with the possible participation of a West European firm which specializes in their manufacture. They would conform to Lloyds "Provisional Rules for the Application of Glass Reinforced Plastics to Fishing Craft". Special arrangements would be made for them to be inspected by Lloyds during and on completion of manufacture so that they would qualify for Lloyds registration. Doubtless some exports would be possible but the export prospects for FRP boats made in Cyprus should not be overestimated, due to the increasing number of firms now making them in the Middle East.

Construction of FRP boats first requires a pattern which may be a real hull or a "mock-up", then a mould which is formed on it. The mould is usually made of a single FRP piece or may be split and flanged down the keel line. Many boats can be made from one mould. The hull is built up in layers by hand "lay-up" inside the mould, each layer setting before the next is applied. First a mould release agent is applied to facilitate separation. Next a resin "gel coat" layer to provide a smooth finish is applied by brush, and glass fibre surfacing tissue is then rolled in. Then more resin (a body resin different to the gel coat) is brushed on, and chopped glass mat is rolled in. The process is repeated until the desired thickness has been built up.

The resin mixture is made up immediately before use by mixing resin solution with weighed amounts of catalyst, accelerator and pigment, if required. Reinforcing ribs (of FRP or wood) are incorporated during moulding. The hull is designed to enable replaceable rubbing strips of wood, etc. to be attached to the outside for protection against impact, crushing and abrasion.

Sandwich construction in which two FRP skins are used with expanded polyvinyl chloride between them is becoming increasingly popular. For a given weight, it is stronger than single skin FRP and gives added protection against damage.

The decks may be moulded in one piece from FRP or they may be of traditional wooden construction. FRP moulded decks are made in the same moulding shop as the hulls, in special moulds. If rough fishing gear is to be used, a wooden deck may be preferable to FRP. Sometimes the deck is partly wood and partly FRP. Once in the fitting-out shop or shed, surplus FRP is trimmed from the hull using a trimming knife, a portable electric saw and a portable electric sander. When the resin has cured sufficiently in the mould, the hull is released and removed and mounted on chocks or in a wooden frame for fitting out.

Final stages of construction are the mounting and fitting of the engine, propeller and shaft, steering gear, winches, tanks and auxiliary equipment.

The cost of the equipment required is relatively low, of the order of C£6,000. Main items to be included in the production facilities are listed below.

- Air conditioner for resin store
- Electric mixer
- Balance
- Fume extraction fan
- 1 x 5T hand hoist with overhead trolley and rail
- Air compressor
- Pneumatic saw
- Drill, sander
- Various tools and auxiliary items

Total employment is estimated at 40 (one shift basis), including management and administration (5-6 people).

The factory would be easily adaptable to making other FRP products, mainly small tanks for the chemical industry.

An interesting development in the design of new pre-fabricated small housing is taking place. A UNIDO (G.A. Patfoort) Mission is currently investigating in Cyprus the construction of modular types of units based on rotational moulding, using fibre glass and polyester sandwich type units with polyurethane included as an insulating material. Each module is about 4m long, 3.3m wide and 2.5m high. The volume could be bigger but is limited by constraints imposed by road transport.

Investigation is proceeding on the use of alternative materials and fabrication techniques to minimise costs and maximise employment. Simple wooden moulds costing C£500 each would be used. For a 3-room house, triangular shaped, the anticipated cost is less than C£1,500, well below that achieved in another European country.

iii) A possible new manufacturing activity connected with fishing is the manufacture of nets from imported nylon yarn. As indicated by the Department of Fisheries, about 8 tons of nylon fishing nets are imported annually, costing around C£130,000. The cost of nylon yarn imported to Cyprus would not exceed C£300 per ton, and it is suggested that these nets be made in Cyprus.

It is estimated that 80 sets of common trammel nets and 50 sets of high trammel nets (for small and large fish respectively) would be required per annum. Net making can be carried out manually with no special equipment in the proper sense. It requires, however, a relatively large area. This activity could be undertaken by members of the families of fishermen on the coast.

It is estimated that the above number of trammel net sets (consisting of an inner and an outer wall) would involve 10-12 people working some 200 days (8 hours) per year.

CHAPTER III

FACTORS INFLUENCING THE DEVELOPMENT OF THE MANUFACTURING INDUSTRY

Cyprus is facing complex socio-economic problems and there is no simple solution for them. The loss of natural, infra-structural and industrial resources in the occupied area, exaggerated by the displacement of persons, the high level of unemployment and the sudden decline in economic activity have deeply affected thinking and attitudes, from the workers, traders and private entrepreneurs, to the planners who are carrying the heavy burden of finding urgent solutions to rehabilitate and reactivate the economy of the Government controlled area.

III.1 THE EMERGENCY ECONOMIC ACTION PLAN (1975-1976)

The main objectives of the Plan are :

- i. to create employment opportunities for as many people as possible;
- ii. to replace as far as possible lost production, particularly basic feedstuffs, raw materials and exportable products;
- iii. to replenish and save foreign exchange to the maximum extent;
- iv. to achieve a more equitable distribution of economic burdens created by the emergency situation and to ensure an acceptable minimum standard of living for the whole population.

New employment opportunities are to be created by more labour intensive farming and industrial activities, followed by a gradual increase in the field of associated services. New employment in manufacturing would be achieved by combining an increase in the number of shifts in adequately equipped existing units, with the establishment of new carefully planned production facilities. There would be particular regard to supplying the needs of the population in essential and semi-essential goods, and/or providing exports. A spirit of austerity and frugality is advocated, and there would be a consequential restriction on private expenditure and saving of capital resources. A series of measures has been introduced to bring about a more equitable distribution of incomes through such measures as the reduction of wages and salaries, rents and some other forms of incomes.

These measures are dictated by the need to optimise capital resources. They would lead to a fall in the output of non and semi-essential goods for the home market. However, while home consumption would be further restricted by more stringent import controls of such goods, industry would tend to somewhat compensate its loss by concentrating

on the production of an increased number of items, more functional and at more accessible prices. The Price Control Section of the Ministry of Commerce and Industry should play an important role in this context.

The Plan notes the Government's intention to hasten economic recovery by bringing forward existing development projects and introducing new projects. The role of the State will, apparently, be expanded beyond its traditional limits where encouragement is needed to revitalise private industry in desirable fields. Policy may, necessarily, be fluid but effective means seem to have been adopted for implementing it.

The following means and measures which have been adopted, or are in the process of being taken are favourable factors to the development of industry. Comments are made whenever appropriate but it should be understood that they are entirely aimed at helping to solve some of the existing problems, without in anyway attempting to suggest fundamental institutional changes or reforms, which would be outside the scope of this study.

III.2 THE GOVERNMENT GUARANTEE SCHEME

Until 1974, the Ministry of Commerce and Industry was issuing licences to industrial entrepreneurs, primarily in as much as the importation of capital goods was required. Applications were examined in the general context of economic planning but private enterprise enjoyed a certain degree of freedom in its investment choices.

In 1974, nineteen applications were approved in the manufacturing sector, with an aggregate fixed investment of C£640,000 and 14 units were established (some of them had been approved the previous year). The total investment was C£220,000.

In the first seven months of 1975, 16 applications were approved and four units were established. The total fixed investment was C£400,000 and C£100,000 respectively.

The sponsors of the above projects did not have direct recourse to Government loans, and the investments involved are evidence of a definite business drive and a desire to resume or expand a number of manufacturing activities (particularly plastics and garments).

The Government Guarantee Scheme was introduced in January 1975 to facilitate loans to industry by commercial banks. Applications are scrutinised on the basis of information substantiating such claims, to assess the justification and the return on investment for new ventures or expansions. Upon approval, the extent of Government's risk is accordingly determined.

As at 1st August, 1975, the Ministry of Commerce and Industry received 180 applications which covered manufacturing, agriculture and construction industries. Thirty one applications in manufacturing were approved, entailing a total fixed capital of nearly C£1 million. Total capital approved was of the order of C£2 million (including working capital). Among the main industries approved are footwear, and clothing, including shirts, meat preparations and paper sacks.

Several applications were rejected on the grounds that adequate capacity already existed or because of lack of precise plans, poor financial status or bad management (or a combination of the latter three features). These related to the manufacture of such items as printing and stationery goods, knitting and clothing, shoes, plastic, aluminium utensils and some processed food.

Many of the applications were attempts to revive manufacturing activities lost to the occupied area (some of them were found justified), but others were oriented towards new lines.

A higher degree of discrimination is being exercised in the approval of applications for loans under the Government Guarantee Scheme. Here, the role of the Cyprus Development Bank in promoting priority schemes (some 20 projects were under consideration at the time of the field survey) has somewhat overlapped with that of the Ministry. This duplication of functions has been realised. The concern expressed in the P11 regarding the "conservation" of capital resources and other considerations have led to considering the reorganisation of the Development Bank, bringing it under closer control of the Government. The Emergency Plan emphasises the need for carrying out feasibility studies in more detail than in the past, in order to minimise the risk of wasting resources.

111.3 INVESTMENT PROMOTION AND TAX INCENTIVES

A number of measures were introduced under a recently promulgated Capital Investment Law (5th August, 1975) aiming at the promotion of both local and foreign investment in construction and manufacturing industries. For manufacturing, investment allowances given during the first year of operation are 30% on plant and machinery and 20% on buildings. Accelerated depreciation will be allowed to the extent of the entire expenditure on fixed assets in the first year of operation as a deduction from income, provided that investment is effected before 1st January, 1978. This period could be extended in certain cases for another two years.

Other main incentives offered are an extra investment allowance of 15% for machinery and equipment for approved mergers of firms operating in Cyprus, and a reduction in the level of corporation tax from 42.5% to 25% for public companies registered and established in the Republic after 1st January, 1975. Import duty relief is given for imported plant and machinery and for raw materials not locally available.

No particular tax incentives or special privileges appear to have been given to encourage foreign firms to establish new industrial activities in Cyprus, such as tax holidays. However, under existing exchange control regulations, approved investments are guaranteed full freedom of unrestricted transfer of profits, including dividends and repatriation of capital. In view of the importance of foreign investment in the development of certain export oriented manufacturing activities in Cyprus, particularly those which are capital intensive, the Government might wish to consider a scheme to attract foreign investment to a larger extent. Preference could be given to projects satisfying a set of priorities in compliance with the objectives of the Emergency Plan. The Government might wish to examine measures taken by other countries. An example of a successful scheme is that adopted by the Republic of Ireland, perhaps the most attractive one within the EEC.

III.4 FREE ZONES

Plans are in hand for setting up free zones for the manufacturing, trade and services sectors. The first zone being considered is to be located in the Larnaca area, extending over 300 donams; it would be designed to accommodate about 60 industrial units. Labour intensive and/or export-oriented activities will be favoured. Investors would be given a 99 year lease at subsidised rents. The Larnaca free zone would be within a few miles of the airport, the harbour and the town itself. The establishment would undoubtedly be a strong attraction to export-oriented activities, particularly those relying on a large proportion of physical inputs (assembly types of industries). Within the range of new activities tentatively put forward in the present study, textile weaving, and garment making, knock-down furniture and possibly asbestos based products might gain from being located in that area.

As export-oriented industries expand, it would be necessary to establish other free zones in suitable locations as the area so far allocated for Larnaca is rather limited.

III.5 INDUSTRIAL ESTATES

The Government controlled area lost the Nicosia industrial estate to the occupied area; the establishment of a new one is under consideration.

The industrial estate in Limassol was set-up about five years ago, on a 200 donams area and includes to date, 22 manufacturing units producing plastics, kraft paper, sacks, knitwear, furniture, metal containers and miscellaneous other products.

On the Larnaca industrial estate, developed three years ago, equally over an area of 200 donams, 8 units are in operation (plastics, shirts, knitwear and other clothing, confectionery, furniture, engineering works).

Another estate is being established in the Paphos area over 150 donams.

All the necessary services (electricity, water, drainage, sewers, telephone lines, access roads) are being provided or are to be provided by the Government, against a total annual rent of around C£70-C£80 per donna.

Industrial estates as conceived in Cyprus are ideally suited to small/medium scale operations, by standards so far accepted in the country. Any new medium to large scale units may have to be sited outside these estates, with due regard to infrastructural facilities.

III.6 INDUSTRIAL EXTENSION SERVICES

This UNIDO Unit is actively engaged in project evaluation, the identification of technical problems inherent in industry, and in the provision of assistance to manufacturing establishments in the form of advice. This Unit, which comprises several experts on long and short term assignments, is contributing to devising means to accelerate industrial recovery, in close co-operation with the Ministry of Commerce and Industry.

III.7 STANDARDS AND QUALITY CONTROL

An institute of Standards and Quality Control is in the process of being set-up. The importance of the role of such a body cannot be emphasised enough. The adherence to recognised international norms is an essential pre-requisite for the success of export industries, more particularly in the sectors of food products, textiles, garments, footwear, furniture and engineering products. Its role would equally be important in ensuring high quality products for local consumption, as well as the required standards for raw materials and semi-finished goods to be processed in Cyprus.

III.8 THE AGRICULTURAL RESEARCH INSTITUTE

The Institute has carried out important work on several agronomical aspects and on agro-processing for a variety of products. This work is now making a significant contribution to the development of the agricultural sector. More recently, its involvement with practical aspects of agri-business in general emphasises the importance of its role in the economic recovery of the Island.

III.9 GEOGRAPHICAL ADVANTAGE OF CYPRUS

Apart from its proximity to the Eastern Mediterranean and North Africa, the re-opening of the Suez Canal will offer increasing export opportunities to Arab countries of the Gulf as well as some countries of East Africa. Thus, Cyprus trade would be capable of embracing a wider spectrum of markets.

Cyprus would generally benefit from lower ocean transport charges than some competing countries. The expansion in the exports of clothing (including footwear), ceramics, knock-down furniture and processed food are definite possibilities. The tables overleaf show some relevant comparative freight rates.

It is pointed out that the extent of surcharge due to bunkering charge, harbour congestion charge and other indirect elements of cost will vary depending on shipping arrangements and conditions prevailing at the time deliveries are effected. The above data are purely indicative and better terms might be ensured through special arrangements (such as the "consecutive voyage" type), subject to minimum loads being guaranteed. They show, however, the order of magnitude of the freight differential which would apply to Cyprus goods. The use of containers, already established in Cyprus harbours, would help decrease handling charges and transit time to overseas customers.

Air freighting from Cyprus to Western Europe may also be considered for small consignments, apart from fresh market produce. A figure of £175/ton of produce to the UK was indicated by leading international freight agents (this includes trans-shipment in Beirut). The extension of the Larnaca airport and the re-opening of the Nicosia airport would enable lower air freight charges to be obtained.

Table 60

INDICATIVE FREIGHT RATES TO LIBYA

US \$ per cubic metre

Products	Origin		
	Cyprus	Italy (Naples)	Hong Kong
Clothing	27	28	68
Ceramics	19	23	56
Furniture	27*	23	52
Canned Food	27	42*	54
% Surcharge	N.A.	35%	77.6%

*on a tonnage basis

Table 61

INDICATIVE FREIGHT RATES TO N.W.EUROPE

US \$ per cubic metre

Products	Origin	
	Cyprus	Hong Kong
Clothing	40	68
Canned Food	25	54
Frozen Food	100	N.A.
% Surcharge	22.5%	33.7%

Table 62

INDICATIVE FREIGHT RATES TO KUWAIT

US \$ per cubic metre

Products	Origin	
	Cyprus (a)	Hong Kong
Clothing	60	60
Ceramics	60*	51
Canned Food	60	48
Furniture	60*	60
% Surcharge	(b)	58%

*on a tonnage basis

(a) Alternatively routing overland via Beirut, approximately \$83/M³ for all products.

(b) probably lower than 50%.

III.10 THE CYPRUS COOPERATIVE MOVEMENT

The Department of Cooperative Development is a Government Service, which is responsible for the registration, supervision, auditing and promotion of Cooperatives. The Greek Cooperative Movement consisted of 832 Societies in 1972 and has a strong agricultural base with the membership at the local level of a large number of farmers. The farmers' Credit Cooperatives finance the Cooperative Movement and are in turn financed by it through the medium of the Cooperative Bank.

Cooperatives in Cyprus are active and have participated in most economic sectors for the benefit of both members and non-members. The Cooperatives are engaged in retailing, in the supply of goods and services, and in the processing and marketing of agricultural produce. Over 50% of all farm produce is handled by some sector of the Cooperative.

Although the Cooperative Movement is Government sponsored, its primary responsibility is to its members, whose participation is the Movement's greatest strength. The Cooperative has developed an organisation both in Cyprus and abroad, which, together with the financial resources of the Cooperative Bank, make it one of the most dynamic organisations in Cyprus.

After the Turkish invasion, the Cooperative lost much, not only its own resources and assets, in what is now occupied territory, but also tourist and other developments which were financed through the Cooperative Bank. Despite this setback and the lack of capital for new investments and the shortage of management, the Cooperative has devised and is implementing a plan to make the best use of its available resources. The plan is designed to benefit its farmer members, assist in the re-establishment of displaced members and to benefit Cyprus' export trade. In developing the plan the Cooperative has employed market research specialists to investigate export opportunities in the Middle East and consultants to appraise their existing production capabilities. It is working closely with the Agricultural Research Institute to determine and test the techniques and logistics of fresh produce marketing.

The Cooperative is a sophisticated commercial organisation. It is not surprising that it has been selected to handle the marketing of fresh produce. There may be advantages in combining this function with that of the Marketing Boards for potatoes, carrots, etc. to obtain maximum trading benefit and share transport, distribution, administration and promotional costs.

The Cooperative already has a significant participation in the beverage sector of industry. Its development plans include the expansion of their existing food processing facilities to take advantage of the new emphasis in agricultural production.

III.11 EXPORT PROMOTION

The Export Promotion Section in the Ministry of Commerce and Industry assumes the following main functions :

- i. it is involved in the marketing of agricultural produce;
- ii. it provides advertising and promotional support for Cyprus' exports;
- iii. it encourages and assists participation by Cyprus firms in overseas exhibitions and trade fairs;
- iv. it commissions market studies on behalf of certain industries (such as the clothing and footwear industries) ;
- v. it will be involved in the establishment of special trade offices in key markets with a significant export potential.

The infrastructure, which the Government is providing and developing for the support and assistance of manufacturers and exporters, will boost the activities of the Export Promotion Section. Additionally, the Government has reactivated the Advisory Committee on Trade and Industry to promote exports and introduced an Export Credit Guarantee scheme similar to that operated in the United Kingdom.

III.12 EXPORT MARKETING STRATEGY

Cyprus is a small country with limited resources which have been seriously reduced by the Turkish invasion. The obvious necessity is the maximum exploitation of the resources which remain. Government plans are designed to exploit both agricultural and mineral sources to develop exports. It may be possible to expand manufacturing operations based on imported raw materials, provided that the products are competitive in price, quality and style. In the existing consumer goods sector, this possibility is particularly attractive, because it offers scope to increase employment and output with no, or possible only small, capital investment.

To make the best of existing resources, co-ordination and direction in the export business will have to be strengthened. Because the size and resources of Cyprus are so small, it is suggested that the Government's industrial philosophy should concentrate generally on encouraging the manufacture, where appropriate, of high quality products in small quantities for sale in those markets in which high prices can be obtained.

There is not likely to be any perfect marketing strategy suitable for all exporting sectors of the industry or for all exporters within a sector. To achieve a flexible but effectively coordinated approach to exporting, the Government should encourage each manufacturing sector to develop its own export marketing strategy with the guidance and assistance of the Export Promotion section of the Ministry of Commerce and Industry. This Ministry would then be in a position to develop an overall strategy to provide the maximum of appropriate support for each sector within the broad range of agreed policy.

There is a need for evaluating the implications of using different marketing channels :

- i. Direct control of overseas sales and distribution, if achievable this control ensures direction of activity to attain marketing objectives.
- ii. Sale to organisations for 'own label' distribution has short term advantages but provides no control in the longer term.
- iii. Sale to Agent/Wholesaler for local distribution, requires continuous cooperation and supervision to achieve results.

The following course of action is suggested :

- i. Evaluate own strengths and weaknesses.
- ii. Analyse strengths and weaknesses of competitors.
- iii. Study possible markets to determine in which market, or sector of a market, the strengths of Cyprus products outweigh, or at worst, are competitive with, products from other sources.
- iv. Select market or sector in which products have best advantage for future growth and concentrate on that.
- v. Continuously search for ways of increasing the profitability of the product/company/industry. Introduce new products, find new outlets or expand existing business.

TERMS OF REFERENCE

- a) On the basis of available information and reports, to study the existing industrial structure and broad range of industrial opportunities for further development;
- b) To examine on the basis of market surveys the future demand patterns for manufactured goods with particular attention to export markets in neighbouring areas, as well as in the countries of the E.E.C., East European countries, North and East Africa and the Middle East;
- c) On the basis of available data, study the performance and problems of existing industries and suggest remedial measures.
- d) Prepare on the basis of the macro-economic conditions broad guide-lines for immediate industrial development and suggest a list of projects for detailed feasibility studies;
- e) Prepare an estimate of the resources required for the new industries suggested, both in terms of manpower and machinery.

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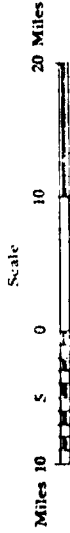
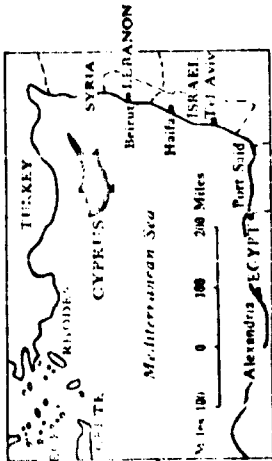
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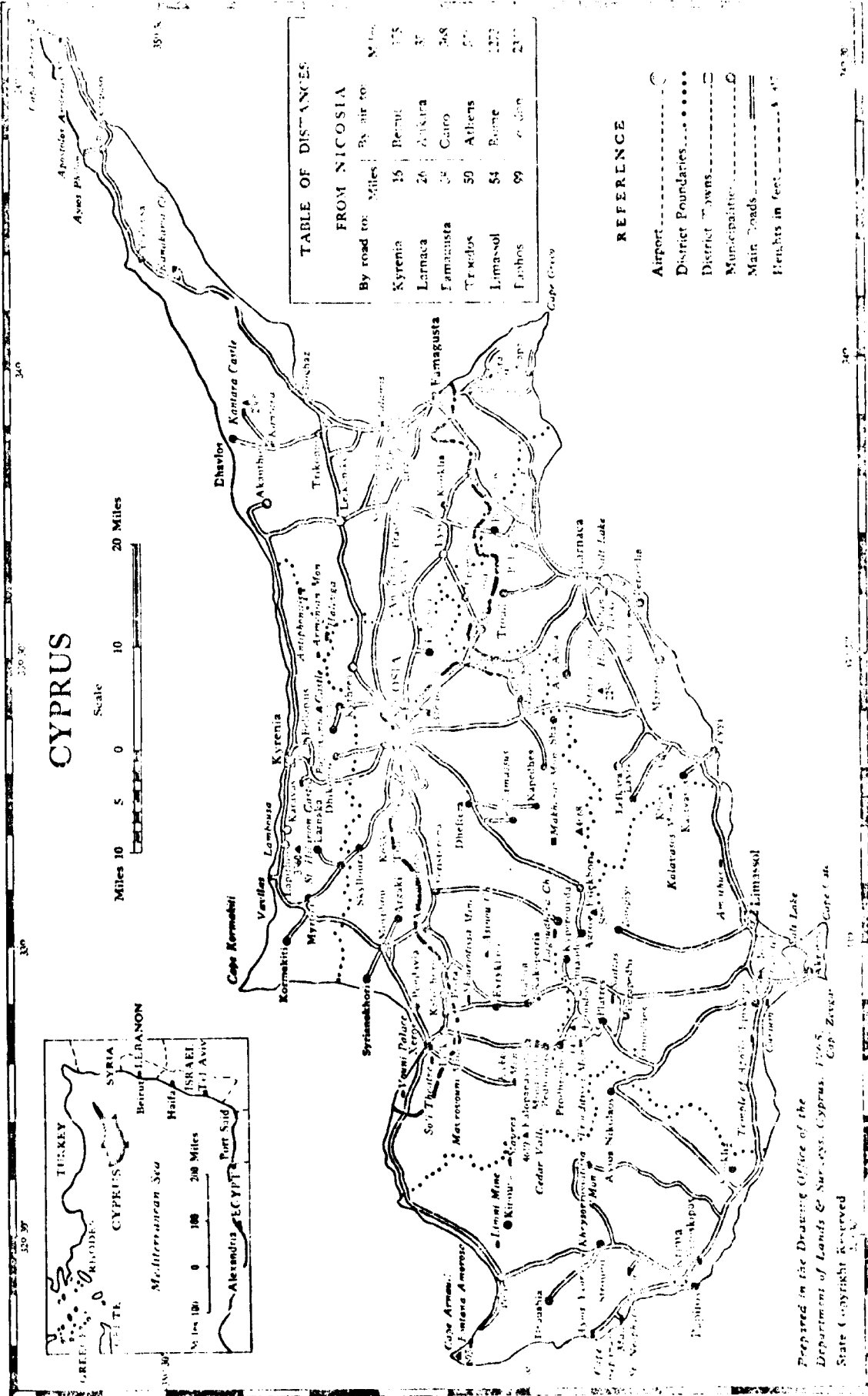
CYPRUS



By road to:	Miles	By air to:	Miles
Kyrenia	15	Beirut	175
Larnaca	26	Athens	57
Famagusta	38	Cairo	248
Trachos	50	Athens	57
Limasol	54	Rome	1272
Falshos	69	London	2311

REFERENCE

- Airport
- District Boundaries
- District Towns
- Municipalities
- Main Roads
- Heights in feet

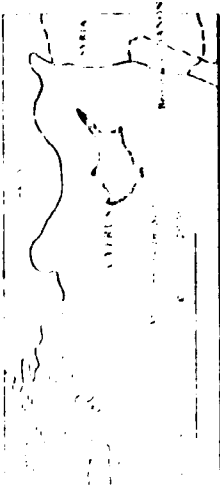


Prepared in the Drawing Office of the
 Department of Lands & Surveys, Cyprus, 1965.
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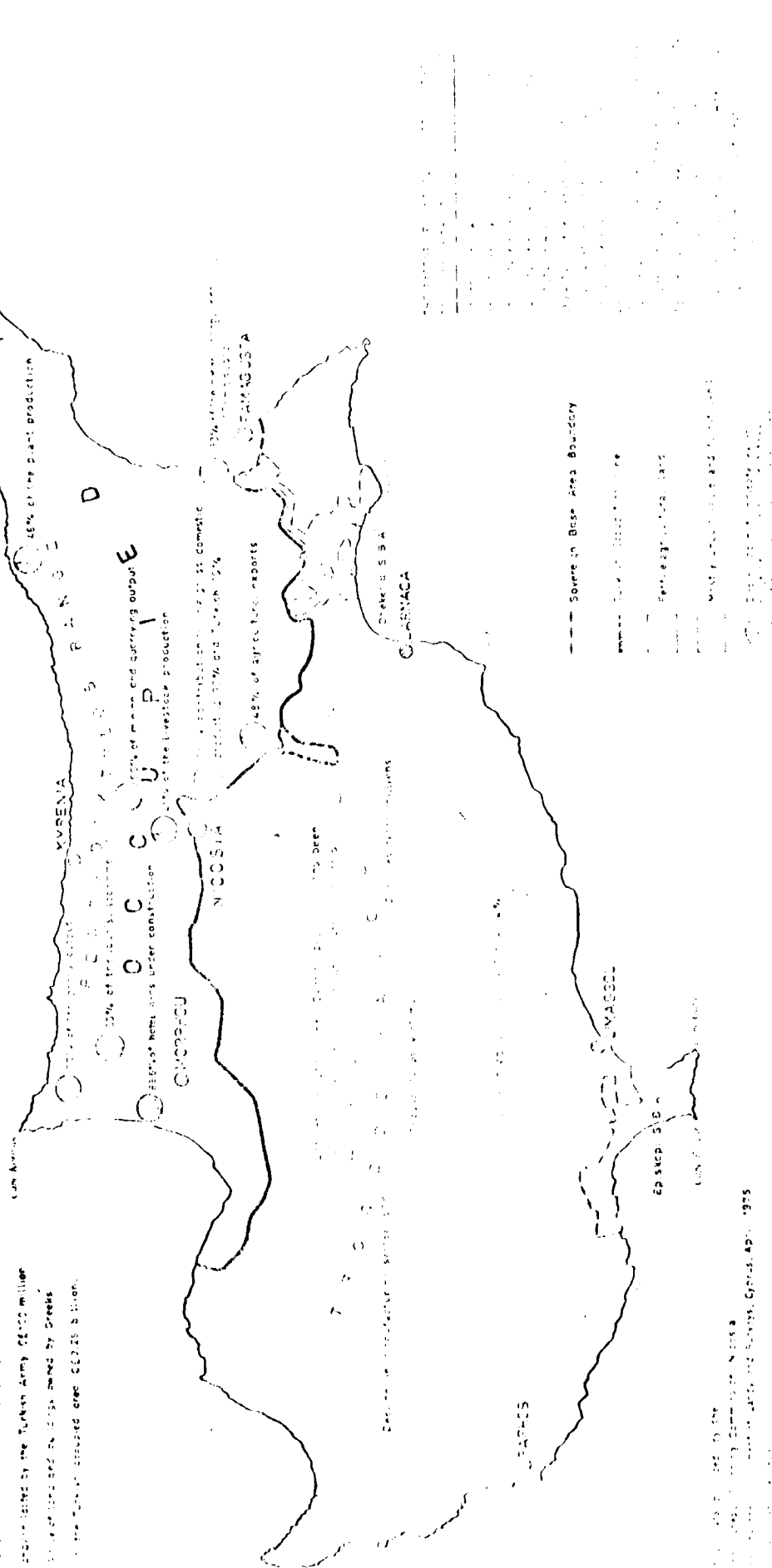
CYPRUS AND THE TURKISH INVASION

Greeks 52% of the total population
 Scattered all over the island
 Turks 18% of the total population

Miles 0 5 10 20



- 1. 27% of the production valued at \$22 million
- 2. 10% of the total production valued at \$10 million
- 3. 10% of the total production valued at \$10 million
- 4. 10% of the total production valued at \$10 million
- 5. 10% of the total production valued at \$10 million



Legend:
 - - - Sovereign Base Area Boundary
 - - - - - Green Line
 - - - - - Turkish Military Base
 - - - - - Turkish Military Installation
 - - - - - Turkish Military Base
 - - - - - Turkish Military Installation
 - - - - - Turkish Military Base
 - - - - - Turkish Military Installation

Source: U.S. State Department, Office of Intelligence Research, Cyprus, April 1975.

07537

FS



INDUSTRIAL OPPORTUNITY SURVEY

CYPRUS

prepared for

THE GOVERNMENT OF THE REPUBLIC OF CYPRUS

on behalf of

THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION

by

L. H. MANDERSTAM AND PARTNERS LIMITED

Consulting Engineers

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FS
4173

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INDUSTRIAL OPPORTUNITY SURVEY

C/F
S/F

CYPRUS

INDUSTRIAL SURVEY

prepared for

THE GOVERNMENT OF THE REPUBLIC OF CYPRUS

on behalf of

P. 202

THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION

by

L.H.MANDERSTAM AND PARTNERS LTD

CONSULTING ENGINEERS

LONDON

JUNE, 1976

L.H. Manderstam and Partners Limited have the honour to submit their report entitled "Industrial Opportunity Survey - Stage II" prepared for the Government of the Republic of Cyprus, on behalf of the United Nations Industrial Development Organisation, under Contract 75/46 (Project No. IS/CYP/74/010), which is an extension of Contract 75/20 relating to the same project, for which a study was submitted under Stage I in November 1975, which was accepted.

The Extended Terms of Reference of the present study are set out in Appendix III.

The extension of the Terms of Reference was a result of discussions held in Vienna between UNIDO, the Cyprus Government and the Consultants on 11-12 November 1975.

The study deals with specific manufacturing activities, most of which do not so far exist in Cyprus, largely based on imported components and raw materials. With the exception of a few, the manufacturing industries were investigated primarily with a view to exporting their products, although the local market prospects were also taken into account.

An Industrial Planner and a Market Economist visited the Government controlled area of Cyprus from 4-19 December 1975 and held discussions with various departments of the Ministry of Commerce and Industry, the Ministry of Agriculture, the Ministry of Health, the Ministry of Labour, the Co-operative Central Bank, a selected number of industrial and commercial concerns and prospective investors.

The Team would like to acknowledge in particular the most helpful assistance given by the Ministry of Commerce and Industry, including the UNIDO Industrial Extension Services.

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	
SUMMARY AND CONCLUSIONS	
SYMBOLS AND ABBREVIATIONS	
CHAPTER I <u>EXPORT ORIENTED ACTIVITIES</u>	1
I.1 Hi Fi Equipment	2
I.2 Electrical Domestic Appliances	18
I.3 Bicycles and Mopeds	56
I.4 Watches and Clocks	73
I.5 Imitation Leather	86
I.6 Lead Pencils	94
I.7 Still and Film Projectors	104
I.8 Pharmaceutical and Medicinal Products	115
CHAPTER II <u>IMPORT SUBSTITUTION ACTIVITIES</u>	129
II.1 Cotton Yarns	130
II.2 Electric Lamps, Fluorescent Tubes and Fittings	154
II.3 Formulated Pesticides	169
II.4 Marble Chips	178
CHAPTER III <u>THE DEVELOPMENT OF EXPORT-ORIENTED INDUSTRIES UNDER REVIEW</u>	181
III.1 Local Initiative and Enterprise	181
III.2 Manufacturing under Licence	183
III.3 Export-Oriented Manufacture by Foreign Companies	183
III.4 Potential Export Markets	185
III.5 Contacts with Organisations engaged in Manufacture and Export Marketing of Products under Review	186
III.6 Industrial Development Incentives	188
<u>APPENDICES</u>	
Appendix I 'Hi Fi' Systems	195
Appendix II List of Main Manufacturers Approached	199
Appendix III Terms of Reference	201
Appendix IV Certificate from Ministry of Commerce and Industry	202

LIST OF TABLES

<u>Table No.</u>		<u>Page No.</u>
1.	Imports of Televisions, Radios, Gramophones and Tape Recorders to Cyprus 1971-1975	10
2.	Imports of Television Receivers to Cyprus by country of origin 1972-1974	11
3.	Imports of Radio Receivers to Cyprus by country of origin 1972-1974	12
4.	Imports of Sound Recorders and Reproducers to Cyprus by country of origin 1972-1974	13
5.	Imports of other Gramophones and Tape Recorders to Cyprus by country of origin, 1972-1974	14
6.	Imports of Microphones, Loudspeakers and Amplifiers to Cyprus by country of origin, 1972-1974	15
7.	Leading Sound Recording and Reproducing Exporting countries 1974	4
8.	Imports of Sound Recorders, Phonographs and Parts into certain countries 1970-1972	16
9.	Imports of Phonographs, Tape Recorders and other sound Recorders and Producers and Parts into certain countries 1969-1971	17
10.	Leading Television Receiver Exporting Countries 1974	5
11.	Leading Radio Receiver Exporting Countries 1974	6
12.	Domestic Appliances (Gas & Electric) Imported to Cyprus 1971-1975	32
13.	Leading Refrigerator Exporting Countries 1974	22
14.	Imports of Domestic Refrigerators, Electrical to Cyprus by country or origin, 1972-1974	33
15.	Imports of Electric Heating Stoves to Cyprus by country of origin, 1972-1974	34
16.	Imports of Domestic Dishwashing Machines, Electrical, to Cyprus by country of origin, 1972-1974	35
17.	Imports of Domestic Refrigerators, Non-electrical to Cyprus by country of origin, 1972-1974	36
18.	Imports of Domestic Water Heaters, Non-electrical to Cyprus by country of origin, 1972-1974	36
19.	Imports of Air-Conditioning Machines to Cyprus by country of origin, 1972-1974	37

<u>Table No.</u>		<u>Page No.</u>
20.	Imports of Domestic Washing Machines, Electric to Cyprus by country of origin, 1972-1974	38
21.	Imports of Electric Fans to Cyprus by country of origin, 1972-1974	38
22.	Imports of Vacuum Cleaners and Polishers to Cyprus by country of origin, 1972-1974	39
23.	Imports of Food Mixers to Cyprus by country of origin, 1972-1974	39
24.	Imports of Electric Smoothing Irons to Cyprus by country of origin, 1972-1974	40
25.	Imports of Electric Cooking Stoves to Cyprus by country of origin, 1972-1974	41
26.	Imports of Electric Water-Heaters to Cyprus by country of origin, 1972-1974	41
27.	Imports of other Electric Space-Heating Equipment to Cyprus by country of origin, 1972-1974	42
28/29.	Imports of Refrigerators into certain countries, 1959-1972	43/44
30.	Leading Washing Machine Exporting Countries 1974	24
31/32.	Imports of Washing Machines into certain countries 1969-1972	45/46
33/34.	Imports of Electro-Mechanical Domestic Appliances (Nes) into certain countries 1969-1972	47/48
35.	Leading Producers of Vacuum Cleaners 1973	25
36.	Leading Space and Water Heater Etc., Exporting countries 1974	27
37/38.	Imports of Electric Space and Water Heaters and similar equipment into certain countries, 1969-1972	49/50
39.	Leading Air-Conditioning manufacturing countries 1973	28
40/41.	Imports of Air-Conditioning Machinery 51/52 into certain countries, 1969-1972	51/52
42.	Estimated Percentage of Households Possessing Selected Electrical Appliances in W. Europe and the U.S.A.	53

<u>Table No.</u>		<u>Page No.</u>
43.	Analysis of Households in the Middle East and North Africa	54
44.	Some important manufacturers of Household Appliances and Main Production Centres.	55
45.	Imports of Bicycles, Motor Cycles and Cars to Cyprus 1971-1975	63
46.	Imports of Adult Bicycles to Cyprus by country of origin, 1972-1974	64
47.	Imports of Children's Bicycles to Cyprus by country of origin, 1972-1974	65
48.	Imports of Bicycle Spares to Cyprus by country of origin, 1972-1974	66
49.	Imports of Mopeds to Cyprus by country of origin, 1972-1974	66
50.	Number of Vehicles Licensed in Cyprus 1971-1973	68
51.	Number of New Vehicle Registrations in Cyprus, 1971-1973	68
52.	Principal Bicycle Producing Countries 1974	58
53/54.	Imports of Bicycles into certain countries, 1969-1972	69/70
55.	Leading Motorcycle Exporting Countries 1974	59
56/57.	Imports of Motorcycles into certain countries, 1969-1972	71/72
58.	Imports of Watches and Clocks to Cyprus, 1971-September 1974	79
59.	Imports of Watches to Cyprus by country of origin 1972-1974	80
60.	Imports of Clocks (with watch movements) into Cyprus by country of origin, 1972-1974	80
61.	Imports of Clocks to Cyprus by country of origin 1972-1974	81
62.	World Production of Watches and Watch Movements, 1969-1974	81
63.	Leading Watch Exporting Countries, 1974	75
64/65	Imports of Watches, Etc., into certain countries, 1969-1972	82/83

<u>Table No.</u>		<u>Page No.</u>
66/67.	Imports of Clocks, Clock Parts etc., into certain countries, 1969-1972	84/85
68.	Imports of Plastic Coated Textiles to Cyprus by country of origin, 1972-1975	91
69.	Leading Exporters of Plastic Covered Textiles 1971	87
70.	Imports of Plastic Coated Textiles into certain countries, 1970-1972	92
71.	Imports of Imitation leather into certain countries 1969-1971	93
72.	Imports of Pens, Pencils and Fountain Pens to Cyprus, 1971-1975	95
73.	Imports of Pencils, Crayons, Etc., to Cyprus by country of origin, 1972-1974	101
74.	Imports of Fountain Pens, Propelling Pencils, Penholders, etc., to Cyprus by country of origin, 1972-1974	101
75/76.	Imports of Pencils, Crayons, etc. into certain countries, 1969-1972	102/103
77.	Western Europe Pencil Exporters 1972	97
78.	Imports of still and cine-cameras and projectors to Cyprus, 1971-1975	108
79.	Imports of Image Projectors (Non-Cine) to Cyprus by country of origin, 1972-1974	108
80.	Imports of Photographic Cameras to Cyprus by country of origin, 1972-1974	109
81.	Imports of Cinematographic Projectors (non-cinema) to Cyprus by country of origin, 1972-1974	110
82.	Imports of Cine-Cameras to Cyprus by Country of Origin, 1972-1974	110
83/84.	Imports of Image Projectors, Enlargers and Reducers except Motion-Picture, into certain countries, 1969-1972	111/112
85.	Leading Manufacturing Countries, Production of Cine-Cameras, 1973	105
86/87.	Imports of Motion Picture Cameras, Projectors and Sound Recorders into certain countries, 1969-1972	113/114
88.	Imports of Medicinal and Pharmaceutical Products to Cyprus, 1971-1975	122

<u>Table No.</u>		<u>Page No.</u>
89.	Imports of Principal Medicinal and Pharmaceutical Products to Cyprus by country of origin, 1972-1974	123/124
90.	Leading International Pharmaceutical Companies' Patent Applications, 1972	125
91.	Manufacturing Centres of some Leading Pharmaceutical Companies	126
92.	International Pharmaceutical Patents Registrations by country of origin, 1972	117
93.	Leading Pharmaceutical Exporting Countries, 1973	118
94/95.	Imports of Vitamins, Provitamins, Antibiotics, Hormones, Glycosides, Glands, Sera and Medicaments, into certain countries, 1970-1972	127/128
96.	Leading Medicament Exporting Countries, 1974	120
97/98.	Imports of Selected Textiles to Cyprus, 1971-1974	132/133
99/100	Equivalent Weight in kilos for selected Textile Imports, 1971-1972	135/136
101.	Summary of Equivalent Weights in kilos for selected Textile Imports, 1971-1974	137
102.	Cyprus : Sources of Imports of Cotton Fabrics, 1972-1974	145
103.	Significant Profile Data on Cotton Yarn Production in Egypt	146
104.	Significant Profile Data on Yarn Production in Greece	147
105.	Significant Profile Data on Cotton Yarn Production in Turkey	148
106.	Production, Imports, Exports and Available Supply of Man-Made Fibre Yarn in selected countries, 1974	149
107/108.	Imports of Grey Cotton Yarn in Bulk into certain countries, 1969-1972	150/151
109/110.	Imports of Cotton Yarn, Bleached and Dyed into certain countries, 1969-1972	152/153
111.	Imports of Light Sources to Cyprus, 1971-1975	162.
112.	Imports of Electric Lamps to Cyprus by Country of Origin, 1972-1974	162

<u>Table No.</u>		<u>Page No.</u>
113.	Estimate of Imports of Electric Bulbs and Fluorescent Tubes to Cyprus, 1975	163
114.	Imports of Fluorescent Tubes to Cyprus by country of origin, 1972-1974	163
115.	Imports of Lamps and Lighting Fittings and Parts to Cyprus by country of origin, 1972-1974	164
116/117.	Imports of Electric Lamps into certain countries, 1969-1972	165/166
118/119.	Imports of Lamps and Lighting Fittings and Parts into certain countries, 1969-1972	167/168
120.	Consumption of Pesticides (1972-1973) and Estimated Requirements in 1977	173
121.	Consumption of Pesticides in Cyprus, 1971-1973	174
122.	Imports of Insecticides, Fungicides, Disinfectants and similar preparations into Cyprus, 1972-1974	175
123.	Pesticides : Sources of Imports into Cyprus 1972-1974	176
124.	Imports of Insecticides, Fungicides and Disinfectants into certain countries, 1969-1971	177
125.	Production of Marble in Cyprus, 1970-1975	178
126.	Comparison of Industrial Incentives offered in Cyprus, Republic of Ireland, United Kingdom, Malta and Singapore	189/190/ 191
127.	Benefits of Investment Grants and Allowances on Fixed Assets of C£ 1 million in certain countries in 1977	192
128.	Profit Return on Export Business in certain countries	193
129.	DCF Rates of Return over Ten Years of Project in various countries	194
130.	Product Range of Hi-Fi equipment available in one specialist store in the United Kingdom	198

INTRODUCTION

L. H. Manderstam and Partners Ltd. were entrusted by UNIDO with the carrying out of the present study, which is an extension of a previous one finalised in November 1975 (Industrial Opportunity Survey - Stage I).

The very nature of the assignment placed the emphasis in this present study (Stage II of the survey) on international market considerations, taking into consideration technological aspects, the advantages offered by Cyprus compared to some other countries, the attitude of international manufacturers towards decentralisation of their activities in a situation of worldwide economic crisis and developments taking place in countries of the Middle East.

It is hoped that the present report highlights the problems inherent in the categories of products under investigation, and will assist the Government of Cyprus in devising ways and means to achieve the further development of industry.

SUMMARY AND CONCLUSIONS

Stage I Report on "Industrial Opportunity Survey", finalised in November 1975, concentrated on the identification of major areas of potential development in the manufacturing sector, particularly those offering encouraging export prospects, at the same time dealt with the reactivation of industry in the Government controlled area under the Emergency Plan. This study had a time constraint which imposed a certain allocation of priorities, mainly the maximum utilisation of existing resources, both in terms of inputs and manufacturing facilities.

As a result of the desire of the Cyprus Government to investigate the possibility of setting up a number of specific manufacturing activities, mainly export oriented and based on imported components and raw materials, the survey was developed to a more advanced stage, namely Stage II, the findings of which are presented in the present volume.

Reference is made to Appendix III which sets out the expanded terms of reference. The fact that the categories of products listed were not covered in Stage I Report is justifiably due to the adherence to the "priority" approach mentioned above, coupled with the uncertainty generally inherent in the field of durable and semi-durable goods, because of the world's current economic crisis, manifesting itself in lower market demand and capacity over-production. Technological changes now occurring for some lines also contributed to this situation.

Apart from a few industries of the import substitution type, for which most of the necessary information on the Cyprus market was secured through the Ministry of Commerce and Industry, contacts were made with leading international manufacturers for each category under review. These approaches were considerably enhanced by the help of the Ministry which issued letters to commercial departments of various diplomatic circles, as typified in Appendix IV.

A large number of manufacturers, many of them of international repute, were approached by the Consultants (a list of main concerns is given in Appendix II). At the same time, world trends in consumption and export markets for the products under investigation were closely examined, where required.

The reaction of foreign groups to the idea of setting up manufacturing activities in Cyprus, or also elsewhere for the time being, was generally negative. A certain degree of interest was manifested by a few but no concrete suggestions were made. The discussions were, however, very informative and enabled the Consultants to derive a realistic picture of medium and long term trends in world markets, of the attitude of manufacturers towards technological changes, international competition and investment abroad. In the light of these discussions and our own investigations, the salient findings of the study are summarised in the following paragraphs, in which pertinent comments are also submitted.

The report incorporates three chapters; Chapter I deals with export-oriented manufacturing activities, Chapter II with those of the import substitution type and Chapter III relates to some fundamental aspects relevant to the development of export-oriented industries under review in the present report.

1. In the field of consumer durables and semi-durables for exports, possibilities exist in principle for Hi-Fi equipment, electrical domestic appliances and perhaps electrical fittings, subject to the participation of foreign manufacturers. The international market is expanding, but competition is severe, largely due to an over-capacity situation in developed countries, coupled with the economic crisis affecting many parts of the world.

The setting up of assembly or manufacturing operations for bicycles, watches and clocks, still (slide) and film projectors would probably not be viable for various reasons, including market considerations, competition, and technological changes. The possibility

should be left open, however, in case a foreign organisation puts forward specific proposals to the Cyprus Government.

2. For all the above types of products, it was not practical to identify the nature and scope of the possible manufacturing operations. These would depend on the plans of any potentially interested foreign group, without which it would be very difficult for Cyprus to embark upon such activities.

3. Projects in the same category which are most likely to be uneconomic are mopeds and imitation leather; due to severe competition and/or economies of scale, it is considered improbable that a foreign manufacturer would establish in Cyprus production facilities for export.

4. For consumer non-durables, pharmaceutical products may offer some possibilities, with the pre-requisite of the full co-operation of an international drug manufacturer. Electric bulbs and fluorescent tubes, as well as lead pencils, could not be economically produced in Cyprus, even taking into account both local demand and export possibilities.

5. Activities of the import substitution type, such as the manufacture of formulated pesticides, do not need expanding from the present existing capacities, and the export potential is negligible. The production of marble chips should be further investigated in conjunction with the availability of other hard aggregates.

6. The only activity which could deserve serious consideration in due course (subject to a full survey of the textile industry as suggested in Stage I report) is cotton yarn (and mixed staple fibre) production. A feasibility study may have to be undertaken for the setting-up of a 16,000 spindle spinning mill, whether co-currently with or subsequently to the general survey mentioned above. Its feasibility will depend on the development of a weaving industry in Cyprus and on economic considerations relating to the desirable degree of integration of the textile industry as a whole.

7. Chapter III deals with some fundamental aspects relating to the development of export-oriented industries in Cyprus, local initiative, licencing, the attitude of foreign companies and industrial development incentives. Benefits which would be derived from investment allowance and other concessions are compared with selected other countries which are promoting such type of industries. The Government of Cyprus may wish to reconsider the inducements made in order to attract foreign participation to an extent compatible with economic development policies.

SYMBOLS AND ABBREVIATIONS

kg = kilogram
lb = pound weight
oke = 2.8 lb
donum = one-third of an acre
ton = metric tonne
long ton = British 2,240 lb
short ton = British 2,000 lb
qty = quantity
C£ = Cyprus pound = US\$ 2.80
SITC (R) = Standard International Trade
Classification (Revised)

CHAPTER I

EXPORT ORIENTED ACTIVITIES

Products falling under this group are listed in paragraph (i) of the Extended Terms of Reference (Appendix III). The possibility of manufacturing them in Cyprus from imported components and raw materials is investigated in this chapter, based on international trends and export market considerations. The market potential in Cyprus is, however, taken into account when evaluating the establishment of such industries.

Cotton yarns, initially included in the above group, are dealt with in Chapter II as it was found that a spinning mill would rather play an import substitution role, with extremely limited export possibilities.

I.1 HI FI EQUIPMENT

I.1.1 Introduction

The various pieces of equipment which are used to make a High Fidelity sound system are included in two separate categories of the Standard International Trade Classification (revised). In section 724.0, telecommunications apparatus (which also includes television and radio receivers), sub-section 724.92, covers microphones, loudspeakers and amplifiers. Section 891, musical instruments, sound recorders and reproducers etc., includes sub-sections; 891.1191 sound recorders and reproducers and 891.1199 other gramophones, tape recorders, etc. In Hi Fi systems and the related and more widely used consumer products, record players and tape recorders, the basic components are electronic.

High Fidelity sound recording and reproduction systems consist of specialised, almost professional, equipment. This will include a tape or cassette deck and/or a gramophone turntable unit plus an amplifier, a radio and stereo decoder, and matched loudspeakers. As an indication of the specialised nature of the various components of such a system, the gramophone turntable unit can cost from Cf40 upwards. Reference is made to Appendix I where a description of the basic Hi Fi system is provided together with a component diagram and an indication of the price range of the various components in the UK.

High Fidelity sound equipment is designed and produced to operate with very high standards of technical performance, which are a part of the products' specification. Although some of the electronic components can be assembled by relatively unskilled labour, Hi Fi equipment depends on skilled craftsmen to produce the vital elements of the system. Demand for these advanced systems is limited to a minority market by the small number of people who can really appreciate such sophisticated sound reproduction and can also afford it. An indication of the relative size of the two market sectors can be gained from the plans of the world's largest manufacturer (60%) of turntable

units, BSR Ltd., which produces 250,000 turntables a week at its factory in England. BSR's new electronically controlled unit for Hi Fi enthusiasts is scheduled to have an output of only 5,000 a week. This is only 2% by volume but could contribute 10-20% by value.

Record players and tape recorders for the general consumer market offer a wide choice and varying levels of sophistication. The 'music centre' is the mass market equivalent of a personalised and more expensive Hi Fi system and is at the top of the manufacturers' range in price and technical performance. Basic record players and cassette recorders and radios comprise the bulk of the sound recording and reproduction market by volume and to a lesser extent by value.

I.1.2 The Cyprus Market

The imports of the main consumer electronics products associated in some way with Hi Fi equipment are shown in Table 1. Numerically, imports of sound recorders and reproducers are nearly as large as those of television sets. In value terms, however, the three product sectors of sound recording and reproduction equipment are the least important product group.

Television receivers are imported to Cyprus from more than sixteen countries of which the leading suppliers are West Germany, Italy and the United Kingdom (Table 2). The average unit price of imported televisions was over C£50 in 1974.

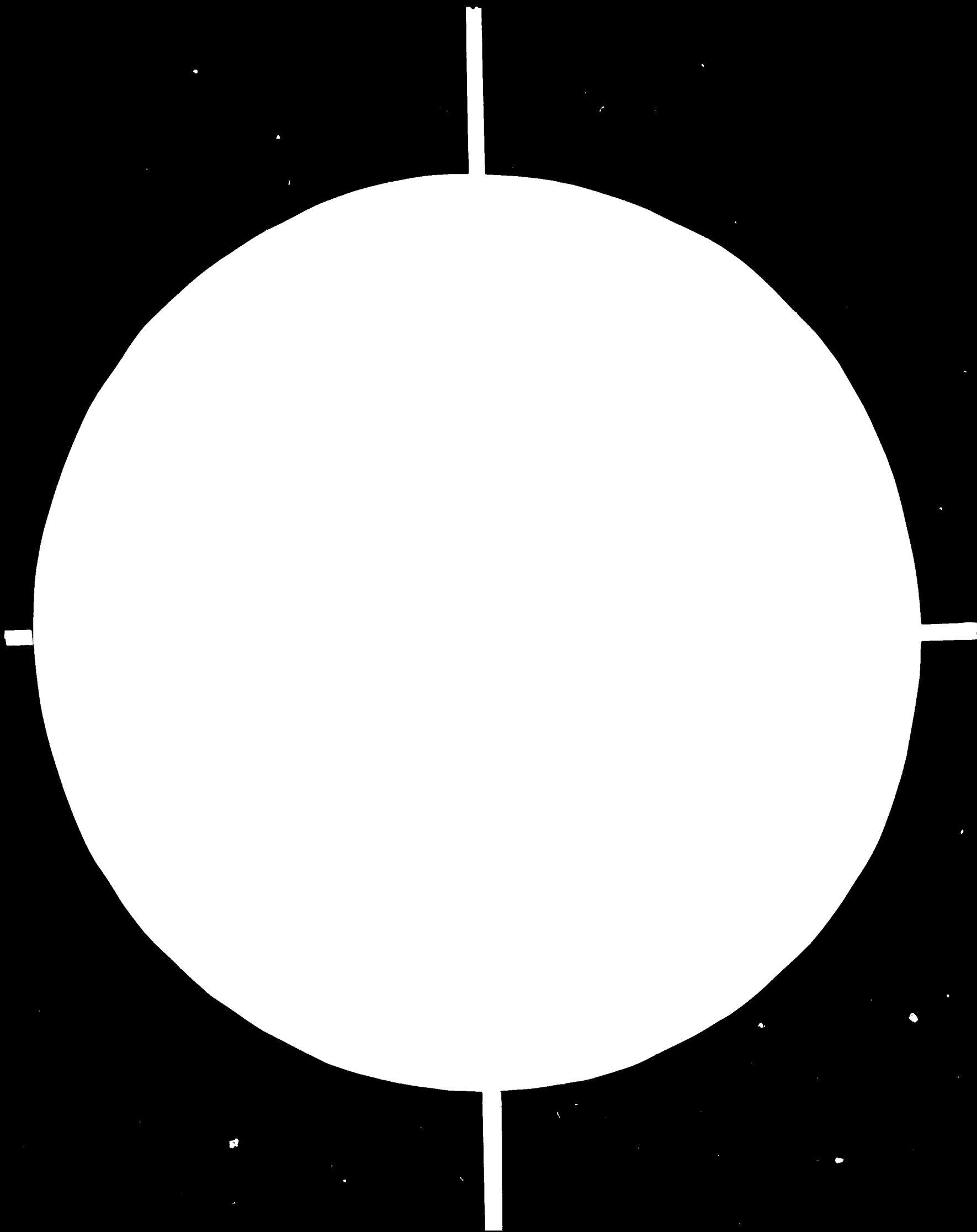
Radios are supplied mainly from Japan and Hong Kong in addition to more than eleven other countries (Table 3). The average unit cost of imported radios was about C£10 with imports from Japan in 1974 costing an average C£15 and from Hong Kong less than C£2.

Sound Recorders and Reproducers are obtained from more than nine countries (Table 4), of which Japan is the main supplier. The average unit cost of imports is between C£15 and C£17.

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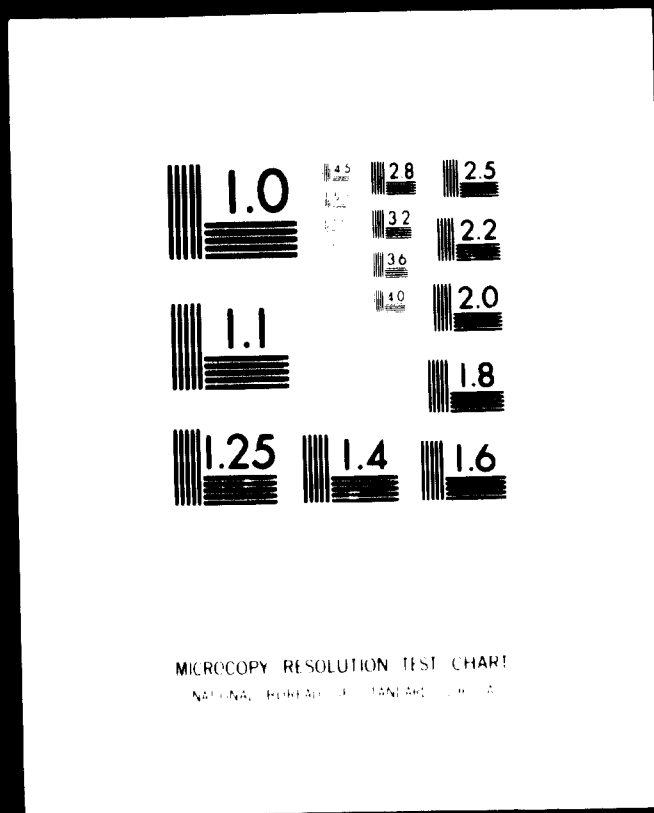


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Other Gramophones and Tape Recorders are imported to Cyprus from more than nine countries of which the main suppliers are Japan, the United States, West Germany and the United Kingdom (Table 5). This category contains a variety of sound reproduction equipment for which the quantity of imports has not been recorded.

Microphones, Loudspeakers and Amplifiers are supplied to Cyprus by more than nine countries, eight of which are also suppliers of the sound reproduction equipment in the preceding category. Japan and the United Kingdom are the principal suppliers of microphones, etc., (Table 6).

High Fidelity sound equipment is included within the two latter categories of products but represents only a portion of the total value.

I.1.3 The World Market

Although the available data are not designed to specifically identify high fidelity equipment production and trade, it is reasonable to assume that the main markets are the more affluent countries of North America and Europe, with only a minimal demand for such expensive luxuries in the developing countries. It has also been suggested that in some markets, where there may be the resources to afford such products, there is no developed taste nor traditional interest in music of the type which benefits from high quality reproduction.

Sound Recording and Reproduction equipment is manufactured in a large number of countries, of which the main exporters are shown below :

TABLE 7

LEADING SOUND RECORDING & REPRODUCING EQUIPMENT EXPORTING COUNTRIES 1974

Value '000 US\$

Japan	796,194
West Germany	205,307
United Kingdom	152,305
Holland	NA
United States	123,289
Austria	106,465

SITC (R) 981.11

SOURCE : UN Statistics

Japan is not only the main exporter, it is also the leading producer of sound recorders, over 33 million units in 1973. France, the second largest producer manufactured only 1.3 million units. It should be noted that quantity is no guide to quality or value.

The leading manufacturer of sound reproducers, principally gramophone turntable units, is the United Kingdom which produced over 14 million units, followed by Japan with over 8 million units.

The imports of sound recording and reproduction equipment into European, Middle Eastern and North African countries are shown in Tables 8 and 9. The main importers are among the leading manufacturing countries, West Germany, Holland and the United Kingdom. Most of the European countries manufacture some products in this category and four countries in the Middle East produce sound reproduction equipment.

Television and Radio Receiver markets are also dominated by Japanese exports as shown by the following tables :

TABLE 10

LEADING TELEVISION RECEIVER EXPORTING COUNTRIES 1974

VALUE '000 US \$

Japan	717,106
West Germany	391,154
United States	187,518
Italy	163,670
Belgium/Luxemburg	152,609
Austria	117,958

SITC (R) 724.1

SOURCE: UN Statistics

TABLE 11LEADING RADIO RECEIVER EXPORTING COUNTRIES 1974VALUE '000 US \$

Japan	1,356,050
Hong Kong	312,028
West Germany	227,699
Singapore	102,407
Belgium/Luxemburg	78,631
Korean Republic	49,597

SITC (R) 724.2

SOURCE: UN Statistics

Japan is also a leading supplier of television tubes to manufacturers in many countries.

Table 11 is also significant because it reflects the growing importance of Far Eastern countries, in addition to Japan, in the manufacture and assembly of electronic equipment. Transistor radios and cassette recorders are manufactured in the Far East for large European manufacturers, for example :

Thorn Electric radios are produced in Japan, Hong Kong, Singapore, Malaysia and Taiwan, and stereo cassette recorders are made in Japan.

Rank Radios are made in Korea, India and Taiwan and recorders, stereo and Hi Fi equipment are produced in Japan.

Grundig, in contrast, has its 26 factories in 6 European countries - Austria, France, West Germany, Italy, Portugal and the United Kingdom.

The attraction of the Far East countries as a base for the manufacture of electronic components and equipment such as transistor radios, pocket calculators and electronic watches is the high level of productivity which can be achieved there. The manual dexterity of a low cost labour force is estimated to be up to 50% greater than that of a European or North American operation. At this stage of the industry's development, the products which are being assembled or manufactured in countries like Hong Kong and Korea are the basic high volume mass production products. This specialisation on the part of the countries concerned has been welcomed and exploited by most of the major firms in the industry. Reservations have been expressed about further extension of assembly and manufacture in the Far East for either larger and more complex products or for the specialised equipment which requires skilled labour to produce and has a more limited demand.

I.1.4 Future Prospects

The electronics market, of which Hi Fi equipment is part, is a fairly recent development and is still in the process of expansion, innovation and change. In the specific sector of High Fidelity :

- i) the reputed 'ultimate' of quadrophonic sound is available and in process of development.
- ii) an electronically controlled turntable unit has just been introduced for the specialist Hi Fi market. BSR Ltd's Accutrac is expected to retail at about Cf 200.

The television industry still has considerable scope to exploit the potential for colour and even for black and white receivers. Competition within the industry provides a stimulus for technical innovation to maintain the volume of sales or change the structure of the industry. This can give a manufacturer an advantage which can enlarge his share of the consumer market. In this context, new types of television tubes are being developed in the USA.

In consumer terms, the impact of electronics technology has been most apparent in the leisure goods market. This has an enormous potential for continuing growth in both the developed and developing countries.

In the industrial and household markets, electronics is the basis of modern telecommunications, the computer industry, industrial instrumentation, control and guidance systems, and security and safety systems. In each and all of these sectors there is considerable scope for growth, and for both new developments and further application.

I.1.5 Scope for Manufacture in Cyprus

In view of the importance of sophisticated technology and the 'fashion' element of innovation and change in this sector of industry, it will be important for any development in Cyprus based on manufacture or component assembly to be undertaken in association with an established manufacturer of electric products and equipment. A number of such manufacturers have developed manufacturing facilities in countries which have offered special inducements to promote industrial developments. This is illustrated in the following table which shows that about one sixth of the foreign manufacturing operations in the countries listed were concerned with the electronics industry.

FOREIGN ELECTRONICS MANUFACTURING INDUSTRY ESTABLISHMENTS
IN CERTAIN COUNTRIES

Country	No of Electronic Manufacturing Co's	Electronic manufacturers as % of total Foreign Co's
Ireland	25	14.0
Malta	5	14.7
Singapore	22	16.7

The decision by Hitachi of Japan to produce telecommunications equipment in Cyprus is an indication of confidence. This could help to influence other manufacturing organisations which might be considering a new production unit.

I.1.6

Conclusion

The assembly and manufacture of products within the electronics industry is possible in Cyprus. However, the extent to which this possibility can be exploited depends on the availability of foreign manufacturers who are prepared, or can be persuaded by incentives to establish a production unit in Cyprus. The nature and scope cannot, therefore, be pre-determined.

Our contacts with manufacturers in this sector produced a generally negative response in respect of potential projects. Individual discussions covered a fairly broad spectrum of the industry and proved more helpful. The consensus of opinion, which reflects the experience of industrial development in other countries, is that as a first stage of involvement in the electronics industry, production should concentrate on assembly of components for the simpler consumer products and possible on sub-assembly for industrial products. Once experience had been obtained it would be possible to undertake more complex electronic work.

TABLE 1

IMPORT OF TELEVISIONS, RADIOS, GRAMOPHONES AND TAPE RECORDERS TO CYPRUS1971 - 1975 (Jan - Sept). Quantity and Value C£

	1971		1972		1973		1974		1975	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Television Receivers	13,449	626,181	12,889	640,595	15,899	761,142	8,209	453,391	3,207	107,158
Radio Receivers	42,602	398,762	39,029	406,067	63,840	530,399	41,387	400,130	58,934	278,746
Sound Recorders & Reproducers	9,903	158,888	10,253	160,901	12,402	180,813	7,178	127,129	1,958	35,422
Other Gramophones and Tape Recorders	NA	61,284	NA	61,786	NA	69,608	NA	50,565	NA	NA
Microphones Loudspeakers and Amplifiers	NA	108,218	NA	133,574	NA	218,039	NA	126,071	NA	NA

SOURCE: Import and Export Statistics 1973, 1974 and Sept. 1975

TABLE 2

IMPORTS OF TELEVISION RECEIVERS TO CYPRUS BY COUNTRY OF ORIGIN 1972-1974

Quantity and Value CE

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	1,815	87,142	3,123	113,679	1,671	75,820
Austria	459	27,269	660	40,876	192	14,425
Czechoslovakia	5	322	526	11,404	-	-
France	21	1,169	24	1,889	56	3,278
West Germany	4,427	246,801	4,562	273,525	2,510	163,148
Greece	661	36,684	658	38,208	677	43,509
Ireland	90	5,017	30	1,574	-	-
Italy	2,937	128,167	3,183	155,731	1,624	82,788
Holland	374	22,408	133	8,235	172	12,534
Spain	299	14,323	88	4,279	87	4,477
USSR	561	17,761	1,207	32,478	551	15,189
Yugoslavia	144	5,564	112	3,793	74	2,693
Israel	127	6,577	61	3,875	37	13,744
Japan	652	27,260	1,172	55,714	447	21,103
United States	22	1,816	26	1,673	-	-
Other Countries	295	12,307	333	14,148	111	5,733
TOTAL	12,889	640,595	15,899	761,142	8,209	458,391

SITC (R) 724.11

SOURCE: Import and Export Statistics 1973 and 1974.

TABLE 3

IMPORTS OF RADIO RECEIVERS TO CYPRUS BY COUNTRY OF ORIGIN 1972-1974Quantity and Value CE

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	499	19,688	992	18,917	235	6,669
Hong Kong	4,547	8,891	13,949	27,544	15,732	26,414
France	143	2,413	577	7,074	165	3,825
East Germany	100	1,067	-	-	-	-
West Germany	1,898	57,428	1,858	55,865	472	31,243
Italy	1,168	20,431	1,153	24,845	481	8,723
Holland	783	16,147	699	18,181	372	9,526
Switzerland	-	-	21	189	346	14,758
USSR	714	11,186	397	6,686	101	1,006
Israel	623	3,896	50	435	1	42
Japan	24,977	246,394	38,110	339,601	17,649	266,074
United States	138	6,895	228	4,766	40	2,738
Other Countries	3,494	11,648	5,827	24,465	5,781	28,744
T O T A L	39,029	406,067	63,840	530,399	41,387	400,130

SITC (R) 724.2

SOURCE: Import and Export Statistics 1973 and 1974

TABLE 4

IMPORTS OF SOUND RECORDERS & REPRODUCERS TO CYPRUS BY COUNTRY OF ORIGIN 1972-1974

Quantity And Value CE

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	189	4,867	131	2,222	34	4,151
Austria	201	5,124	51	2,744	82	2,015
West Germany	967	25,213	738	20,313	175	5,820
Italy	345	4,959	224	4,595	45	1,225
Holland	402	9,000	1,392	19,686	103	2,787
Norway	38	1,441	25	1,572	51	5,485
Switzerland	7	702	53	3,566	94	3,596
Japan	7,956	102,991	8,886	112,737	6,036	96,155
Other Countries	148	6,595	902	13,378	558	5,875
T O T A L	10,253	160,901	12,402	180,813	7,178	127,109

SITC (R) 891.1191

SOURCE: Import and Export Statistics 1973 and 1974

TABLE 5

IMPORTS OF OTHER GRAMOPHONES AND TAPE RECORDERS TO CYPRUS BY COUNTRY OF ORIGIN 1972-1974

Value C£

C O U N T R Y	1972	1973	1974
	Value	Value	Value
United Kingdom	11,380	12,879	3,926
France	2,318	333	1,035
West Germany	8,993	17,356	7,285
Italy	830	2,247	435
Holland	5,417	3,326	1,033
Switzerland	3,072	1,062	226
Japan	17,065	15,527	24,486
United States	9,522	13,539	9,534
Other Countries	3,189	3,339	2,587
TOTAL	61,786	69,608	50,565

SITC (R) 891.1199

SOURCE: Imports and Export Statistics 1973 and 1974

TABLE 6

IMPORTS OF MICROPHONES, LOUDSPEAKERS AND AMPLIFIERS TO CYPRUS BY COUNTRY
OF ORIGIN 1972-1974
 Value C£

C O U N T R Y	1972	1973	1974
	Value	Value	Value
United Kingdom	32,841	60,251	27,377
France	-	6,371	4,858
West Germany	12,095	12,970	11,427
Italy	13,841	18,183	8,026
Holland	10,568	51,008	7,965
Israel	11,024	4,536	-
Japan	37,850	45,376	53,313
United States	6,981	12,169	5,089
Other Countries	8,374	7,175	8,016
TOTAL	133,574	218,039	126,071

SITC (R) 724.92

SOURCE: Import and Export Statistics 1973 and 1974

TABLE 8

IMPORTS OF SOUND RECORDERS, PHONOGRAPHS AND PARTS INTO CERTAIN COUNTRIES 1970-1972Value '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	405,162	454,841	661,733	Japan
* Belgium/Luxemburg	29,592	40,718	45,415	West Germany, Holland
* France	55,979	75,607	94,884	West Germany
* West Germany	92,796	119,758	152,173	Holland, Japan
* Italy	22,153	27,689	39,394	Holland
* Holland	97,817	114,802	136,872	
* Austria	9,337	12,351	12,942	West Germany
* Denmark	13,953	15,160	16,799	Japan, Austria
* Finland	7,249	7,367	10,631	Japan
* Norway	7,598	7,752	9,584	Japan, Holland
Portugal	3,149	3,519	3,965	Japan
* Sweden	23,020	23,398	23,796	Japan
* Switzerland	21,256	26,557	31,785	West Germany
* United Kingdom	49,179	69,602	111,001	West Germany
* Greece	4,395	4,492	4,844	West Germany
Ireland	2,752	3,916	4,298	United Kingdom
* Spain	5,216	5,797	7,885	Japan
* Yugoslavia	5,740	5,683	4,225	West Germany

* Local Manufacture

SITC (R) 891.1

SOURCE : UN Statistics

IMPORTS OF PHONOGRAPHS, TAPE RECORDERS AND
OTHER SOUND RECORDERS AND PRODUCERS AND PARTS
INTO CERTAIN COUNTRIES 1969-1971

from 14 major exporting countries (mainly OECD members)

Value '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	2399	2000	2257	Japan
Jordan	198	195	110	Japan
Libya	1249	1092	1165	United States
Lebanon	947	673	715	Japan
Syria	347	231	117	Japan
* Egypt	380	592	349	West Germany
Sudan	51	94	55	Japan
South Yemen	419	403	162	Japan
Ethiopia	326	299	436	Japan
* Algeria	1603	1597	947	France
Morocco	912	850	681	Japan
Tunisia	261	243	476	United States
Iran	4560	3432	5349	Japan
Iraq	216	188	523	United States
Saudi Arabia	1262	1269	2038	Japan
* Israel				
* Turkey				

* Local Manufacture

SITC (R) 891.1

SOURCE: US Market Share Reports

I.2

ELECTRICAL DOMESTIC APPLIANCES

I.2.1

Introduction

The majority of electrical domestic appliances are included in the Standard International Trade Classification, revised, Domestic Electrical Equipment, 725.0, of which the main sub-categories are:

- 725.01 Domestic refrigerators - electric
- 725.02 Domestic washing machines
- 725.03 Domestic electro mechanical equipment, not elsewhere specified, which includes;
 - 725.031 Electric fans
 - 725.032 Vacuum cleaners and polishers
 - 725.033 Electric food mixers
 - 725.039 Other electro- mechanical equipment
- 725.04 Electric Shavers and hair clippers
- 725.05 Electric space and water heaters, and similar equipment which includes :
 - 725.0511 Electric irons
 - 725.0521 Electric space heaters
 - 725.0531 Electric cookers
 - 725.0539 Electric water heaters and other domestic electrical heating apparatus

In addition to the appliances listed above, two other products can be considered to be part of the domestic electrical equipment category. These are:

- 719.12 Air conditioning machines
- 719.621 Electric dish-washers

These are probably listed separately because their initial applications were industrial rather than domestic.

I.2.2

The Cyprus Market

In order to provide a perspective of the Cyprus market for domestic appliances as a whole, Table 12, has been prepared, which includes both gas and other non-electrical appliances. For the sake of convenience, these competitive products will be included with the relevant electrical appliance for comments as follows:

Air-conditioning machines are generally in rather limited use which is extending from the initial application in industrial and commercial premises to the domestic sector. Air conditioners are among larger electrical appliances and incorporate both a condenser, motor and a fan unit. Over the past five years, imports to Cyprus have averaged a little over 2000 units a year. These have been obtained from more than ten countries of which the United States, Italy and Israel are the more important.

Dish-washing machines have a very small market with imports averaging about 400 units a year. Italy is the main source of supply in competition with at least three other countries.

Domestic refrigerators are the most important product category in terms of value. A few gas refrigerators are imported but they are of little significance compared with the electric units. Refrigerator imports have averaged over 10,000 units a year in the past five years and have been supplied by more than 12 countries. Italy is the main supplier of both electric and gas refrigerators to Cyprus. Greece and Spain are also important sources. The average value of imported electric refrigerators from Italy and Greece was about Cf 53 per unit in 1974, while the Spanish imports were cheaper at Cf 46 a unit.

Domestic washing machine imports have averaged about 5000 units a year for the past five years. Imports were obtained from more than eight countries of which the principal supplier was Italy.

Electric fans are obtained from eight or more countries of which Japan is the main supplier. Average imports for the past five years have exceeded 4,000 units a year.

Vacuum cleaners and polishers imports have averaged over 3000 units a year over the past five years. Supplies are obtained from more than seven countries of which the United Kingdom is the largest supplier in terms of both volume and value.

Food mixers are imported from more than seven countries of which the United Kingdom is the leading supplier by value and France by volume. During the past five years, imports of mixers have averaged over 5,000 units a year.

Products within the category 'other electrical appliances', tend to be associated with food mixers, e.g. coffee grinders and other kitchen appliances. The value of this sector is fairly small and the main suppliers, as for food mixers, are the United Kingdom and France.

Electric shavers and hair clipper imports are very small in value terms averaging about CE 8000 a year. West Germany is the main source of supply in competition with four other countries.

Electric irons are imported from more than eleven countries of which Poland, West Germany, Spain and the United Kingdom are the more important sources. Imports of electric irons averaged over 21,000 units annually over the last five years.

Space heaters of at least three types are imported. An annual average of just under 6,000 electric heaters and of nearly 5,000 gas heaters were imported during the past five years; space heaters operating with either paraffin or solid fuel averaged over 6000 units in 1973 and 1974. This gives an overall average of space heater imports of about 17,000 units annually.

The electric heaters are obtained from more than nine countries of which the United Kingdom is the main source. Gas heaters are supplied by over seven countries of which Spain is the principal source. Other heating devices are also obtained from seven or more countries but Japan is the main supplier of this category of products.

Cookers which operate electrically, by gas and by paraffin or solid fuel, are imported. Gas cookers are the most significant category by volume and value although the number imported appears to be inflated by the inclusion of portable gas cooking units which are used for camping and leisure pursuits. An average of over 20,000 gas, 4,500 electric and 1,300 other cookers were imported annually over the past five years, an annual average total of about 26,000 units.

Italy and Greece are the main sources of gas cookers in competition with at least six other countries. The cheap portable gas units came mainly from France.

Electric cookers were imported from more than six countries of which the United Kingdom was the main supplier.

Other types of cooking stove were obtained from five or more sources of which Italy was the largest by value and Portugal by volume. The Portuguese imports might be barbecue units.

Water heater imports are mainly electric, an average of just under 8,000 a year compared with about 300 gas water heaters a year during the past five years. The United Kingdom is the main source for both electric and gas water heaters.

Other electrical appliances for cooking, heating, etc covers a fairly large sector with an annual average imports value of over Cf 120,000. It includes such items as electric kettles, hair driers, sun lamps, infra-red and micro-wave cookers, etc. These were obtained from eight or more countries of which the United Kingdom was the main supplier.

Total imports of domestic appliances represented nearly 2% of Cyprus's total imports in 1973. Domestic appliances make up a wide range of different products which have been considered in some detail in this section. It is important to note that the imports of only two products were as high as 20,000 units a year average - gas cookers, (a figure which was inflated by portable units) and electric irons. All other domestic appliance imports were below this figure and varied from an average of 70 gas refrigerators annually to an average of about 17,000 in total, electric, gas and other types of space heaters each year.

I.2.3

The World Market

Having examined the Cyprus domestic appliance market in some detail, it is proposed to take a broader view of the world market. The main categories of domestic electrical appliances are:

Domestic refrigerators are manufactured in a large number of countries of which the leading exporters in 1974 were as shown below.

TABLE 13LEADING REFRIGERATORS EXPORTING COUNTRIES 1974

	<u>Value '000 \$ US</u>
	<u>SITC (R) 725.01</u>
Italy	420,650
West Germany	127,395
United States	116,127
Denmark	84,499
Sweden	66,461
Austria	37,557

SOURCE: UN Statistics

The pattern of refrigerator marketing has shown several changes in the past ten years. In the 1960's Italy gained a 20% share of world markets with a range of cheap mass produced refrigerators of up to 2 million units. A swing in consumer demand for more expensive models led to an overextended situation in Italy. The leading companies with the biggest output were:

- i) taken over - Ignis by Phillips of Holland;
- ii) bought into - Zanussi sold a 20% holding to AEG of Germany,
and
- iii) rescued - Indesit was saved by State industrial and institutional assistance and is now the leading Italian producer.

Italian factories now manufacture machines on behalf of a number of European manufacturers who have ceased to produce for themselves. For example, the Martin Group in France, Belgium and Switzerland (now part of Electrolux of Sweden) markets 'own label' refrigerators made for them in Italy, with which they retain a 9% share of the French consumer market.

The world trade in refrigerators is shown in Tables 28 and 29. Leading suppliers during the period covered were Italy, West Germany and the United States but local manufacture takes place in 14 of the 18 countries in Table 28 and in 6 countries in the Middle East and North Africa (Table 29). In Iran, for example, Electrolux have an Cf 8 million factory to produce refrigerators and vacuum cleaners.

Washing machine manufacture has very similar requirements to that of refrigerators and the three leading exporting countries are the same for both products:

TABLE 30

LEADING WASHING MACHINE EXPORTING COUNTRIES 1974Value '000 \$ USSITC (R) 725.02

Italy	228,982
West Germany	188,126
United States	76,356
France	49,245
United Kingdom	39,182
Japan	16,664

SOURCE: UN Statistics

Exports of washing machines are about 70% of the value of refrigerator exports. Tables 31 and 32 show the trend of washing machine imports in the potential export markets of Cyprus. Local manufacture of washing machines takes place in a large number of the countries listed. The demand for washing machines in the Middle East and North African countries is relatively low at present. The future potential with the growth and spread of improved standards of living for the general population will increase. At present, in many of these countries the households which can afford washing machines can also afford servants who handle the laundry of the house.

Electro-mechanical appliances

This is a category which includes a variety of consumer products - electric fans, vacuum cleaners and polishers, food mixers and other kitchen appliances etc, many of which are classified as luxury goods for duty and tax in a number of countries. Perhaps due to the diversity of products, data showing the major producing countries in this category are not available. Table 33 and 34 show that West Germany, France and Japan are the main suppliers to Europe and

Middle Eastern countries. Some or all of the products in this group are produced in most European countries and in at least three in the Middle East.

Electric fans are marketed by most of the leading manufacturers of electric appliances and in recent years the participation of Japanese companies has become significant in this sector. However, Japanese and Hong Kong fans are finding competition from Pakistan and Indian products. Fans are little used in the temperate latitudes but are important in those countries which enjoy a hot and possibly humid climate.

Vacuum cleaners and floor polishers output in 1973 totalled nearly 30 million units.

TABLE 35

LEADING PRODUCERS OF VACUUM CLEANERS 1973

Units '000

United States	9,030
Japan	4,724
West Germany	4,067
U.S.S.R.	2,658
United Kingdom	2,260
France	1,909
	<hr/>
World Total	29,820
	<hr/>

SOURCE: UN Statistics

Vacuum cleaners are manufactured in many countries in Europe but in only three Middle East countries in 1973. Competition for market leadership in this field is between the Hoover Company, which produces about 4 million units, and Electrolux of Sweden whose latest acquisition, Tornado of Holland will bring its total output to the same annual level.

Food mixers and Kitchen appliances are relatively recent additions to the range of domestic appliances. Production data for the countries of source are not available to provide an indication of the market size. This is a growth area with considerable future potential in which there is a continuous development of new product ranges. The American conglomerate ITT entered the market in 1975 with a new range of products. Their products are each produced in a different European country. On the other hand, Moulinex of France which helped to pioneer the industry has eleven factories, all in France. Phillips of Holland manufacture their kitchen appliance range in Holland, the United Kingdom, Belgium, Italy, Spain and Singapore. (Table 44)

The manufacture of products in this category involves a degree of technical expertise. In Italy, despite their achievements in the 'white goods' sector of refrigerators and washing machines, their participation in the kitchen appliance sector has been delayed for lack of expertise.

Electric Heating Appliances

This product group includes - electric irons, electric heaters, electric cookers, electric water heaters and other electrical appliances for cooking, heating etc. The main exporters in 1974 were:

TABLE 36

LEADING SPACE AND WATER HEATER ETC. EXPORTING COUNTRIES 1974

	<u>Value '000 US \$</u>
	<u>SITC (R) 725.05</u>
West Germany	330,150
Japan	157,248
United States	98,230
France	86,031
United Kingdom	53,296
Norway	46,184
Italy	44,250

SOURCE: UN Statistics

This is an expanding market to which Japan is a relative newcomer. In becoming the second largest exporter, Japan has achieved an even higher rate of growth in production than its competitors.

Tables 37 and 38 show the trends of the import - export trade in electric heating appliances in Europe, the Middle East and North Africa. Most European countries have a local production capacity for products in this category and four Middle Eastern countries have manufacturing units.

Electric irons were one of the largest products of the group in terms of quantity. World output in 1973 was nearly 27 million units for which the main producing countries were the United States, West Germany and the United Kingdom.

Electric space-heaters includes a range of room heaters from the basic electric fire to convector, infra-red and fan heaters. World output was over 14 million units in 1973 with West Germany, the United States and France as the main producing countries.

Air-Conditioning Machinery

This is a product sector which has been dominated by the United States, although Japanese manufacturers have mounted a very strong challenge. The following table shows the main producers of air conditioners in 1973.

TABLE 39

LEADING AIR-CONDITIONING MANUFACTURING COUNTRIES in 1973

<u>Country</u>	<u>Output in '000 units</u>
United States	5,993
Japan	3,582
West Germany	280
Spain	60
Australia	38
Phillipines	36

SOURCE: UN Statistics

It is reported that the established United States companies have been too strong for exporters from Italy and the United Kingdom, who have to compete in Middle East markets.

Tables 40 and 41 show the pattern of imports of air-conditioning machinery to European, Middle East and North African countries. Seven of the European countries are known to manufacture air conditioners locally and there are five Middle East countries in which manufacture and/or assembly takes place. In the period covered by the tables the impact of Japanese exports is just beginning to show in a few countries.

I.2.4

Future Market Development

Competition within the various product sectors of the domestic appliance market tends to be between companies and organisations operating on an international basis. This places a premium on both the size of a company's operations and on an effective system of distribution and marketing. The large established companies have a suitable organisation but many of the small and a few of the big firms have to rely on the existing network of distribution of the major companies. For example, AEG in Germany, Hoover in the United Kingdom and Thomson Brandt in France are distributing for the Italian 'white goods' manufacturers. In the United Kingdom, ITT and a subsidiary of Philips Electrical plan to share a distribution organisation.

The ownership of consumer durables in European markets which is illustrated in Table 42 is already high in many categories. Some products such as televisions and refrigerators have a high market penetration, others, like dishwashers, are still a luxury owned by a minority. Within this framework there is still continuous, if somewhat diminished, scope for replacement sales for products which are worn out due to age or damage, or have become obsolete through technological change. Outside these markets, demand and the wealth to satisfy it, is increasing in the developing markets of the world. This is illustrated by the analysis of the composition and facilities of households in the Middle East and North Africa shown in Table 43. Cyprus and Greece have been included for purposes of comparison. A major limitation for sales of electrical consumer products in many of these countries is the restricted availability of electricity.

Longer term, the marketing of these products may be transformed by the development of packages such as the complete 'fitted' kitchen with all accessories, and equivalent systems for the provision of Television, Radio and sound reproduction services in a household. In the future not only central heating and air conditioning system but humidity control and dust collection may be centralised.

I.2.5

Scope for Manufacture in Cyprus

The prospects for the development of large scale manufacture of any of the main items of domestic electrical appliances are minimal if the undertaking lacks the participation of an established international manufacturer.

'White Goods'

Manufacture of products in the 'white goods' category requires a minimum annual production of about 40,000 units for each major group of products - refrigerators, washing machines, electric cookers, dishwashers etc. Production of these lines is capital intensive and although this level of production might be economic where local consumption is involved and a degree of protection available, it is unlikely to be sufficient to facilitate effective competition in export markets.

A manufacturing/assembly operation was established in Cyprus in 1975 for the production of water and bottle coolers. This involves a metal working operation to manufacture cabinets incorporating imported components. Production levels do not justify local manufacture of the imported components and the cost of establishing such a capacity would be substantial. This appears a promising venture based on what is claimed to be an unfulfilled demand for this type of product. It remains to be established whether export distribution and sales can be achieved and whether the initial cost and budget calculations were accurate in respect of pricing and profitability.

Household and Personal Accessories

There is only a very limited metal working element involved in the majority of these products; plastics have become the main constructional medium. Plastic mouldings for vacuum cleaners and food mixers are produced by injection moulding on special presses. These, and the dies or moulds in which the plastic components are made are very expensive. It is estimated that die costs are only

justified if more than 100,000 units are required.

I.2.6

Conclusion

Despite the limitations imposed by the advanced mechanical engineering and capital intensive requirements in the production of 'white goods' and plastic cased domestic appliances, the establishing of a production operation in Cyprus can be achieved if a suitable foreign manufacturer can be found. The scope and nature of such an activity would relate entirely to the specific requirements of such a manufacturer which cannot be determined at this stage.

TABLE 12

DOMESTIC APPLIANCES (GAS & ELECTRIC) IMPORTED TO CYPRUS 1971 - 1975 (JANUARY - SEPTEMBER)

C A T E G O R Y	1971		1972		1973		1974		Jan-Sept 1975	
	Qty	Value Cf	Qty	Value Cf	Qty	Value Cf	Qty	Value Cf	Qty	Value Cf
Air-Conditioning Machines	2,430	260,852	3,103	295,560	2,474	324,221	2,040	188,221	148	33,107
Domestic Refrigerators - gas	25	1,225	118	2,683	26	1,680	NA	2,478	107	11,283
Water Heaters - gas	454	12,784	471	9,986	295	11,080	327	6,724	58	2,195
Dish Washers - electric	349	24,111	510	41,632	409	30,296	403	27,146	-	-
Domestic Refrigerators	13,595	577,292	13,142	575,815	14,052	631,926	8,222	451,810	1,093	74,310
Domestic Washing Machines	6,163	346,453	8,360	454,014	9,829	500,935	5,672	361,663	628	41,743
Electric Fans	4,740	28,676	4,790	29,396	5,518	32,957	4,389	25,702	1,837	17,351
Vacuum Cleaners & Polishers	2,879	36,708	4,962	63,901	4,802	67,589	3,207	42,426	127	2,794
Food Mixers	3,275	37,902	6,528	60,308	9,871	99,397	4,410	39,427	1,382	19,145
Other Electrical Appliances	-	26,490	-	31,941	-	53,824	-	26,635	-	14,135
Electric Shavers	-	12,162	-	5,050	-	7,178	-	7,977	-	9,013
Electric Irons	19,397	37,762	25,103	57,083	35,809	72,813	24,962	55,006	-	-
Electric Heaters	5,397	36,018	9,305	59,239	8,167	60,761	5,495	35,460	808	10,879
Electric Cookers	2,557	50,674	4,843	135,604	6,827	126,187	6,272	97,238	1,646	26,836
Electric Water-Heaters	10,940	79,554	10,456	85,623	10,319	72,747	7,582	53,534	-	28,646
Other Electrical Appliances (Cooking, Heating, etc).	-	132,602	-	150,353	-	120,853	-	97,814	-	124,399
Cooking Stoves - gas	24,035	285,691	25,817	349,112	25,053	366,513	17,764	242,394	10,044	68,646
Cooking Stoves - other fuels	1,821	8,857	1,372	18,541	2,457	30,058	1,140	14,618	NA	NA
Space Heaters - gas	3,306	36,154	6,693	68,818	9,390	102,123	5,123	57,261	NA	NA
Space Heaters - other fuels	-	50,025	-	76,689	-	85,997	-	27,300	NA	NA

SOURCE: Import and Export Statistics 1973, 1974 and September 1975.

TABLE 14

IMPORTS OF DOMESTIC REFRIGERATORS, ELECTRICAL TO CYPRUS
BY COUNTRY OF ORIGIN

1972 - 1974 (Quantity and Value Cf)

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	777	40,772	211	13,749	458	21,420
Canada	-	9	-	-	-	-
France	131	8,472	73	5,034	-	52
West Germany	249	14,434	524	34,258	222	14,283
Greece	2,032	88,770	2,039	80,172	1,830	98,119
Italy	6,387	269,643	6,281	258,211	2,670	141,002
Spain	2,371	82,859	3,282	129,471	2,037	89,489
Sweden	122	6,667	106	29,054	29	4,341
Israel	4	301	9	607	9	1,119
Turkey	805	31,290	1,320	52,635	629	33,288
United States	207	30,600	166	24,517	327	48,181
Other Countries	57	1,998	41	4,218	11	516
T O T A L	13,142	575,815	14,052	631,926	8,222	451,810

SOURCE: Import and Export Statistics 1973 - 1974
Department of Statistics.

TABLE 15

IMPORTS OF ELECTRIC HEATING STOVES TO CYPRUS BY COUNTRY OF ORIGIN 1972 - 1974(QUANTITY AND VALUE C£)

Country	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	6,704	33,804	5,346	34,014	3,832	20,312
France	1	9	327	4,047	-	5
West Germany	512	8,155	941	7,243	772	4,443
Greece	506	5,824	463	4,622	50	750
Italy	428	1,167	385	1,186	215	811
Spain	-	-	-	-	217	3,651
Israel	-	-	-	-	400	5,374
Japan	2	45	46	513	-	1
Other Countries	1,152	10,235	659	9,136	9	113
TOTAL	9,305	59,239	8,167	60,761	5,495	35,460

SITC (R) 725. 0521

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics.

TABLE 16

IMPORTS OF DOMESTIC DISH-WASHING MACHINES, ELECTRICAL TO
CYPRUS BY COUNTRY OF ORIGIN

1972 - 1974 (Quantity and Value Cf)

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	132	11,014	23	1,044	9	965
West Germany	111	7,754	9	1,637	49	4,500
Italy	259	16,078	343	19,647	322	18,673
Other Countries	8	6,786	34	7,968	23	3,008
T O T A L	510	41,632	409	30,296	403	27,146

SITC (R) 719,621

SOURCE: Import and Export Statistics 1973 - 1974.
Department of Statistics.

TABLE 17

IMPORTS OF DOMESTIC REFRIGERATORS, NON-ELECTRICAL TO CYPRUS BY
COUNTRY OF ORIGIN 1972 - 1974 (QUANTITY AND VALUE C£)

Country	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	2	772	1	272	-	-
Italy	77	1,381	9	548	18	2,462
Other Countries	39	530	16	860	-	16
TOTAL	118	2,683	26	1,680	18	2,478

SITC (R) 719.42.

TABLE 18

IMPORTS OF DOMESTIC WATER HEATERS, NON-ELECTRICAL TO CYPRUS, BY
COUNTRY OF ORIGIN 1972 - 1974 (QUANTITY AND VALUE C£)

Country	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	51	1,472	108	2,914	132	3,767
France	-	-	18	330	60	1,233
West Germany	240	5,348	62	1,709	134	1,674
Italy	163	2,819	48	5,316	1	50
Spain	16	291	44	581	-	-
Others	1	56	15	230	-	-
TOTAL	471	9,986	295	11,080	327	6,724

SITC (R) 719.43.

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics.

TABLE 19

IMPORT OF AIR-CONDITIONING MACHINES TO CYPRUS BY
COUNTRY OF ORIGIN 1972 - 1974

QUANTITY AND VALUE CE

COUNTRY	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	313	32,903	323	20,814	51	14,612
Canada	-	-	16	1,028	20	1,753
France	55	12,819	159	27,139	50	10,787
West Germany	-	-	52	5,082	175	14,896
Italy	1,478	71,729	416	42,394	666	16,685
Spain	17	1,531	25	1,883	-	-
Switzerland	4	402		58	3	4,234
Israel	161	10,980	386	26,563	279	22,869
Japan	81	7,751	67	5,903	19	4,148
United States	891	142,053	932	184,882	720	91,582
Other Countries	103	15,392	198	8,475	57	6,565
<u>TOTAL</u>	<u>3,103</u>	<u>295,560</u>	<u>2,474</u>	<u>324,221</u>	<u>2,040</u>	<u>188,221</u>

SITC (R) 719.12

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics.

TABLE 20

IMPORTS OF DOMESTIC WASHING MACHINES, ELECTRIC TO CYPRUS BY COUNTRY OF
Origin 1972 - 1974 (Quantity and Value C£)

COUNTRY	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	1,802	102,327	1,636	89,201	894	45,586
France	308	14,690	213	11,278	346	19,549
West Germany	633	44,850	686	45,772	587	50,914
Greece	130	7,270	235	12,632	495	51,719
Italy	4,989	254,516	6,252	803,768	3,054	180,450
Netherlands	69	3,612	144	8,870	4	209
Spain	294	14,388	384	16,184	312	11,990
Others	135	12,361	279	13,230	25	1,248
Total	8,360	454,014	9,829	500,935	5,672	361,665

SITC (R) 725.02.

TABLE 21

IMPORTS OF ELECTRIC FANS TO CYPRUS BY COUNTRY OF ORIGIN 1972-1974 QUANTITY
and Value C£

COUNTRY	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	210	2,224	111	4,860	221	2,553
Hong Kong	288	630	34	104	1,007	303
West Germany	45	191	12	78	522	1,466
Italy	594	1,320	1,423	2,872	-	-
Netherlands	263	576	111	613	760	4,493
Israel	-	-	96	492	432	2,960
Japan	2,808	21,852	2,793	19,064	1,312	12,740
Others	582	2,603	938	4,874	135	1,173
Total	4,790	29,396	5,518	32,957	4,389	25,702

SITC (R) 725.031

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics.

TABLE 22

IMPORTS OF VACUUM CLEANERS AND POLISHERS TO CYPRUS BYCOUNTRY OF ORIGIN 1972 - 1974(Quantity and Value C£)

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	2,951	42,563	2,243	40,320	1,305	19,761
Denmark	116	2,843	227	5,109	25	866
West Germany	106	2,888	348	5,400	327	5,557
Italy	109	1,388	153	1,225	191	2,406
Japan	233	953	234	2,397	77	1,287
United States	504	7,804	174	1,739	2	53
Other Countries	943	5,462	1,423	11,399	568	3,608
T O T A L	4,962	63,901	4,802	67,589	3,207	42,426

SITC (R) 725.032

TABLE 23

IMPORTS OF FOOD MIXERS TO CYPRUS BY COUNTRY OF ORIGIN1972 - 1974 (Quantity and Value C£)

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	2,224	36,029	4,488	77,110	1,080	19,958
Denmark	2	136	127	1,784	204	788
France	1,039	3,130	125	601	1,541	11,763
West Germany	1,349	10,209	821	5,241	1,048	10,348
Italy	366	1,503	2,942	3,261	272	1,352
United States	538	3,518	32	789	187	1,170
Other Countries	1,010	5,783	1,336	10,611	840	2,981
T O T A L	6,528	60,308	9,871	99,397	4,410	39,472

SITC (R) 725.033

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics.

TABLE 24

IMPORTS OF ELECTRIC SMOOTHING IRONS TO CYPRUS BY COUNTRY OF ORIGIN 1972 - 1974(QUANTITY AND VALUE C£)

Country	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	9,254	25,344	6,994	19,106	2,881	9,276
France	1,002	1,981	2,458	5,397	114	501
West Germany	3,073	7,465	4,591	10,366	3,733	10,077
Italy	1,211	2,464	939	1,968	376	2,037
Netherlands	589	1,711	22	62	48	244
Poland	4,050	4,424	7,260	8,111	9,300	12,206
Spain	2,114	4,131	1,228	1,930	4,088	9,477
Switzerland	2	50	-	-	160	562
Taiwan	1	14	3,496	4,260	-	-
Japan	577	880	811	1,287	6	217
United States	2,183	6,180	6,228	17,411	1,858	5,998
Other Countries	1,047	2,439	1,782	2,915	2,058	4,411
TOTAL	25,103	57,083	35,309	72,813	24,962	55,006

SITC (R) 725.0511.

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics.

TABLE 25

IMPORTS OF ELECTRIC COOKING STOVES TO CYPRUS BY COUNTRY OF ORIGIN1972 - 1974 QUANTITY AND VALUE CE

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	2,171	85,887	2,360	62,569	2,000	37,776
West Germany	288	5,480	839	12,417	824	10,827
Greece	926	9,523	892	10,276	774	13,252
Italy	443	12,453	785	13,352	556	8,043
Spain	-	-	-	-	399	12,381
Other Countries	1,015	22,261	1,951	27,573	1,719	14,959
T O T A L	4,843	135,604	6,827	126,187	6,272	97,238

SITC (R) 725.0531

TABLE 26

IMPORTS OF ELECTRIC WATER-HEATERS TO CYPRUS BY COUNTRY OF ORIGIN1972 - 1974 QUANTITY AND VALUE CE

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	9,554	72,268	9,080	52,682	6,569	41,537
West Germany	332	3,946	780	4,834	737	6,020
Greece	256	4,126	138	2,118	237	5,108
Italy	17	235	86	3,903	31	690
Other Countries	297	5,048	235	9,210	8	179
T O T A L	10,456	85,623	10,319	72,747	7,582	53,534

SITC (R) 725.0539

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics

TABLE 27
IMPORTS OF OTHER ELECTRIC SPACE-HEATING EQUIPMENT TO CYPRUS
BY COUNTRY OF ORIGIN 1972 - 1974
VALUE CE

C O U N T R Y	1972	1973	1974
United Kingdom	51,383	42,793	28,561
France	41,912	4,341	6,881
West Germany	15,176	17,330	16,349
Greece	4,395	4,844	1,981
Italy	14,474	23,388	23,429
Japan	8,265	12,982	13,963
United States	11,944	6,242	3,438
Other Countries	13,391	15,665	7,687
T O T A L	160,940	127,585	102,289

SITC (R) (725.05)

SOURCE: Import and Export Statistics 1973 and 1974.
 Department of Statistics

TABLE 28

IMPORTS OF REFRIGERATORS INTO CERTAIN COUNTRIES 1970-1972

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	37,907	42,052	43,512	Italy
* Belgium/Luxemburg	19,304	23,494	25,409	Italy
* France	36,361	45,403	55,467	Italy
* West Germany	38,224	49,078	51,611	Italy
* Italy	1,313	2,473	2,435	West Germany
Holland	22,165	23,758	26,407	Italy
* Austria	12,428	15,553	19,455	West Germany, Italy
* Denmark	9,187	9,031	8,569	Sweden, Italy
* Finland	5,943	6,228	9,497	Denmark, Sweden
* Norway	11,610	10,841	12,629	Italy, Den/Sweden
Portugal	9,258	7,796	8,696	Italy, Spain
* Sweden	12,706	14,152	21,431	West Germany
Switzerland	11,648	14,221	19,900	West Germany, Italy
* United Kingdom	22,716	33,151	40,785	Italy, Sweden
* Greece	2,285	1,608	1,819	Italy
Ireland	2,440	1,906	2,918	United Kingdom
* Spain	1,088	1,029	1,403	Italy
* Yugoslavia	4,463	821	1,823	Italy

* Local Manufacture

SITC (R) 725.01

SOURCE : UN Statistics

TABLE 29

IMPORTS OF ELECTRIC DOMESTIC REFRIGERATORS INTO CERTAIN COUNTRIES

1969-1971

from 14 major exporting countries (mainly OECD members)

Value '000 US \$

C O U N T R Y	1969	1970	1971	Principal Supplier
Kuwait	2784	1758	1578	United States
Jordan	432	615	171	Italy
Libya	1852	1239	1513	Italy
Lebanon	2241	2204	2092	Italy
*Syria	44	8	29	Italy
*Egypt	121	127	229	United States
*Sudan	211	325	286	United Kingdom
S. Yemen	79	124	89	Italy
Ethiopia	195	251	219	Italy
Algeria	802	649	402	Italy
Morocco	471	429	240	Italy
Tunisia	252	304	57	Italy
*Iran	1077	417	325	United States
Iraq	603	557	606	Italy
Saudi Arabia	3303	2824	2039	United States
*Israel				
*Turkey				

* Local Manufacture
SITC (R) 725.01

SOURCE : US MARKET SHARE REPORTS

TABLE 31

IMPORTS OF WASHING MACHINES INTO CERTAIN COUNTRIES 1970-1972

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	2,303	6,564	11,281	Japan
* Belgium/Luxemburg	18,250	22,545	27,291	West Germany
* France	22,180	25,411	29,767	Italy
* West Germany	54,248	65,912	63,372	France
* Italy	6,499	7,061	7,705	West Germany
* Holland	48,176	45,851	52,150	West Germany, Italy
* Austria	14,883	17,749	20,427	West Germany, Italy
* Denmark	8,425	9,811	11,908	Italy
* Finland	4,734	3,599	6,915	Italy
Norway	9,385	10,424	11,929	West Germany, U.K.
Portugal	3,615	6,403	7,842	Italy
* Sweden	11,901	11,616	14,639	West Germany, Italy
Switzerland	8,570	9,951	11,982	West Germany
* United Kingdom	6,834	11,236	21,631	Italy
* Greece	5,229	6,263	7,576	Italy
Ireland	2,309	2,444	36,657	United Kingdom
* Spain	2,599	3,562	4,581	West Germany
* Yugoslavia	8,376	5,038	3,503	Italy

* Local Manufacture
SITC (R) 725.02

SOURCE : UN Statistics

TABLE 32

IMPORTS OF DOMESTIC WASHING MACHINES INTO CERTAIN COUNTRIES 1969-1971

from 14 major exporting countries (mainly OECD members)

Value '000 US \$

C O U N T R Y	1969	1970	1971	Principal Supplier
Kuwait	814	945	493	United Kingdom
Jordan	393	259	125	Japan
Libya	561	473	415	Italy
Lebanon	1231	1501	1438	United Kingdom
*Syria	225	195	189	United Kingdom
*Egypt	27	67	27	West Germany and Japan
Sudan	15	11	5	United Kingdom
S. Yemen	28	43	20	United Kingdom
Ethiopia	13	35	21	Italy
Algeria	171	93	167	Italy
Morocco	95	130	92	France
Tunisia	21	30	16	France
Iran	1456	1738	2175	Italy
*Iraq	354	545	147	United Kingdom
Saudi Arabia	1528	1044	647	United States
*Israel				
*Turkey				

* Local Manufacture

SITC (R) 725.02

SOURCE: US MARKET SHARE REPORTS

TABLE 33

IMPORTS OF ELECTRO-MECHANICAL DOMESTIC APPLIANCES NES*
INTO CERTAIN COUNTRIES 1970-1972

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	19,693	20,708	32,540	Japan
* Belgium/Luxemburg	15,459	19,764	24,809	West Germany
* France	15,138	21,501	28,335	West Germany
* West Germany	18,267	22,799	30,808	France, U.K.
* Italy	10,974	11,605	16,911	West Germany, France
* Holland	12,289	16,914	24,613	West Germany
* Austria	7,278	9,133	12,030	West Germany
* Denmark	5,486	5,330	7,028	West Germany, U.K.
* Finland	4,804	4,338	5,865	Sweden, U.K.
* Norway	5,849	6,958	8,917	Sweden
Portugal	3,948	4,283	5,255	West Germany
* Sweden	6,584	7,150	10,060	West Germany
Switzerland	7,146	9,295	12,234	West Germany, Sweden
* United Kingdom	10,986	12,369	16,623	France, Holland
* Greece	1,865	2,404	3,788	West Germany
Ireland	2,563	2,968	2,877	West Germany, UK
* Spain	1,930	2,460	3,206	West Germany, France
* Yugoslavia	3,110	2,709	2,720	West Germany

* Local Manufacture

NES* NOT ELSEWHERE SPECIFIED. (includes: Electric Fans; Vacuum Cleaners and Polishers, Food Mixers and other electrical domestic appliances)

SITC (R) 725.03

SOURCE: UN Statistics

IMPORTS OF ELECTROMECHANICAL DOMESTIC APPLIANCES N.E.S.INTO CERTAIN COUNTRIES

1969-1971

from 14 major exporting countries (mainly OECD members)

Value '000 US \$

C O U N T R Y	1969	1970	1971	Principal Supplier
Kuwait	1009	882	844	Japan
Jordan	110	168	98	Japan
Libya	748	691	530	Japan
Lebanon	792	828	914	France
Syria	796	649	91	Japan
Egypt	51	121	48	Japan
Sudan	42	39	28	United Kingdom
S. Yemen	113	51	44	Japan
Ethiopia	32	21	30	Japan
Algeria	128	255	172	France
Morocco	241	280	259	France
Tunisia	178	188	153	France
Iran	4168	4385	3081	Japan
Iraq	436	602	714	Japan, Holland
Saudi Arabia	900	814	753	Japan
Israel				
Turkey				

* Local Manufacture

NES NOT ELSEWHERE SPECIFIED. (include Electric Fans, Vacuum Cleaners and Polishers, Food Mixers and other electrical domestic appliances).

SITC (R) 725.03

SOURCE: US Market Share Reports

TABLE 37

IMPORTS OF ELECTRIC SPACE AND WATER HEATERS AND SIMILAR EQUIPMENT
INTO CERTAIN COUNTRIES 1970-1972

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	54,833	57,270	109,104	Japan, Denmark
* Belgium/Luxemburg	23,749	31,713	42,365	West Germany
* France	19,655	30,013	57,602	West Germany
* West Germany	26,857	32,975	43,633	France, Yugoslavia
* Italy	11,099	12,623	18,057	West Germany
* Holland	18,458	22,257	30,188	West Germany
* Austria	14,798	23,789	27,781	West Germany
* Denmark	10,300	11,998	17,076	West Germany
* Finland	8,186	9,260	11,984	Norway, Sweden
* Norway	5,877	6,329	7,803	West Germany, Sweden
Portugal	2,691	3,364	4,879	West Germany
* Sweden	16,560	16,383	23,321	Norway
* Switzerland	12,505	16,250	22,630	West Germany
* United Kingdom	17,953	18,094	24,985	Ireland, West Germany U.S.A.
* Greece	2,547	2,682	3,932	West Germany
* Ireland	3,926	4,392	5,864	United Kingdom
Spain	2,584	2,914	4,183	Belgium/Lux, West Germany
* Yugoslavia	4,008	4,725	5,705	West Germany

* Local Manufacture

SITC (R) 725.05 (includes: Electric Irons, Electric Heaters, Electric Cookers, Electric Water-Heaters, other Electric Appliances for cooking, heating etc.)

SOURCE: UN Statistics

TABLE 38

IMPORTS OF ELECTRIC SPACE AND WATER HEATERS, AND SIMILAR EQUIPMENTINTO CERTAIN COUNTRIES

1969-1971

from 14 major exporting countries (mainly OECD members)

Value '000 US \$

C O U N T R Y	1969	1970	1971	Principal Supplier
Kuwait	707	766	730	United Kingdom
Jordan	67	47	97	France
Libya	731	724	845	United States
Lebanon	384	323	456	United Kingdom
Syria	79	70	109	United Kingdom
*Egypt	114	62	95	West Germany
Sudan	20	28	14	United Kingdom
S. Yemen	39	22	20	United Kingdom
Ethiopia	85	156	72	Italy
*Algeria	356	360	181	France
Morocco	315	283	297	France
Tunisia	204	230	156	France
*Iran	1630	2350	2661	Japan
Iraq	256	178	129	United Kingdom
Saudi Arabia	341	348	504	United States
*Turkey				

* Local Manufacture

SITC (R) 725.05 (includes: Electric Irons, Electric Heaters, Electric Cookers, Electric Water-Heaters, other Electric Appliances for cooking, heating etc.)

SOURCE : US MARKET SHARE REPORTS

TABLE 40

IMPORTS OF AIR CONDITIONING MACHINERY INTO CERTAIN COUNTRIES 1970-1972

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	-	-	-	-
Belgium/Luxemburg	4,399	6,282	7,635	France, West Germany
* France	8,382	10,559	14,824	U.S.A., Italy
* West Germany	14,328	17,879	19,172	France, U.S.A., Belgium
* Italy	1,988	2,979	6,546	West Germany, U.S.A.
Holland	4,496	5,492	7,474	West Germany, U.S.A.
Austria	1,473	2,144	3,150	Switzerland, West Germany
Denmark	1,389	1,162	1,413	France, U.S.A., Sweden
Finland	896	1,268	933	Sweden
Norway	1,290	1,503	2,102	Sweden, Denmark
Portugal	2,960	3,141	3,429	Switzerland, U.S.A.
Sweden	1,368	1,105	1,487	U.S.A., Japan
* Switzerland	2,727	3,833	4,583	West Germany, Italy
* United Kingdom	8,084	9,389	14,152	U.S.A.
* Greece	708	1,588	1,911	U.S.A., West Germany
Ireland	-	-	-	-
* Spain	3,872	3,615	3,524	U.S.A., U.K.
Yugoslavia	4,411	5,992	6,633	Italy, West Germany

* Local Manufacture

SITC (R) 719.12

SOURCE : UN Statistics

TABLE 41

IMPORTS OF AIR CONDITIONING MACHINES INTO CERTAIN COUNTRIES 1969-1971

from 14 major exporting countries (mainly OECD members)

VALUE '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	6943	5410	5214	USA, Japan
Jordan	43	71	33	USA
Libya	1446	808	525	USA
Lebanon	669	871	962	USA, Japan
Syria	75	319	339	West Germany
* Egypt	131	188	498	Denmark
* Sudan	127	58	82	United Kingdom
South Yemen	41	86	52	USA, UK
Ethiopia	105	96	128	Italy
Algeria	1352	2008	2210	France
Morocco	471	726	556	France
Tunisia	205	374	373	USA
* Iran	2814	3724	4260	USA
Iraq	779	502	754	Holland, Italy, West Germany
Saudi Arabia	2777	3028	2537	USA
* Israel				
* Turkey				

* Local Manufacture

SITC (R) 719.12

SOURCE: US Market Share Reports

TABLE 42

ESTIMATED PERCENTAGE OF HOUSEHOLDS POSSESSING
SELECTED ELECTRICAL APPLIANCES IN N. EUROPE AND THE U.S.A.

Appliance	Austria	Belgium	Denmark	France	Germany	Italy	Netherlands	Norway	Spain	Sweden	Switzerland	U.S.A.
	1971/1972	1971/1972	1970/1971	1971/1972	1971/1972	1971/1972	1971/1972	1971/1972	1969/1970	1971/1972	1971/1972	1971/1972
Refrigerator	84	80	95	90	98	87	97	95	69	93	78	100
Radio, electric				10			2			45		
Television, electric	13	46	48	20	54	12	40	30	6	64	45	95
Washing machine, electric, hand	58	77	59	62	76	32	70	90	45	74	58	87
Washing machine, electric	2	7	6	5	6	10	6	5	2	17	8	34
Washing machine, hand	62	74	44	71	94	73	85	83	50	85	39	75
Vacuum cleaner, electric	90	94	79	94	98	91	98	97	87	98	90	100
Washing machine, electric	56	54	33	25	54	21	60	50	8	79	81	53
Washing machine, hand	34	81	94	67	95	36	100	91	13	97	89	98
Washing machine, electric, hand	29	26	37	55	51	48	56	53	19	65	71	50
Washing machine, hand	78	86	91	84	93	89	97	84	74	94	76	96
Washing machine, electric, hand	97	58	61	93	95	77	99	79	88	98	95	100
Washing machine, hand	25	33	45	52	58	48	75	42	24	61	35	60
Washing machine, electric	21	31	30	20	45	22	24	25	7	45	35	17

Source: Y & R Marketing Handbook.

Table 43

ANALYSIS OF HOUSEHOLDS IN
THE MIDDLE EAST AND NORTH AFRICA

Country (Census Year)	Population '000	Households '000	No. of persons in household unit	No. of dwellings '000	Av. No. of persons/ room units	% of dwellings with		
						water	toilet	electricity
Algeria (66)	12,096	2,034	5.9	1,795	2.8	22.7	49.1	33.7
Egypt (60)	9,864	1,992	4.8	1,639	3.6	39.5	NA	37.8
Morocco (71)	15,379	2,819	5.5	NA	2.4	23.0	30.0	27.0
Sudan (66)	1,848	253	5.7	NA	2.5	63.9	70.3	26.4
Tunisia (66)	4,533	874	5.1	836	3.2	14.8	NA	23.9
Bahrain (71)	216	34	6.4	31	2.3	52.8	NA	94.0
Cyprus (73)	659	NA	4.0	164	0.9	77.3	52.7	94.0
Iran (66)	25,079	5,029	5.0	3,899	2.3	13.1	NA	25.4
Iraq (55)	6,299	1,202	5.2	741	NA	20.8	33.4	17.1
Jordan (61)	1,706	314	5.3	NA	NA	21.3	55.4	17.0
Kuwait (70)	est. 1,000 (75)	113	6.0	113	2.1	NA	NA	NA
Syria (62)	6,305	860	5.9	NA	2.3	41.9	58.4	38.0
U.A.E. (68)	179	39	4.7	36	1.9	50.9	NA	24.2
Greece (71)	8,769	2,556	3.3	3,086	0.9	65.0	92.5	88.3

TABLE 44

SOME IMPORTANT MANUFACTURERS OF HOUSEHOLD APPLIANCES
AND MAIN PRODUCTION CENTRES

MANUFACTURER	DOMESTIC REFRIGERATORS & FREEZERS	DOMESTIC WASHING MACHINES AND DRIERS	VACUUM CLEANERS AND POLISHERS	KITCHEN APPLIANCES	HEALTH & BEAUTY APPLIANCES	DOMESTIC HEATING UNITS	DOMESTIC COOKERS	DISH WASHERS
HOOVER LTD	Italy, Denmark	UK	UK		UK	UK		
PHILLIPS ELECTRICAL LTD	Italy	Italy	Holland	Holland, UK, Spain, Singapore, Belgium, Italy	UK, Holland, Austria, Singapore, Japan, West Germany	UK	UK	Italy
MOULINEX			France	France	France		France	
AEG	Italy, West Germany	West Germany, Italy, Holland	West Germany	West Germany	West Germany		West Germany, USA	West Germany
ELECTROLUX (Martin Group) acquisitions (Tornado) France	UK.	France, Belgium	UK, France, USA				France, Belgium, Gas & Electric	France

I.3 BICYCLES AND MOPEDS

I.3.1 Introduction

The Standard International Trade Classifications (revised) for bicycles are 733.111 for adult's machines and 733.119 for children's. These classifications cover a wide variety of sizes, styles and makes of bicycles.

Mopeds are included in the Standard International Trade Classification, revised 732.9199; motorcycles of less than 100 ccs, which is a sub-group within the wider category of motorcycles, 732.91.

A moped is more usually defined in the United Kingdom as a motor cycle of 50 cc., which is also capable of being propelled by the pedals, with which it must be equipped. Its attraction lies not only in the fact that it is one of the cheapest forms of mechanised transport but also as the only form of motor vehicle which can be owned and driven by the youngest permitted category of drivers (16 year olds in the UK., 14 year olds in France).

In use, bicycles and mopeds provide a very basic form of transportation, the main advantage of which is its relative cheapness. Neither vehicle is really suited for travel over long distances and both tend to be used for short journeys and leisure pursuits.

I.3.2 The Cyprus Market

Table 45 shows the quantity and value of imports of the various forms of private transport to Cyprus. The import data for motor cycles over 100 cc. and for passenger cars have been included to complete the picture.

As might be expected, the imports to Cyprus of these forms of transport in 1975 have fallen significantly compared with 1973. Children's bicycles, the least essential, show the biggest fall in demand. Passenger car and motor cycle imports are less than 10% of the number imported in 1973, while imports of adult bicycles are rather higher at nearly 14%. It may be significant that the demand for bicycles, the cheapest form of private transport, is not greater in the economic circumstances of 1975.

This would reflect the fact that the need for bicycles as a basic form of transport is limited in a society in which the private car is already well established. Should this be the case, local demand for bicycles as a leisure accessory may be dependent on a return to the growing affluence of 1973.

Bicycle imports to Cyprus reached a peak of over 16,000 in 1973. The pattern of imports shows that 'Adult' bicycles generally account for over half of all imports of bicycles. Tables 46 and 47 show that Cyprus obtains bicycles from more than seven different countries of which the United Kingdom is the major source of supply. A new supplier identified in 1975 was China.

The range and variety of bicycle imports is considerable, with value ranging from children's bikes from Russia with an average value of about C£ 3 each to the adult machines from France which averaged about C£ 24 in 1974 (c.i.f. Cyprus).

The imports of bicycle spares Table (48), shows that the United Kingdom is the main source of supply. The value of spares from the United Kingdom is the equivalent of about 10% of bicycle imports from the same source. In contrast spares and accessories from Japan are worth about 30% of Japanese bicycle imports. This probably reflects the determination of Japanese manufacturers to ensure an efficient backup of service and maintenance operations in Cyprus.

Moped imports to Cyprus are included in the total imports of motorcycles of less than 100 cc. capacity (Table 49). The volume of imports of these machines is tending to decline, with Japan and France competing for the role of major supplier. In addition, machines are obtained from more than six other countries. If one can assume that the definition 'Autocycle' (Annual Abstract of Statistics 1973) equates to 'moped', Tables 50 and 51 which record the Vehicles Licensed in Cyprus and New Vehicle Registrations respectively, show that autocycles are less than a third of motorcycles in number. Despite new registrations of 500 - 650 autocycles annually, the total of licensed machines has tended to remain at 4 - 4,500 for the three year period covered in the tables.

I.3.3

The World Market

Bicycle production in the leading producing countries in 1973 is shown in the following table.

TABLE 52

PRINCIPAL BICYCLE PRODUCING COUNTRIES 1974Volume, million units

United States	10.1
Japan	9.4
U.S.S.R.	4.1
West Germany	2.6
India	2.5
France	2.1
United Kingdom	2.0
	<hr/>
World Total	42.2
	<hr/>

SOURCE : UN Statistics

The United States is not only the largest manufacturer of bicycles but also the major importer as Table 53 shows.

Bicycles are manufactured in 16 of the 18 countries listed in Table 53, but only Italy appears virtually independent of imported machines. The high level of inter-market trading reflects the wide variety of bicycles manufactured. Among the Middle East and North African countries, seven are reported to have bicycle manufacturing facilities (Table 54).

The traditional element is alleged to be an important factor in the bicycle market and to relate as much to style and design of machines, as to historic trading relationships. In addition, there are exceptional markets such as Greece, which is said to favour a style which is not marketed elsewhere.

Japanese bicycles are still virtually unknown in European markets but have been successfully established in the United States and in many Middle East and African countries, which previously depended on exports from Europe. It seems probable that Japanese bicycle manufacturers will seek to expand sales by establishing a basic distribution, developing a consumer franchise and eventually gaining a substantial share of the European markets. Bicycles from Japan tend to be modern in appearance, designed for the leisure market and supplied with a number of extra attachments. Their successful marketing is based on sound engineering, value for money and a well promoted modern image.

Mopeds represent only a part of the motorcycle market and are not identified separately within the trade classification. However, most of the major manufacturers of motorcycles include mopeds as a part of their product range. Japan, as the following Table 55 shows, is the dominant exporter of motorcycles and mopeds.

TABLE 55

LEADING MOTORCYCLE EXPORTING COUNTRIES

1974 VALUE '000 US \$

Japan	1,514,319
Italy	150,690
West Germany	77,538
France	76,652
Austria	49,512
United Kingdom	40,097

SITC (R) 732.9

SOURCE : UN Statistics

The Japanese have been so successful in exploiting the motorcycle market that the competition in export markets tends to be between Japanese manufacturers, with the traditional motorcycle manufacturers of Europe relegated to a secondary role.

Table 56 shows that in European markets, motor cycles are manufactured in eight of the seventeen countries. Japan is the leading exporter to thirteen of the countries. Only one of the Middle East and North African countries is known to have motorcycle production facilities (Table 57), but it has been reported that a Japanese manufacturer is considering the establishment of a production unit in Egypt.

Motorcycle imports into the majority of the countries listed in Table 57 are very small in relation to the imports into the European markets. As incomes and standards of living increase, it is probable that sales of motorcycles will expand, although the extremes of climate may limit demand in some countries.

Mopeds fulfil a dual role in the market; a basic and cheap form of individual mechanised transport, and an introduction for young beginners to the world of motoring in general and to the prospect of larger and more powerful two-wheeled machines (motorcycles) in the future.

1.3.4 Scope for Manufacture in Cyprus

Bicycle manufacture must achieve an output of at least 30-40,000 units a year for local demand and have an adequate capacity for sales expansion to be a viable proposition. Even at that level of production, a plant will most probably be dependent on imported components such as plated parts, wheels and chains. Machinery and equipment for the manufacture of these components entails a sizeable investment which will only be justified at a high level of utilisation.

The variety of sizes and styles of bicycles is large and the operating costs involved in attempting to provide a range of machines with a limited total output can be excessive.

Based on 1973 figures, assuming the grant of a local monopoly, demand (equated to imports) would be only just over 16,000 machines. It seems unlikely that this is capable of rapid expansion even with a return to the pre-invasion trend of steadily improving standards of living. Thus home market demand is likely to fall well short of the 30,000 minimum output requirements.

Export potential without the basis of an economic level of home demand is probably negligible. The major manufacturers are well established and local manufacture is taking place in many of the larger potential export markets.

The potential for establishing an assembly unit for the distribution of Japanese bicycles might be worth investigating. It is unlikely that component manufacture would be part of such an arrangement.

Moped manufacture represents a major capital investment in plant and machinery and a substantial level of production and sales is essential for the operation to be economic. This indicates the need for manufacture to be undertaken in association with a manufacturer whose products are likely to be able to guarantee that level of sales.

It would seem probable that a development in this field would be initiated on the basis of local assembly of imported parts. An indication of the implications of an assembly operation can be found currently in the United Kingdom.

The Norton Villiers Triumph Company, which is almost the only remnant of the once powerful British motor cycle industry, plans to assemble mopeds to fill one of the gaps in its product range. The mopeds are being imported from Italy in kit form for assembly in a warehouse unit. A workforce of 20 is expected to assemble up to 10,000 machines a year for local market consumption.

It remains to be seen whether or not an effective marketing strategy can be devised to enable the sales targets to be achieved in competition with the well established Japanese and other foreign companies which offer their mopeds as part of a range of machines.

Cyprus could probably obtain similar moped kits from Italian manufacturers but the marketing prospects would be poor because :

- i) demand in Cyprus is limited (650 Autocycle registrations annually);
- ii) export demand would have to be created in face of established international manufacturers marketing a complete range of motorcycles, including mopeds, at low price.
- iii) as an element in the marketing activity, annual model changes are introduced to stimulate demand. This 'fashion' factor might be difficult to achieve in an operation based on kit assembly and would be a complication to the distribution of machines.

To develop a potentially viable operation it will be necessary to effect a partnership with one of the leading manufacturers for local assembly for export.

I.3.5

Conclusion

If Cyprus is to develop and exploit operations for the assembly or manufacture of bicycles and mopeds, it will be essential to ensure the participation of a major international manufacturer. Such an arrangement would provide the basic products, know-how, design capability and, most vital, the prospect of an adequate level of production and sales to ensure an economic basis for the plant. Prospects in both product categories are, however, limited.

TABLE 45

IMPORTS OF BICYCLES, MOTOR CYCLES AND CARS TO CYPRUS 1971 - 1975 (JANUARY - SEPTEMBER)

	1971		1972		1973		1974		1975 - Jan - Sept.	
	Qty	Val	Qty	Val	Qty	Val	Qty	Val	Qty	Val
Adult Bicycles	4817	70,351	5,779	96,716	8,447	144,152	4,866	90,981	1,151	24,093
Childrens Bicycles	3811	38,959	4,344	43,267	7,862	79,489	3,086	48,107	346	5,739
Bicycle Spares	-	11,910	-	15,998	-	17,540	-	13,785	-	5,341
Motor Cycles under 100 c.c. (Mopeds)	1402	76,945	2,155	119,711	1,901	135,778	1,552	110,237	240	32,489
Motor Cycles over 100 c.c.	424	44,674	389	58,020	681	109,349	320	50,784	-	-
Passenger Cars (including Jeeps, etc.)	10,031	6,201,364	13,488	9,410,004	12,794	9,534,766	5,650	4,727,075	1,144	1,201,083

SOURCE: Import and Export Statistics 1973, 1974 and September 1975. Department of Statistics.

TABLE 46

IMPORTS OF ADULT BICYCLES TO CYPRUS BY COUNTRY OF ORIGIN 1972-1974(Quantity and Value C£)

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	3,399	65,271	4,137	78,904	2,487	51,629
Czechoslovakia	-	-	500	4,877	600	6,417
France	215	3,320	267	5,110	171	4,089
Hungary	1,000	12,711	500	6,294	600	7,708
U S S R	2	27	3	25		
Japan	441	6,310	1,155	18,507	682	13,850
Others	722	9,077	1,885	30,435	326	7,288
T O T A L	5,779	96,716	8,447	144,152	4,866	90,981

SITC (R) 733.111

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics

TABLE 47

IMPORTS OF CHILDREN'S BICYCLES TO CYPRUS BY COUNTRY OF ORIGIN 1972 - 1974
(Quantity and Value C£)

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	2,070	30,786	3,733	56,835	2,562	41,381
Italy	1,230	8,467	1,711	14,590	414	3,547
U S S R	1,000	3,298	1,939	6,060	61	188
Japan	-	-	40	315	-	-
Others	44	716	439	1,689	49	2,991
T O T A L	4,344	43,267	7,862	79,489	3,086	48,107

SITC (R) 733.119

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics.

TABLE 48

IMPORTS OF BICYCLE SPARES TO CYPRUS BY COUNTRY OF ORIGIN 1972-1974

Value CE

C O U N T R Y	1972	1973	1974
	Value	Value	Value
United Kingdom	7,657	9,407	7,488
India	535	182	472
Holland	795	631	521
Japan	4,886	6,016	4,316
Others	2,125	1,320	988
TOTAL	15,998	17,556	13,785

SITC (R) 733.121

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics.

TABLE 49

IMPORTS OF MOPEDS TO CYPRUS BY COUNTRY OF ORIGIN 1972 - 1974(Quantity and value CE)

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	-	-	3	130	6	73
Austria	9	429	17	971	-	-
France	465	22,299	437	26,285	701	43,653
East Germany	489	16,571	223	8,221	119	9,222
West Germany	75	2,187	2	239	7	490
Italy	45	2,813	88	6,198	166	11,302
Japan	970	70,739	1,070	90,838	435	39,197
Others	102	4,673	61	2,896	118	6,300
T O T A L	2,155	119,711	1,901	135,778	1,552	110,237

SITC (R) 732.9199

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics.

TABLE 50

NUMBER OF VEHICLES LICENSED IN CYPRUS 1971 - 1973

(as at 31st. December each year)

Category	1971	1972	1973
Private Motor Cars	60,111	72,160	74,698
Motor Cycles	9,509	10,457	10,536
Motor Tricycles	66	71	66
Autocycles (Mopeds)	4,072	4,407	4,278

SOURCE: Annual Abstract of Statistics 1973.

TABLE 51

NUMBER OF NEW VEHICLE REGISTRATIONS IN CYPRUS 1971 - 1973

	1971	1972	1973
Private Motor Cars	9,485	12,367	11,863
Motor Cycles	1,004	1,609	1,562
Motor Tricycles	4	2	10
Autocycles (Mopeds)	514	658	642

SOURCE: Annual Abstract of Statistics 1973.

TABLE 53

IMPORTS OF BICYCLES INTO CERTAIN COUNTRIES 1970-1972

Value '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
*U.S.A.	39,977	63,344	96,880	Japan, France, U.K.
*Belgium/Luxemburg	1,170	1,756	2,921	France
*France	2,294	3,204	5,811	Italy
*West Germany	5,324	6,332	7,887	France, Holland
*Italy	NA	NA	51	
*Holland	4,685	6,879	10,925	West Germany, France
*Austria	1,144	2,150	2,872	West Germany
*Denmark	987	605	487	U.K.
*Finland	656	665	1,129	Sweden, Hungary
*Norway	748	832	714	Sweden
*Portugal	81	119	212	U.K.
*Sweden	6,472	6,231	7,112	Norway, Denmark
Switzerland	1,212	1,174	2,164	Austria
*U.K.	900	2,205	2,349	Austria
*Greece	654	893	1,155	Italy, Czechoslovakia
*Ireland	599	775	326	U.K.
*Spain	168	452	867	West Germany
*Yugoslavia	235	174	170	West Germany, Czechoslovakia

* Local Manufacture

SITC (R) 733.11

SOURCE : UN Statistics

TABLE 54

IMPORTS OF BICYCLES INTO CERTAIN COUNTRIES 1969-1971

from 14 major exporting countries (mainly OECD members)

Value'000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	188	161	148	Japan
* Jordan	26	50	29	UK
* Libya	779	875	877	Italy, UK
Lebanon	128	140	128	UK
Syria	78	9	64	Japan, France
* Egypt	3	6	4	West Germany
Sudan	228	61	60	UK
South Yemen	40	20	15	Japan, UK
Ethiopia	150	116	101	Japan, UK
Algeria	893	977	286	France
Morocco	1023	923	547	France
Tunisia	86	262	148	West Germany, France
* Iran	1345	1277	900	UK, Japan, France
* Iraq	102	121	84	UK
* Saudi Arabia	533	518	267	Japan
* Turkey	NA	NA	NA	

* Local Manufacture/Assembly

SITC (R) 733.1

SOURCE: US Market Share Reports

TABLE 56

IMPORTS OF MOTORCYCLES INTO CERTAIN COUNTRIES 1970-1972

Value '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	307,440	497,288	696,654	Japan, U.K.
Belgium/Luxemburg	6,629	8,211	12,706	Japan, France
* France	18,026	30,203	47,971	Japan, Italy
* West Germany	13,731	23,396	30,903	Japan
* Italy	4,307	8,636	15,410	Japan, France
* Holland	24,397	26,476	30,604	West Germany, Japan
* Austria	880	1,583	2,750	Japan
Denmark	6,809	10,666	8,402	Austria
Finland	1,376	2,152	4,011	Japan
Norway	1,093	1,488	2,138	Japan
Portugal	1,859	1,957	2,195	Italy
* Sweden	6,163	6,509	8,139	Japan, Austria
Switzerland	10,453	13,891	18,920	Japan, West Germany
* U.K.	10,525	20,005	34,581	Japan, Austria
Greece	2,007	2,114	2,564	Japan
Ireland	1,261	1,671	1,760	Japan
* Spain	183	277	713	Italy, U.K.
Yugoslavia	4,331	4,053	2,048	East Germany

* Local Manufacture

SITC (R) 732.9

SOURCE : UN Statistics

TABLE 57

IMPORTS OF MOTOR CYCLES INTO CERTAIN COUNTRIES1969 - 1971

from 14 major exporting countries (mainly OECD members)

Value '000 US\$

C O U N T R Y	1969	1970	1971	Principal Supplier
Kuwait	327	254	105	Japan
*Jordan	63	138	104	United Kingdom
Libya	298	99	219	Italy
Lebanon	301	297	394	Japan
Syria	625	360	201	Italy
Egypt	77	46	146	France
Sudan	50	42	20	United Kingdom
South Yemen	157	139	161	Japan
Ethiopia	83	104	137	Japan
Algeria	1439	759	541	West Germany
Morocco	2566	3893	3663	France
Tunisia	190	532	403	France
Iran	5731	7841	7557	Japan
Iraq	126	114	35	United Kingdom
Saudi Arabia	1781	1779	1449	Japan

* Local Manufacturing

SITC (R) 732.91

SOURCE : US Market Share Reports

I.4 WATCHES AND CLOCKS

I.4.1 Introduction

These products are included within the general category 864 of the Standard International Trade Classification, (revised). This category includes a variety of timing devices of which the most important are:

	<u>SITC No.</u>
Watches	864.11
Clocks (with watch movements)	864.12
Clocks	864.22

The main categories cover a wide range of different timing devices and the market is continually changing and developing as a result of a number of technical innovations.

I.4.2 The Cyprus Market

Table 58 shows the composition of the Cyprus import market between 1971 and September 1975 for the following main categories of timing instruments.

Watches are the most significant import in this sector in terms of both quantity and value. Table 59 shows that Cyprus imports watches from more than seven countries. Japan and Switzerland, the two main suppliers, together provide the bulk of imported watches.

Clocks with watch movements (Table 60) are the second largest product category in this sector, but the quantity and value of imports is very low. The United Kingdom, which used to be the main source, has been replaced by West Germany which supplies over half of all imports of these products.

Clock imports to Cyprus, Table 61 are small in both quantity and value. Clocks have been obtained from more than four countries. Czechoslovakia was the largest single supplier in any one year but has not maintained the level of sales or share of the market which it held in 1972. West Germany is now the leading supplier.

The average value of imports in each category in 1974 was fairly low:

Watches averaged about C£ 7,500 a unit
Clocks (watch movements) about C£1,300 a unit
Clocks about C£2,950 a unit

There is, of course, a wider spread of average values when imports from different sources are examined. In the case of watches, Japan, who was the main supplier in volume and value terms in 1974, supplied watches with an average value of about C£9.

I.4.3 The World Market

The world market for watches and clocks has undergone a number of significant changes in the past 25 years. Traditional European dominance, especially in the watch sector, has been challenged by the developing watch industries of Japan and Russia. Technological changes developed in the United States are introducing new forms of timing devices which promise to transform the market.

Watch manufacture is a growth industry. Table 62 shows the world production of watches and the leading manufacturing countries, omitting the smaller producers. Switzerland is the leading manufacturer but her share of world output is diminishing. Swiss watch making is an export business, 95% of Swiss watches are exported compared with only 50% for the closest competitors, Japan and Russia.

Watch exports by value in 1974 for the six main exporting countries are shown in the following table.

TABLE 63

LEADING WATCH EXPORTING COUNTRIES 1974'000 US\$

Switzerland	1,131,858
Japan	298,738
Hong Kong	196,384
France	80,336
West Germany	68,268
Italy	23,424

SOURCE: UN Statistics

Switzerland still dominates the international watch market. Japan's challenge has been apparent for some years but it is surprising to find Hong Kong in third place. Korea and Singapore are ninth and tenth after the United Kingdom.

Seventy per cent of the world watch market consists of products retailing for less than £10 sterling, but prices generally are tending to increase.

Tables 64 and 65 show the watch trade in Europe, the Middle East and North Africa. These confirm Switzerland's role as the leading exporting country. Only Tunisia, of the Middle East and North African group of countries, is known to have a local production capacity.

Clock manufacture tends to be on a smaller scale than that of watches. In 1973, clock production was less than 100 million units compared with over 200 million watches. Clocks with watch movement, a category which tends to fall between the two, amounted to a production of under 35 million units.

Japan and the United States, with about 50% and 25% respectively, were the main producers of clocks in 1973. West Germany produced over 80% of the clocks with watch movements.

Tables 66 and 67 show the imports of clocks, clock movements and parts into Europe, the Middle East and North Africa. Only six of the listed countries are known to have clock production facilities. The main source of these products in the period covered by the tables was West Germany whose markets may by now have been usurped by Japan.

The imports of clocks into the Middle East and North African markets are very small in relation to those into European markets.

The watch and clock industry is in process of change from mechanical to more advanced methods of 'motivation'. (Clocks can be effectively driven by mains electricity). There have been four major innovations in watch technology in the past 25 years, each designed to achieve simpler and more accurate operation than can be obtained from even the automatic mechanical watch.

- i) the first generation of new watches was battery operated;
- ii) the second generation used a tuning-fork vibration for accuracy;
- iii) the third generation watches employ a miniature motor and a quartz crystal. (It has been estimated that quartz watches will amount to 30% of world output by 1980); and
- iv) the fourth generation watches are electronic, solid state with digital display.

About 3 million electronic watches were marketed in 1975; estimates for 1980 vary from 30 to 80 million in a total world wide watch market of 300 million units. This latest development, began in the United States electronics industry and has brought new competitors to the watch market. Integrated circuits are being produced in Taiwan, Korea and Singapore for United States electronics groups for incorporation in Swiss and Japanese watches. Producers of quartz and digital watches are dependent on United States, Japanese or West German licensors of the vital integrated circuits.

The electronic watch is an additional threat to the Swiss watch industry which was already under pressure from watches made in Japan and Russia. In the present economic climate, there has been some reluctance to develop the electronic watch too rapidly, especially in view of the collapse of the 'calculator' market. However, it is reported that Texas Instruments plans to produce 100,000 electronic watch modules a month. Some concern has been expressed on the part of leading Japanese watch manufacturers that American mass production of the essential semi-conductors will lead to pricing difficulties. There are already signs that the retail prices of digital watches are falling from their initial levels following the pattern of the pocket electronic calculator, prices of which have fallen significantly.

It is reported that the United States electronics companies are considering setting up foreign assembly plants to put the inexpensive electronic digital watch modules into attractive cases.

This is not an industrial sector in which a new manufacturer would venture without the benefit of some significant product advantage. Competition is intense and the pressures are such that LIP, the leading French watch manufacturing company has twice had to be rescued by the French Government. One of the latest developments in the industry has been the establishment of a Russian owned watch and clock factory in Besancon, the centre of the French watch and clock industry. It is reported that this venture is intended to make use of French designed cases for Russian mechanisms.

The new Russian factory cost £800,000 and will employ a staff of 60, with an initial production target of 250,000 watches and clocks per year. Russian imports of 220,000 units were sold in France during 1975, which is equivalent to half the output of LIP. In view of the problems of the French industry due to the pressure of competitive imports, it is reported that half of the new Russian factory's output will be exported to Spain, Greece and the Middle East.

I.4.4

Scope for Manufacture in Cyprus

The watch and clock industry is capital rather than labour intensive, extremely competitive and in course of dynamic change and continual growth. Industrial development in Cyprus has no traditions or experience which would be particularly appropriate to the needs of watch and clock manufacture.

I.4.5

Conclusion

The watch and clock industry is in a dynamic stage of development. Traditional companies face a fall in demand and prices for their 'clockwork' products for which excess capacity exists. They are trying to compete in the electronic watch business with the American electronics industry from which modules must be obtained.

The electronics companies are having their products assembled in countries like Singapore where the necessary fine machining skills are available to manufacture watch cases and other components. One Singapore subsidiary of an American firm spent three years training tool makers before commencing production.

At this stage of market transition, it is doubtful that foreign groups would chose to assemble watches and clocks in Cyprus in the medium term.

TABLE 58

IMPORT OF WATCHES AND CLOCKS TO CYPRUS 1971 - 1974, JANUARY - SEPTEMBER 1975

(Quantity & Value C£)

	1971		1972		1973		1974		Jan-Sept 1975	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Matches	50,026	160,018	51,130	189,631	56,442	270,044	40,192	300,175	41,192	300,175
Clocks (Watch movements)	36,890	26,472	17,919	22,106	19,306	21,097	14,106	18,146		
Clocks	4,497	7,581	11,126	12,632	7,861	11,967	2,998	8,846	2,998	8,846
Clocks and Watch Parts		4,758		2,679		2,976		5,456		NA.

SOURCE: Import and Export Statistics 1973, 1974 and Sept. 1975. Department of Statistics.

TABLE 59
IMPORTS OF WATCHES TO CYPRUS BY COUNTRY OF ORIGIN
1972 - 1974 (Quantity and Value C£)

COUNTRY	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	963	2,767	446	1,079	289	715
Hong Kong	9,634	10,724	9,487	12,672	3,216	11,541
West Germany	2,297	5,903	1,414	8,903	437	2,844
Switzerland	32,436	134,361	35,134	171,691	17,406	102,084
U S S R	606	807	1,185	2,321	280	435
Japan	4,225	31,556	8,127	70,812	19,520	182,230
Other Countries	969	3,573	649	2,566	44	324
T O T A L	51,130	189,691	56,442	270,044	41,192	300,173

SITC (R) 864.11
 SOURCE: Import and Export Statistics 1973 and 1974

TABLE 60
IMPORTS OF CLOCKS (WITH WATCH MOVEMENTS) INTO CYPRUS BY COUNTRY OF ORIGIN 1972-1974
(Quantity and Value C£)

COUNTRY	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	4,589	6,878	1,162	2,806	43	496
Hong Kong	1,302	759	2,784	1,904	558	497
West Germany	7,495	6,716	6,782	7,863	8,717	10,903
U S S R	17	7	3,516	1,184	2,000	770
Japan	3,056	5,736	2,613	4,016	851	1,605
Other Countries	1,406	2,010	2,449	3,324	1,937	3,875
T O T A L	17,919	22,106	19,306	21,097	14,106	18,146

SOURCE: Imports and Export Statistics 1973 and 1974, Department of Statistics
 SITC(R) 864.12

TABLE 61

IMPORTS OF CLOCKS TO CYPRUS BY COUNTRY OF ORIGIN 1972 - 1974Quantity and Value C£

COUNTRY	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	1,113	2,876	782	1,648	500	1,752
Czechoslovakia	6,408	3,189	2,394	1,162	-	-
West Germany	809	879	1,114	1,688	944	2,074
Japan	1,183	3,453	560	1,961	302	1,615
Other Countries	1,613	2,235	3,033	5,527	1,232	3,405
T O T A L	11,126	12,632	7,883	11,986	2,998	8,846

SITC(R) 864.22

SOURCE: Imports and Exports Statistics, 1972 - 1974
Department of Statistics

TABLE 62

WORLD PRODUCTION OF WATCHES AND WATCH MOVEMENTS (M.UNITS)

COUNTRY	1969	1970	1971	1972	1973	1974
Switzerland	71.6	73.6	72.3	78.2	85.2	88.8
Japan	21.3	23.8	24.3	25.4	28.0	32.4
U S S R	20.5	21.7	23.3	24.5	25.0	25.5
U.S.A	17.7	19.4	21.5	21.8	22.1	23.7
France	10.6	10.9	12.5	14.1	15.8	16.7
West Germany	8.3	8.4	7.9	9.2	9.7	8.7
East Germany	3.3	3.5	3.5	3.4	3.5	4.0
China	-	-	-	-	5.7	6.7
Italy	2.5	2.6	2.6	2.3	2.5	2.5
Portugal	-	-	-	1.3	1.8	2.0
TOTAL WORLD	164.7	173.6	179.0	197.0	215.8	229.6

SOURCE: Financial Times

TABLE 64

IMPORTS OF WATCHES, ETC INTO CERTAIN COUNTRIES 1970-1972

Value '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	135,346	139,083	165,126	Switzerland
Belgium/Luxemburg	12,127	12,812	14,813	Switzerland, France
* France	15,004	17,337	25,023	Switzerland
* West Germany	42,016	53,496	64,024	Switzerland, Italy
* Italy	24,041	29,269	31,955	Switzerland
Holland	7,357	8,990	10,850	Switzerland, France
Austria	7,623	9,702	11,978	West Germany Switzerland
Denmark	6,052	5,268	6,024	Switzerland
Finland	3,903	3,531	4,593	Switzerland
Norway	5,542	6,880	7,269	Switzerland
* Portugal	3,404	6,452	7,508	Switzerland
Sweden	11,762	11,741	12,106	Switzerland
* Switzerland	17,775	21,312	24,262	Italy, West Germany
* U.K.	35,786	41,682	54,086	Switzerland
Greece	2,534	3,578	3,354	Switzerland
Ireland	1,122	1,317	1,231	Switzerland
Spain	29,183	33,374	48,922	Switzerland
Yugoslavia	5,613	5,181	4,140	Russia

* Local Manufacture
SITC (R) 864.1

SOURCE : UN Statistics

TABLE 65

IMPORTS OF WRIST AND OTHER WATCHES INTO CERTAIN COUNTRIES 1969-1971

from 14 major exporting countries (mainly OECD members)

Value '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	7728	6519	6172	Switzerland, Japan
Jordan	717	550	657	Switzerland
Libya	2524	3040	3357	Switzerland, France
Lebanon	5227	5775	6932	Switzerland
Syria	878	412	800	Switzerland
Egypt	1193	1508	426	Switzerland
Sudan	54	64	337	Switzerland
South Yemen	1397	1212	902	Japan, Switzerland
Ethiopia	485	618	731	Switzerland
Algeria	278	364	401	Switzerland
Morocco	5699	5985	5752	Switzerland
* Tunisia	160	107	136	Switzerland
Iran	4947	5104	6080	Switzerland, Japan
Iraq	1138	844	358	Switzerland
Saudi Arabia	7225	7337	9529	Switzerland

* Local Manufacture

SITC (R) 864.11

SOURCE: US Market Share Reports

TABLE 66

IMPORTS OF CLOCKS, CLOCK PARTS ETC INTO CERTAIN COUNTRIES 1970-1972

Value '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	48,839	57,130	80,552	Japan, West Germany
Belgium/Luxemburg	7,521	8,851	10,300	West Germany, France
* France	28,902	34,058	44,382	West Germany, Switzerland
* West Germany	30,839	31,307	36,952	Switzerland, France
* Italy	20,984	22,648	27,061	West Germany
Holland	12,208	13,712	16,108	West Germany
Austria	5,033	5,866	6,877	West Germany
Denmark	6,067	4,916	5,055	West Germany
Finland	3,555	3,235	4,120	West Germany
Norway	3,069	3,181	3,536	West Germany
Portugal	1,475	2,542	4,347	UK
Sweden	9,239	8,100	10,277	West Germany
* Switzerland	23,380	25,780	26,766	West Germany, Italy
* U.K.	19,393	23,005	30,216	West Germany, Switzerland
Greece	1,475	2,196	2,374	West Germany
Ireland	2,166	1,791	2,392	UK
Spain	6,684	7,315	10,807	West Germany
Yugoslavia	1,832	2,799	3,077	West Germany

* Local Manufacture

SITC (R) 864.2

SOURCE : UN Statistics

TABLE 67

IMPORTS OF CLOCKS, CLOCK MOVEMENTS AND PARTS INTO CERTAIN COUNTRIES 1969-1971

from 14 major exporting countries (mainly OECD members)

Value '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	310	236	318	West Germany
Jordan	31	38	26	Switzerland
Libya	142	159	122	West Germany
Lebanon	213	270	356	West Germany
Syria	113	54	191	West Germany
Egypt	73	80	40	West Germany
Sudan	34	41	16	Switzerland
South Yemen	85	61	31	Switzerland
Ethiopia	26	26	36	West Germany
Algeria	501	702	745	France, West Germany
Morocco	305	324	457	France
Tunisia	131	175	154	France
Iran	1268	1618	1820	Japan
Iraq	97	78	58	Switzerland/Italy
Saudi Arabia	386	357	353	West Germany, Japan

SITC (R) 864.2

SOURCE: US Market Share Reports

I.5

IMITATION LEATHER

I.5.1

Introduction

The products collectively described as 'imitation leather' are included in the Standard International Trade Classification, revised, Code 655.43. This comprises :

"textile fabrics impregnated or coated with cellulose derivatives or other artificial plastic materials".

A wide range of products with a variety of uses is included in this category. The variations relate to the nature and quality of the textile base and of the plastic used for the coating. These affect the end use characteristics of the material for outlets ranging from footwear and clothing to furniture and luggage.

I.5.2

The Cyprus Market

The imports of plastic coated textiles to Cyprus have shown a steady increase in total value in recent years. Table 63 illustrates this growth and the large number of countries from which supplies are obtained. West Germany, the United Kingdom and Hungary are the main sources but more than twelve countries were suppliers in 1974.

Imports to Cyprus serve two main manufacturing industries :

Footwear manufacture utilises 'imitation leather' primarily for the linings of shoes. The poromeric material used for this purpose is a thin plastic material. Annual consumption on the basis of present output and use is estimated to be about 30,000 square metres of material. Assuming that the footwear industry develops to the stage of operating at its theoretical capacity of about 3 million pairs of shoes a year, its requirement for linings is placed at about 100,000 square metres of material. The material used for shoe linings is not a standard product but varies widely in quality.

Travel Goods manufacturing is the largest user of imported 'imitation leather' products. A wide range of materials is used which differ in terms of

- i) Colour and pattern
- ii) Surface texturing
- iii) Thickness
- iv) Flexibility and strength.

The travel goods market is subject to the influence of fashion and liable to changes in demand for particular materials, colours and styles. This presents problems to the manufacturers in terms of stock levels and requirements of both raw materials and finished goods stocks.

Current consumption of imitation leather in this sector is estimated to be 300,000 square metres a year.

1.5.3

The World Market

World exports of plastic covered textiles were worth US \$ 252 million in 1971.

TABLE 69

LEADING EXPORTERS OF PLASTIC COVERED TEXTILES 1971

<u>Country</u>	<u>Export Value '000 US \$</u>
West Germany	76,000
France	32,000
Italy	28,000
Holland	25,000
United Kingdom	17,000
<hr/>	<hr/>
World Total	252,000
<hr/>	<hr/>

SOURCE : UN Statistics

Imports of plastic coated textiles to Europe, the Middle East and North Africa are shown in Tables 70 and 71. Sixteen of the seventeen European countries listed have local manufacturing capacity for the production of imitation leather and, in 1971, the European markets handled about 75% of the world imports, most of which were supplied from other European countries. There is no record of production capability in any of the Middle East or North African countries in Table 71, but total consumption is very small in relation to that of the majority of European markets.

The principal exporting countries are West Germany, France, the United Kingdom, Italy and Holland. One of the major uses for plastic coated textiles is for upholstery and trim in the motor car industry. However, the growing use of fabrics in car upholstery would tend to lead to over-capacity in the world at large. In the Middle East and North African markets, the products are most likely to be used in the footwear and clothing, furniture and travel goods industries.

The major exporters, e.g. Freudenburg in West Germany and Storey's in the United Kingdom have well established marketing networks through which they promote and distribute their products. Such is the variety of lines that only a few manufacturers can offer a comprehensive range.

I.5.4 The Manufacturing Process

Two processes are available for the production of plastic coated textiles :

- i) Calendering
- ii) Spreading

Both methods are highly automated and each requires only 5 or 6 men to operate a high output production line. Each process is fully integrated from mixing through to embossing and drying.

The differences in output and cost are :

Calendering is the more sophisticated process which is capable of producing 160 - 200,000 square metres of material a week with single shift working. A calendering production line is estimated to cost £1 million sterling (f.o.b. United Kingdom).

Spreading has a lower production capability of about 60,000 square metres a week with single shift working. A spreader production line is estimated to cost £0.25 million sterling (f.o.b. United Kingdom).

It is reported that there is little difference in the performance of the materials produced by the two processes, although it is claimed that the calendered material has a more durable finish.

I.5.5 Scope for Manufacture in Cyprus

Current annual demand for plastic coated textile material in Cyprus is approximately 330,000 square metres. This represents less than two weeks' production with a calendering production line and about six weeks' for a spreader unit. Assuming capacity output of footwear and a doubled production of travel goods, Cyprus demand could increase to 700,000 square metres per year; five weeks' production for the calender and twelve weeks' for the spreader process.

A substantial export sale would be necessary for a spreader unit to operate economically, even assuming that output can be concentrated on the production of a limited range of products.

In practice, the situation is much more complex. A very wide range of materials are used in footwear and travel goods manufacture. More than 40 different materials could be counted in one travel goods manufacturer's showroom. Averaged over the present level of imports, this would represent annual purchases of about 7,500 square metres of each item. This low level of output of a large number of different materials would seriously complicate the economic operation of a single production line.

The main travel goods manufacturers in Cyprus agree that it is neither desirable nor acceptable to rely on a single source of supply and at the same time remain both in fashion and competitive. An essential requirement for the supply of materials is a wide range of choice of materials, readily available at a competitive price. This influences the choice of the large number of sources of supply. West Germany and the United Kingdom are important for the product range and availability. Hungary offers good quality at competitive prices but the range of materials is limited. At the other extreme, Greece produces good quality material (although not best suited for travel goods), but has very limited production capacity. In consequence, Greek materials tend to be too expensive and as Table 68 shows, imports from Greece to Cyprus have declined.

The data in Table 71 suggest that an aggregate of some 4 million square metres could have been imported to the countries shown in 1971. Assuming that this has now increased by 50%, and a theoretical share as high as 10% from Cyprus, this would represent only a few weeks' production for a calender or spreading machine.

I.5.6

Conclusion

This project does not offer an opportunity for economic development. The manufacturing operation is capital intensive. It is impractical for a unit with one production line to be capable of meeting the requirements of the Cyprus market in terms of range, price, availability of product or fashion. This would make the operation even more dependent on export sales.

In the absence of a secure basis of production servicing a substantial home market demand, the prospects of establishing an economic export business in competition with established large scale producers are not encouraging. It is considered that there is no real prospect of a foreign manufacturer establishing production operations in Cyprus for export.

TABLE 68
IMPORTS OF PLASTIC COATED TEXTILES TO CYPRUS BY COUNTRY
OF ORIGIN 1972 - SEPTEMBER 1975
VALUE CE

COUNTRY	1972	1973	1974	1975 Jan-Sept
United Kingdom	106,948	83,215	103,940	85,826
Belgium	-	3,127	13,107	-
France	8,290	9,498	20,169	25,752
West Germany	89,463	197,232	151,256	151,617
Greece	9,633	5,758	2,847	-
Hungary	16,640	14,792	13,807	58,328
Italy	12,938	18,467	20,871	16,369
Holland	23,002	27,259	32,342	14,626
Switzerland	-	4,487	22,952	26,273
Japan	3,587	3,093	5,319	-
United States	41,825	9,112	18,427	-
Other Countries	13,153	23,125	8,972	36,326
TOTAL	325,484	399,156	414,009	415,117

SITC (R) 655.43

SOURCE: Import and Export Statistics 1973, 1974 and September 1975

TABLE 70

IMPORTS OF PLASTIC COATED TEXTILES INTO CERTAIN COUNTRIES 1970-1972VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
*U.S.A	-	-	-	
*Belgium/Luxemburg	18,768	20,131	17,563	France, West Germany
*France	19,356	22,918	26,592	West Germany, Belgium
*West Germany	31,085	38,101	40,526	Belgium, Holland
*Italy	13,915	12,615	14,621	West Germany, France
*Holland	15,093	13,450	14,191	West Germany
*Austria	7,341	9,132	8,616	West Germany
*Denmark	6,818	6,534	6,909	United Kingdom, West Germany
*Finland	5,439	4,319	4,454	United Kingdom, Sweden
*Norway	4,338	5,124	5,060	West Germany, United Kingdom
*Portugal	575	629	1,133	Switzerland
*Sweden	10,542	9,063	9,664	West Germany, United Kingdom
*Switzerland	8,564	9,021	9,796	West Germany
*U.K	23,159	29,159	31,650	West Germany
*Greece	1,014	879	809	West Germany
*Ireland	3,018	3,068	3,492	United Kingdom
*Spain	251	293	624	West Germany
Yugoslavia	1,869	1,130	1,887	Italy

* Local Manufacture

SITC (R)

655.43

SOURCE:

UN Statistics

TABLE 71

IMPORTS OF IMITATION LEATHER INTO CERTAIN COUNTRIES 1969-1971

from 14 major exporting countries (mainly OECD members)

Value '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	108	100	87	United Kingdom
Jordan	54	40	40	West Germany
Libya	80	109	73	Italy
Lebanon	594	598	1151	West Germany
Syria	317	82	208	West Germany
Egypt	21	90	119	West Germany
Sudan	118	46	143	France
S Yemen	1	5	-	Italy
Ethiopia	61	92	106	Italy
Algeria	1072	921	575	France
Morocco	344	503	526	France
Tunisia	348	496	397	France
Iran	223	344	461	West Germany
Iraq	377	267	202	France
Saudi Arabia	96	48	30	West Germany

SITC (R) 655.43

SOURCE: US Market Share Reports

I.6

LEAD PENCILS

I.6.1

Introduction

Lead pencils are included in category 895.2 of the Standard International Trade classification (revised); "pens, pencils, fountain pens, etc.," which can broadly be termed writing instruments. Lead pencils are part of the sub-group 895.23 which consists of:

'pencils (other than propelling or sliding pencils), pencil leads, slate pencils, crayons and pastels, drawing charcoals and writing and drawing chalks; tailors' and billiard chalks'.

Lead pencils and crayons probably account for the greatest volume and value within this product sector and can be considered together because they are produced by the same process and equipment.

The other large sub-group of writing instruments is 895.21 which consists of:

'fountain pens, stylograph pens and pencils (including ball-point pens and pencils) and other pens; pen holders, pencil holders and similar holders, propelling pencils and sliding pencils, parts and fittings thereof'.

Writing Instruments

This market has experienced a number of changes as traditional writing instruments were replaced by modern products. Perhaps the most significant of these changes has been the introduction of the ball point pen, which has virtually eliminated the use of pen nibs and bottled ink. A more recent development has been that of the felt-tip and fibre-tip pens, which can be used for both writing and colouring, and are either refillable or disposable. The availability of ball-point and felt-and fibre-tip pens has affected the demand for both fountain and ordinary pens in one category and pencils and crayons in the other.

The process of displacement tends to relate to the extent to which a society can afford the modern, convenient, refillable or throw away products, which are more expensive than the products which they replace.

In the higher priced quality end of the market, fountain pens are now available which utilise replaceable ink cartridges, ball points are rechargeable and are sold in sets with propelling pencils. This sector is a high value but relatively low volume business.

I.6.2

The Cyprus Market

The value of civil imports of writing instruments to Cyprus is shown in the following table. The Cyprus Government's imports are very small.

TABLE 72IMPORTS OF PENS, PENCILS AND FOUNTAIN PENS TO CYPRUS1971 - 1975 (JAN-SEPT)VALUE C£

	1971	1972	1973	1974	1975 (Jan-Sept)
Fountain pens, propelling pencils, penholders etc.	94,233	90,940	99,685	73,125	51,615
Pencils, crayons, etc.	32,804	42,537	43,176	27,160	15,727

SOURCE: Import and Export Statistics 1973, 1974 and September 1975.

This shows a general growth trend to 1973 and an understandable drop in 1974 which has continued in 1975. Assuming a constant rate of imports in 1975, the total imports for the two categories would be:

Fountain pens	.....	CE68,820
Lead pencils	.....	CE20,968

Of these two groups, the import of pencils, crayons, etc., shows the most marked decline compared with the 1973 import peak, of which it is less than half.

Tables 73 and 74 show that each category of products is obtained from eight or more countries. France, the United Kingdom and West Germany were the main suppliers of fountain pens, etc., and West Germany and Japan the principal sources of pencils, crayons, etc. Although no details are available of the various product quantities included in these tables, it may be reasonably assumed that ball-point pens make up a large proportion of the goods in Table 74, and that pencils and crayons represent the bulk of items in Table 73.

Lead Pencils

The world market for pencils is considered to be saturated and tending to decline in face of growing competition from other writing instruments. It is estimated that world production of pencils exceeds 6,000 million a year. This is achieved in over 150 factories in more than 40 countries.

Tables 75 and 76 show the import trade in pencils, crayons, etc., in European, Middle East and North African markets. West Germany is the principal supplier of pencils to the countries listed and in 1975 the two other contenders for a major share of the pencil market were Czechoslovakia and China.

TABLE 77
WESTERN EUROPE PENCIL EXPORTERS

<u>1972 - Value '000 US\$</u>	<u>'000\$</u>
West Germany	57,308
Italy	26,825
France	24,502
United Kingdom	12,786
Switzerland	6,537

SOURCE: UN Statistics

Pencils are manufactured in 12 of the 18 countries listed in Table 75 , and in 4 countries listed in Table 76 (the 5th country Syria is in process of establishing a manufacturing unit).

As world demand has stabilised and new manufacturing capacity has been established in newly developing industrial markets, the market has become more competitive especially in respect of exports. One of the pencil factories which failed to meet this competition was in Sweden, a country now dependent on imports.

I.6.3 Pencil Manufacturing

The basic elements of pencil and crayon manufacture are as follows:

- i) Specially prepared wooden slats (of which about 60% are of cedar wood), about 7¼ inches long, 3 inches wide and 3/16" thick are used for standard pencils. Some few manufacturers produce and prepare their own slats but a substantial proportion are made by specialist producers for supply in bulk as a manufacturing component. The process is very capital intensive in terms of both plant and equipment, stocks of raw and prepared materials and finished components.

- ii) Pencil leads are produced by a complex process from a mixture of graphite and special clays. Coloured leads are made from coloured pigments and hard wax.

The production of pencil leads is very capital intensive. Expensive equipment is required for preparing, mixing and kneading the clay and graphite plus furnaces and impregnating equipment and supporting laboratory facilities. A production unit for pencil and crayon leads requires a staff of about 15 including a Chemical Engineer. The potential production capacity for leads is likely to exceed the potential output of assembled pencils and crayons. This overcapacity enables those pencil manufacturing companies, which make their own leads, to offer a supply of leads to new manufacturers and to those firms which choose to concentrate on a basic assembly operation. An example of this will be the cooperation of one of the leading West German pencil manufacturers in the establishment of the new Syrian pencil factory; at least initially, the pencil and crayon leads will be supplied from Germany.

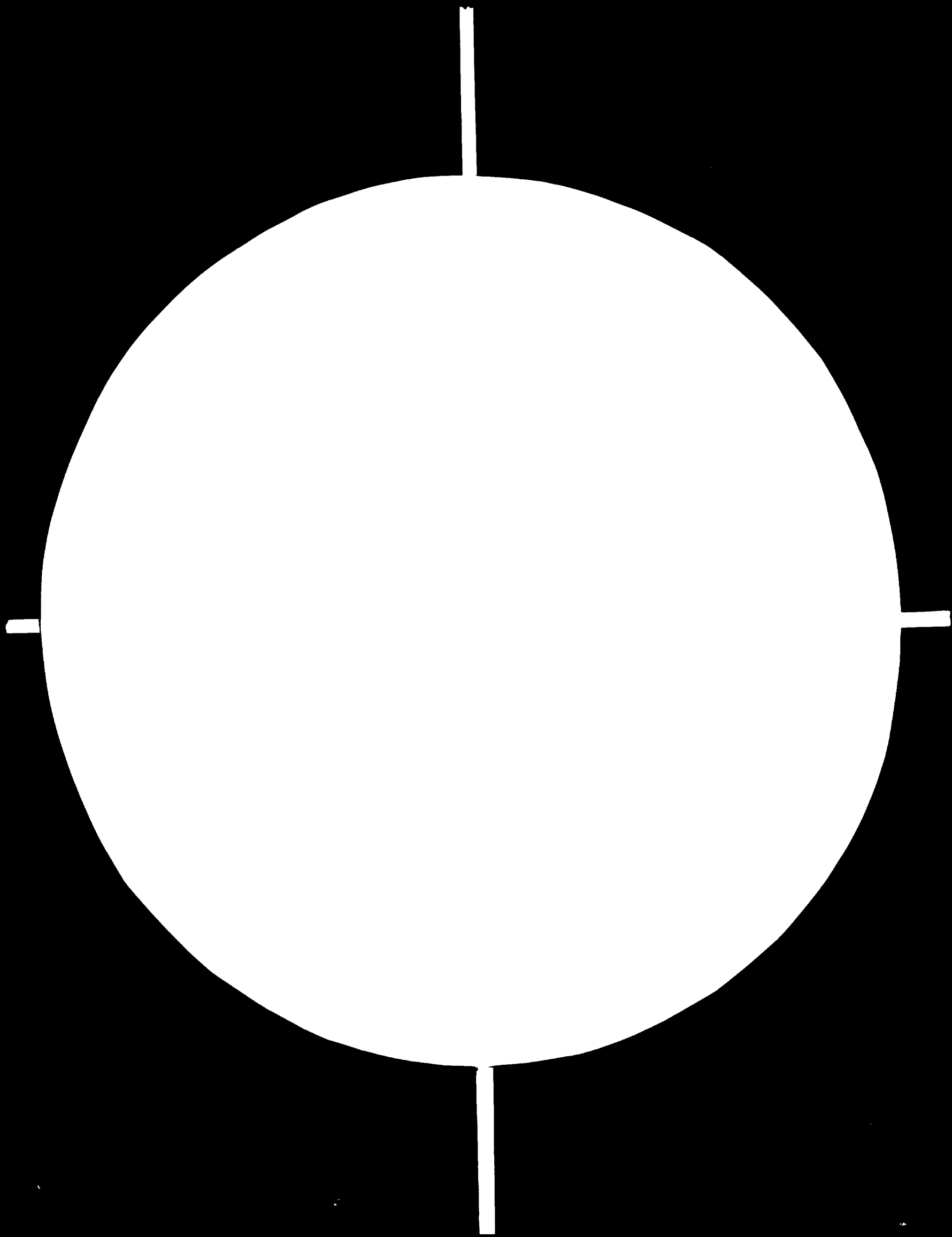
- iii) To make the pencils, grooves to the depth of half a lead's thickness are cut in one side of the wooden slats. Leads are then fixed in the grooves and another grooved slat placed on top to form a lead sandwich. The sandwich is then machined to shape the individual pencils in round, hexagonal or other forms. At this stage the pencils are processed for marketing. In the simplest and cheapest form they can be boxed as natural finish wooden pencils. More normally, the pencils are paint coated, lacquered and printed.

This basically simple process has been developed to a high level of technical sophistication. The modern factory is highly automated and a work force of 10 operatives can produce a million gross of pencils a year using the electronically controlled equipment (assuming that slats and leads are obtained from a supplier).

C-346

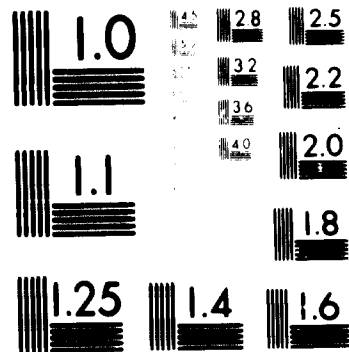


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4 OF 5

07537



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

24x

A

Smaller scale production can be achieved with less sophisticated machinery and a slightly larger work force.

Pencil manufacture is capital intensive. The small scale manufacturer is likely to be dependent on the specialist producers for the supply of wooden slats, and on large scale producers and competitors for a supply of leads. It is improbable that the local manufacture of slats or leads would prove economic and both functions are capital intensive.

In such circumstances, the small scale manufacturer is at a disadvantage in buying both slats and leads in small quantities compared with larger competitors who are able to purchase their requirements at relatively more advantageous prices. In addition, the larger manufacturers achieve economies of scale in production which contribute to the achievement of lower unit costs and potentially lower selling prices.

I.6.4

Export Potential

The pencil market appears to have reached its peak and to be in decline in some of the more affluent parts of the world. Most of the countries which are large enough to support local pencil manufacture now have a manufacturing capability and each new factory has added to the competition for sales. The strength of the major manufacturers lies in the scale of their operations, (e.g. Cyprus's annual requirements are said to be one day's production for a United States factory), and their longer established hold on the channels of distribution.

To illustrate the marketing problems, a pencil factory in Iran was established with the prospect of tariff protection. In practice, when the 1000 gross a day factory commenced production, its importing competitors had loaded nearly two years' stock into the country. Tariff protection was not given and the company never succeeded in achieving an economic level of production and sales. It was forced into liquidation. The factory has since been revived with government assistance and is supplying local market requirements at an acceptable level of production.

In such a competitive environment, the small scale manufacturer's prospects of developing an economic export business are minimal.

I.6.5 Scope for Manufacture in Cyprus

Pencil consumption in Cyprus (Table 73) is probably too small to ensure the profitable or even break-even operation of a small, 300 gross a day factory, even if it were to be given a local monopoly. It would also result in higher consumer prices for pencils to enable the factory to achieve a reasonable level of profit.

I.6.6 Conclusion

The prospects for exporting pencils are minimal and it is unlikely that the home market demand is sufficient to ensure the viability of a 300 gross a day factory, even with substantial assistance from the Government.

Similar conditions apply to the manufacture of the major alternative writing instrument, the ball point pen. This too is capital rather than labour intensive, demands a substantial output and sale to be successful, and faces competition from established large scale manufacturers.

IMPORTS OF PENCILS, CRAYONS, ETC., TO CYPRUS BY COUNTRY OF
ORIGIN 1972 - 1974 - SITC (R) 895.23 -

Value CE

COUNTRY	1972	1973	1974
United Kingdom	3,745	2,936	1,287
Bulgaria	744	704	1,272
Czechoslovakia	5,011	5,804	1,629
West Germany	8,898	13,841	9,975
Holland	307	1,275	181
Taiwan	-	1,589	783
Japan	18,782	10,063	6,208
Other Countries	5,050	6,964	5,805
TOTAL:	42,537	43,176	27,140

SITC (R) 895.23

IMPORTS OF FOUNTAIN PENS, PROPELLING PENCILS, PENHOLDERS, ETC.,
TO CYPRUS BY COUNTRY OF ORIGIN 1972 - 1974 -

Value CE

COUNTRY	1972	1973	1974
United Kingdom	26,226	26,738	13,189
France	19,791	25,990	18,806
West Germany	14,383	15,944	13,881
Italy	10,823	9,159	9,692
Holland	794	962	1,641
Japan	6,645	4,147	4,350
United States	4,343	9,064	5,900
Other Countries	7,985	7,681	5,666
TOTAL:	90,940	99,685	73,125

SITC(R) 895.21

SOURCE: Import and Export Statistics 1973 and 1974.

TABLE 75

IMPORTS OF PENCILS, CRAYONS, ETC INTO CERTAIN COUNTRIES 1970-1972

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	1,431	1,599	2,042	West Germany
Belgium/Luxemburg	1,030	1,355	1,402	"
* France	2,067	1,958	2,728	"
* West Germany	1,046	1,189	1,666	France, Japan
* Italy	1,864	1,795	2,267	West Germany
* Holland	884	1,047	1,020	"
* Austria	237	280	309	"
Denmark	370	439	613	"
Finland	741	662	849	"
Norway	478	517	581	"
* Portugal	273	247	268	"
Sweden	1,234	1,161	1,311	Japan, U.K.
* Switzerland	585	685	817	West Germany
* U.K.	1,544	1,508	1,709	"
Greece	421	435	525	"
* Ireland	209	191	253	U.K.
* Spain	833	1,076	1,073	West Germany
* Yugoslavia	171	185	207	Czechoslovakia

* Local Manufacture

SITC (R) 895.23

SOURCE : UN Statistics

IMPORTS OF PENCILS, CRAYONS, DRAWING CHARCOALS AND CHALK
INTO CERTAIN COUNTRIES 1969-1971

from 14 major exporting countries (mainly OECD members)

VALUE '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	109	76	47	West Germany
Jordan	12	19	22	West Germany
Libya	101	21	74	West Germany
Lebanon	87	107	79	West Germany
* Syria	8	4	12	West Germany
* Egypt	1	5	3	West Germany
Sudan	37	9	12	UK
South Yemen	7	7	8	Japan
Ethiopia	21	19	18	West Germany
Algeria	306	243	207	France
Morocco	23	66	51	France
Tunisia	51	26	66	West Germany
* Iran	430	475	581	West Germany
* Iraq	21	4	4	UK
Saudi Arabia	116	102	72	West Germany
* Turkey	NA	NA	NA	

SITC (R) 895.23

SOURCE: US Market Share Reports
* Local Manufacture

I.7 STILL AND FILM PROJECTORS

I.7.1 Introduction

These consumer products are included in the Standard Industrial Trade Classification (revised) 861.619 for image projectors non-cinematographic, which are still projectors used for the display of photographic slides, and 861.51 for cinematographic projectors non-cinema, which are projectors for the showing of cine films, mainly 8mm diameter.

Each category covers a wide range of products other than commercial cinema equipment which differ in size, complexity, cost, etc.

I.7.2 The Cyprus Market

Table 78 shows the imports of still and film projectors into Cyprus between 1971 and September 1975 and includes imports of still and cine cameras to which the projectors relate. On average, imports of cameras have been over 7,000 a year during this period compared with about 600 cine-cameras and film projectors.

Still-projectors are imported from more than six countries of which West Germany, Italy and Japan are the most important, (Table 79) . Japan and West Germany, (Table 80) , are the main sources of the more expensive cameras while Russia and Hong Kong supply the low priced items. This would tend to reflect the use of good quality cameras to produce slides rather than prints. On average, the value of still projector imports was about 15% of that of still cameras.

Film projectors in contrast bear a direct relation with cine-cameras and over the period 1971 - 1974 imports of each total just under 3,000 units. Table 81 shows that film projectors were imported from more than seven countries of which Japan was the principal supplier. Cine camera imports to Cyprus (Table 82) were obtained from more than four countries of which Japan is the most important. It is interesting to note that the film projectors are on average two and a half times as expensive as the cine-cameras.

I.7.3

The World Market

Photographic equipment is a relative luxury commodity. Over the past 25 years products have become more sophisticated and as prices have dropped, equipment has become available to a wider population. The modern equipment is largely designed to meet the needs of the amateur photographer. In still photography the latest innovation is 'instant' prints.

Camera manufacture is centred mainly in the United States, Japan, West Germany, East Germany and Russia, in order of value of output.

Still-projectors for use with slides are not necessarily produced by the firms which make cameras. The main producing countries are West Germany, the United States and Japan. Tables 83 and 84 show the imports of still projectors plus photo-enlargers and other equipment for printing film into European, Middle East and North African markets. The trend of imports is one of growth in most countries but the value of imports is lower than that of the other categories included in this report.

The traditional film and slide system is 35mm. A recent development has been the introduction of new film and cameras by Kodak and other manufacturers which require a new size projector to show the resulting 'slides'.

Cine-camera manufacture is more closely related to film projectors because cine film has to be projected. Japan is the largest producer of cine-cameras as shown in the following table.

TABLE 85

LEADING MANUFACTURING COUNTRIES, PRODUCTION OF CINE CAMERAS
IN UNITS 1973

Japan	1,614,000
West Germany	231,000
Russia	93,000
USA	NA

SOURCE: UN Statistics

Comparable production data for film projectors are not available but it is probable that output approximates that of the associated cine-cameras.

Film projector trading in Europe, the Middle East and North Africa is included in the totals in Tables 86 and 87. These are composite figures which include cine-cameras, film projectors and associated sound recording equipment. Taking the Cyprus experience as a guide, projectors tend to have a value about 2½ times that of cameras. As in the case of slide projectors, this is an expanding market with significantly higher sales in the more affluent markets.

Low priced cine-cameras and accessories are being produced in Hong Kong, Singapore and Malaysia.

I.7.4 Scope for Manufacture in Cyprus

There are several large and well known producers of photographic equipment, manufacturing in countries which offer incentives to attract foreign companies. Polaroid of the United States has been expanding its operations in the United Kingdom over the past ten years from a 50,000 to a 250,000 square foot factory, while the labour force has grown from 50 to 1,250 persons.

Rolleiwerke, the West German camera firm is producing a wide range of equipment in Singapore. In Ireland, the Hanimex Corporation of Australia, is investing about C£ 2.4 million to produce slide and cine-film projectors and other equipment. It is anticipated that this plant will employ 450 persons by 1980, mainly semi-skilled and skilled operatives. Prior staff training will be provided in Ireland and in Australia.

Manufacturers of products in this category require the availability of precision tool operators and skilled machinists.

I.7.5

Conclusion

While these products could be manufactured in Cyprus provided a manufacturer can be found who is looking for a new manufacturing location, the prospects of achieving this are not considered to be promising.

TABLE 78

IMPORT OF STILL AND CINE CAMERAS AND PROJECTORS TO CYPRUS, 1971-1975 (JAN-SEPT)

QUANTITY AND VALUE C£

	1971		1972		1973		1974		(Jan-Sept) 1975	
	Qty	Val	Qty	Val	Qty	Val	Qty	Val	Qty	Val
Cameras	5,334	53,885	8,061	56,364	11,020	85,114	6,209	51,694	5,921	57,452
Image Projectors	-	9,229	-	9,949	-	8,862	-	7,083	NA	NA
Cine Cameras	238	5,677	449	7,503	423	8,840	1,878	10,352	NA	NA
Cine Projectors	567	20,688	546	14,055	1,428	32,919	425	16,973	NA	NA

SOURCE: Import and Export Statistics 1973, 1974 and Sept, 1975.

TABLE 79

IMPORTS OF IMAGE PROJECTORS (NON CINE) TO CYPRUS BY COUNTRY OF ORIGIN 1972-1974

VALUE C£

	1972 Value	1973 Value .	1974 Value
United Kingdom	2,194	429	161
West Germany	2,221	2,250	2,845
Italy	614	5,726	127
Japan	2,651	2,573	1,090
United States	702	1,405	1,260
Other Countries	1,567	2,205	1,600
T O T A L	9,949	8,862	7,083

SITC (R) 861.619

SOURCE: Import and Export Statistics 1973 and 1974.

TABLE 80

IMPORTS OF PHOTOGRAPHIC CAMERAS TO CYPRUS TO COUNTRY OF ORIGIN 1972-1974Quantity and Value C£

COUNTRY	1972		1973		1974	
	Quantity	Value C£	Quantity	Value C£	Quantity	Value C£
United Kingdom	139	711	326	1,313	207	829
Hong Kong	2,851	3,596	5,021	3,040	1,442	1,885
West Germany	1,331	9,057	990	23,682	606	6,621
Russia	895	3,171	1,043	6,624	1,566	5,988
Japan	1,302	28,962	1,389	33,443	963	24,910
United States	793	5,450	1,256	6,251	142	3,231
Other Countries	750	5,417	995	10,761	1,283	8,230
T O T A L	8,061	56,364	11,020	85,014	6,209	51,694

SITC(R) 861.41

SOURCE: Import and Export Statistics 1973 and 1974

TABLE 81

IMPORTS OF CINEMATOGRAPHIC PROJECTORS (NON CINEMA) TO CYPRUS BY COUNTRY
OF ORIGIN 1972-1974 QUANTITY AND VALUE CE

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
United Kingdom	8	98	386	1,296	33	1,085
Austria	49	1,775	115	3 919	36	1,456
West Germany	33	838	34	1,936	38	603
Italy	112	1,886	240	4,560	28	1,387
Japan	302	6,621	428	11,950	296	12,007
United States	7	572	21	669	-	-
Other Countries	35	2,255	204	8,589	24	435
T O T A L	546	14,055	1,428	32,919	425	16,973

SITC (R) 861.51

SOURCE: Import and Export Statistics 1973 and 1974

TABLE 82

IMPORTS OF CINE-CAMERAS TO CYPRUS BY COUNTRY OF ORIGIN 1972 - 1974

QUANTITY AND VALUE CE

C O U N T R Y	1972		1973		1974	
	Qty	Value	Qty	Value	Qty	Value
West Germany	146	776	31	1,165	1	559
Japan	223	5,859	238	5,188	1,765	6,796
United States	16	329	11	404	50	1,543
Other Countries	64	541	143	2,083	62	1,454
T O T A L	449	7,503	423	8,840	1,878	10,352

SITC (R) 861.591

SOURCE: Import and Export Statistics 1973 and 1974

TABLE 83

IMPORT OF IMAGE PROJECTORS, ENLARGERS AND REDUCERS
EXCEPT MOTION-PICTURE, INTO CERTAIN COUNTRIES 1970-1972

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	3,468	5,265	7,375	Japan, West Germany
Belgium/Luxemburg	2,965	3,650	4,325	West Germany
* France	6,700	7,820	10,544	West Germany, U.S.A.
* West Germany	3,993	6,138	11,593	Singapore, U.S.A.
* Italy	3,255	3,861	5,012	West Germany, U.S.A.
Holland	4,241	4,697	5,849	West Germany
Austria	1,354	1,659	2,412	West Germany
Denmark	1,779	1,479	1,830	West Germany
Finland	744	917	1,435	West Germany
Norway	1,141	1,242	1,468	West Germany
Portugal	358	496	607	West Germany
Sweden	3,771	3,309	3,652	West Germany, U.S.A.
* Switzerland	3,233	3,152	4,237	West Germany, U.S.A.
* U.K.	5,899	7,769	9,713	U.S.A., West Germany
Greece	362	435	365	Australia West Germany
Ireland	152	207	250	West Germany, U.K.
Spain	1,515	1,823	2,567	West Germany, U.S.A.
Yugoslavia	433	735	349	West Germany, Czechoslovakia

* Local Manufacture

SITC (R) 861.61

SOURCE : UN Statistics

IMPORTS OF IMAGE PROJECTORS, ENLARGERS AND REDUCERS,
EXCEPT MOTION - PICTURE INTO CERTAIN COUNTRIES 1969 - 1971

from 14 major exporting countries (mainly OECD members)

VALUE '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	48	60	80	West Germany
Jordan	16	13	9	Japan, Italy
Libya	51	17	38	Italy
Lebanon	89	90	110	Switzerland
Syria	20	6	18	Italy
Egypt	14	15	43	UK
Sudan	8	6	3	West Germany
South Yemen	9	3	-	West Germany
Ethiopia	11	17	15	Japan/Germany
Algeria	83	125	62	West Germany
Morocco	51	97	118	Japan
Tunisia	61	35	18	France, Italy
Iran	129	139	168	USA
Iraq	9	16	5	West Germany
Saudi Arabia	47	39	77	West Germany

SITC (R) 861.61

SOURCE:- US Market Share Reports

IMPORTS OF MOTION PICTURE CAMERAS, PROJECTORS AND
SOUND RECORDERS INTO CERTAIN COUNTRIES 1970-1971

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
* U.S.A.	33,744	31,622	42,157	Japan, West Germany
Belgium/Luxemburg	2,995	3,952	5,779	West Germany, Japan
France	16,287	20,135	26,081	Japan, West Germany
* West Germany	17,082	29,631	43,645	Japan, Italy
* Italy	8,544	9,568	12,923	Japan, West Germany
Holland	5,917	7,193	9,735	West Germany, Japan
* Austria	1,185	2,081	2,831	West Germany, Japan
Denmark	2,218	1,990	2,005	Japan, West Germany, Austria
Finland	701	784	945	Japan, West Germany
Norway	1,554	1,835	1,866	Japan, West Germany
Portugal	616	463	607	Japan, West Germany
Sweden	4,970	4,678	5,473	Japan, Austria, West Germany
Switzerland	6,315	8,840	11,463	Austria, Japan, West Germany
* U.K.	11,681	14,101	18,444	Japan, Austria, U.S.A.
Greece	586	768	920	U.S.A., Japan, Italy
Ireland	542	412	526	U.K., U.S.A., Japan
* Spain	3,007	4,447	6,422	Japan, Austria
* Yugoslavia	1,039	1,559	1,469	West Germany, Austria, Czechoslovakia

* Local Manufacture

SITC (R) 861.5

SOURCE : UN Statistics

IMPORTS OF MOTION PICTURE CAMERAS, PROJECTORS AND SOUND RECORDERS
INTO CERTAIN COUNTRIES 1969-1971

from 14 major exporting countries (mainly OECD members)

VALUE '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	185	196	217	Japan
Jordan	62	38	36	United Kingdom
Libya	287	122	226	West Germany
Lebanon	231	173	275	United States
Syria	54	52	34	West Germany
Egypt	70	138	202	Japan
Sudan	12	14	20	United States
South Yemen	64	58	35	Japan
Ethiopia	69	60	65	Japan
Algeria	798	450	411	West Germany
Morocco	217	121	194	France
Tunisia	198	78	85	France
Iran	466	587	722	West Germany
Iraq	14	79	67	Switzerland
Saudi Arabia	266	241	331	Japan

SITC (R) 861.5

SOURCE: US Market Share Reports

I.8

PHARMACEUTICAL AND MEDICINAL PRODUCTS

I.8.1

Introduction

Medicinal and pharmaceutical products are contained in section 541.0 of the Standard International Trade Classification,(revised). This includes products for both human and animal use and is sub-divided as follows :

541.1	Vitamins and Provitamins
541.3	Penicillin, Streptomycin and other antibiotics
541.4	Vegetable alkaloids, salts and derivatives
541.5	Hormones
541.6	Glycosides, glands, sera and vaccines
541.7	Medicaments.

In each of the above categories there is a wide variety of different products.

I.8.2

The Cyprus Market

Imports of medicinal and pharmaceutical products to Cyprus, showing the principal product sub-categories, are indicated in Table 88. Total imports of these products for both human and animal use, combining the private and public (Government) sector imports, were worth :

1973	CE 2,102,996
1974	CE 2,228,175

Medicinal and pharmaceutical products for human use only were worth :

1973	CE 1,974,101
1974	CE 2,126,786

It was estimated by Government and trade sources that imports in 1975 were likely to be worth about CE 2.5 million, the increase being due to a combination of higher demand and prices.

In the pharmaceutical products sector for human use, the main product groups are as follows :

Antibiotics are imported to Cyprus from more than 9 countries (Table 89). There is no outstanding source of supply; leading suppliers include the United Kingdom, Denmark, Italy and the United States.

In terms of value, antibiotic imports represented less than 4% of pharmaceutical imports to Cyprus in 1974.

Bacterial products, Sera, Vaccines are supplied to Cyprus by more than 9 countries of which the United Kingdom is the largest consistent source. Imports of bacterial products represented about 1% of pharmaceutical imports to Cyprus in 1974.

Aspirin imports were less than 2% of pharmaceuticals imported in 1974. The main supplier was the United Kingdom (Table 89). This market sector could diminish as a consequence of controls which are being introduced in some countries, including the United States and United Kingdom, to reduce the consumption and use of aspirin products.

Other Medicaments is an extremely broad category in which includes an enormous number of products. Medicaments made up over 80% of pharmaceutical imports to Cyprus in 1974. Table 89 shows that products in this category have been imported from more than 16 countries. The main supplier is the United Kingdom followed by West Germany, Switzerland and Greece.

An indication of the range of products available in the category of Medicinal and Pharmaceutical products is the Cyprus Ministry of Health listing of about 6,000 registered products and a further 4,000 or so unregistered.

I.8.3

The World Market

The pharmaceutical market is dominated by twenty to thirty major manufacturing companies based mainly in the United States and Western Europe (Table 90). Some of these concentrate their manufacturing activity in one country, others have production facilities in other countries as appropriate (Table 91).

The pharmaceutical industry is based on a substantial investment in research and development. It has been estimated that only 1 product in 5,000 or more pharmaceutical compounds reaches the market. This product would have an origination cost of about £5 million sterling, and even then with no guarantee of either pay back or real success. During the next ten years, the researchers may only succeed in bringing to market 1 product in 8-9,000.

As an indication of the investment by pharmaceutical manufacturers, the Hoechst company employs over 500 Ph.D's in a research centre which has cost 700 million Deutchmarks over the past ten years. One third of this investment relates to pharmaceutical development.

Patent application is a reflection of both the level and success of the pharmaceutical industries research investment.

TABLE 92

INTERNATIONAL PHARMACEUTICAL PATENTS REGISTRATIONS
BY COUNTRY OF ORIGIN 1972

<u>COUNTRY OF ORIGIN</u>	<u>NUMBER OF PATENTS FILED</u>
United States	336
Germany	200
Japan	179
Switzerland	167
France	150
United Kingdom	149
Italy	64

The United States pharmaceutical industry has an advantage over its European competitors because its production is centered on a home market, which is large enough to take the major proportion of the output of a drug once it has been developed. European producers depend on exports to cover the development and production cost of the majority of pharmaceutical products. In consequence, the United States, which is the world's leading producer of pharmaceuticals has less need to export and is only third in the league of exporters :

TABLE 93

LEADING PHARMACEUTICAL EXPORTING COUNTRIES 1973

<u>COUNTRY</u>	<u>% SHARE OF WORLD EXPORTS</u>
West Germany	30.3
United Kingdom	21.3
United States	13.0
France	11.9
Holland	6.5
Switzerland	3.5

The heavy investment in research and development and in production, coupled with the cost of competing effectively in export markets has put a premium on the size of companies in the pharmaceutical business. Major international pharmaceutical companies have expanded by take-over and merger, and in consequence, the number of individual companies has substantially reduced. In France, for example, the number of pharmaceutical companies has declined since 1950, from over 2000 to about 400 currently. In Italy the reduction is somewhat less, from 1,300 to about 500 companies in the same period.

Despite the size of the leading pharmaceutical companies, none produce a range of products which enables the domination of the market in any country. Hoechst, in merging with Roussel Uclaf in 1974, became the second largest European pharmaceutical company but their combined share of the French market was only 9%. The international companies business is made up of a relatively small share of a large number of export markets. Two thirds of the United Kingdom market is shared between foreign pharmaceutical companies and 55% of the Italian market. France has over 60 subsidiaries of foreign concerns competing for a share of her market.

Pharmaceutical marketing, the promotion of patented ethical pharmaceutical products to the medical profession, the hospital services and to retail pharmacists is essential to the successful exploitation of the products of research and development. This is an expensive operation which the smaller companies find difficult to undertake effectively. The pressure to bring to market the latest results of research in order to capitalise on the patent protection during the possibly short life of the new product

make this a "fashion" market. Medical detailing encourages doctors to prescribe by trade name and to change to new products as they become available. In general, once a drug's patent protection has lapsed, world market prices fall to a level at which production may be uneconomic.

In contrast with the private sector, in which branded products are priced to recoup the costs of development, production, marketing and investment in future research, the public sector tends to obtain its supplies by competitive tender on a lowest cost basis.

Tables 94 and 95 show the imports of medicinal and pharmaceutical products to European, Middle East and North African countries. This is a large and growing business. Medicinal and pharmaceutical products are manufactured in most European countries and in five of the larger or more advanced countries in the Middle East.

Vitamins, Provitamins products exports are supplied principally from West Germany, Switzerland, Japan, France, the United States and United Kingdom. Manufacture is less widespread than in some categories with only 5 European countries producing vitamins and allied products.

Antibiotics are very capital intensive to produce and output from the continuous fermentation process is substantial. One production unit established in the United Kingdom in 1973 cost over C£10 million and employs 430 people. A further C£ 7.5 million has been invested to double the capacity. Full utilisation of capacity is essential if such a plant is to be economic and competitive. It is reported that a Middle East country which decided to produce antibiotics is faced with a product cost about 7 times that of European equivalent market prices.

The major exporters of antibiotics are the United States, Italy and the United Kingdom (over 65% between them), and local manufacture takes place in 11 European countries and 3 Middle East countries.

Hormones are manufactured in six European countries. The main sources for exports are West Germany, Holland, the United States.

Glycosides and allied products are exported mainly from the United States, West Germany and the United Kingdom and are manufactured in seven European countries.

Medicaments is the largest and most varied category of products. Most European countries and a few Middle Eastern countries manufactured products in this category for which the main exporting countries were as shown in Table 96.

TABLE 96

LEADING MEDICAMENT EXPORTING COUNTRIES 1974

<u>Country</u>	<u>Exports '000 US\$</u>
West Germany	629,451
United Kingdom	492,294
Switzerland	436,607
France	350,156
United States	283,002
Belgium/Luxemburg	193,150

SITC (R) 541.7

SOURCE: UN Statistics

The same group of countries has shared the bulk of the medicinal and pharmaceutical export business which is a reflection of the size and strength of the International companies, who divide a large proportion of the world pharmaceutical trade horizontally between them.

Greece, Iran and Turkey have each developed a pharmaceutical industry which provides for a substantial proportion of local requirements at present level. The consumption of pharmaceuticals is much lower than that in more generally advanced countries and the range of products used tends to be different. Local production in these countries has been greatly assisted by the provision of 'know how' and capital by the leading foreign drug manufacturers. An important element of pharmaceutical imports to these countries is the provision of newly developed drugs and specialities. Exports are still limited in relation to production and tend to be mainly of those products manufactured on behalf of the international companies with which local manufacturers are associated.

1.8.4 Scope for manufacture in Cyprus

There is already a limited production of solutions for the Health Service in Cyprus. It would be technically possible to develop this activity to encompass a range of primary drug industry processes, to make syrups, powders, granules, tablets and ampoules from imported raw materials using fairly simple equipment. A staff of pharmaceutical technologists and analysts would be required for production and quality control.

Export prospects for these products would be minimal. The limited local demand and dependence of imported raw materials will make exports uncompetitive with products available from larger scale manufacturers whose raw materials are also produced or are in bulk. Within Cyprus, the Health Service might be able to buy cheaper by tender from a foreign large volume producer than from such a local source. Problems would arise in attempting to develop sales through the private sector in competition with 'branded' goods.

1.8.5 Conclusions

Export oriented pharmaceutical production requires the full participation of an established international drug manufacturer to ensure that the project is viable. Reactions of the pharmaceutical companies which have been contacted were generally negative. One large company which is considering expanding its production capacity to meet export demand is evaluating the implications of several possible locations in the Middle East and has added Cyprus to their list. The major decision will be whether to expand its existing capacity or establish a new factory abroad. The project is at an early stage.

TABLE 88

IMPORTS OF MEDICINAL AND PHARMACEUTICAL PRODUCTS TO CYPRUS BY VALUE CI 1971-SEPT. 1975.

1. PRIVATE SECTOR	1971	1972	1973	1974	Jan-Sept 1975
<u>a. For Animal Feeds</u>					
Vitamins & Pro- vitamins	108,583	79,444	97,35b	77,336	246,797
Antibiotics etc	8,927	14,605	11,298	13,542	see below
Hormones	-	-	1,280	231	NA
Medicaments	11,015	14,836	18,961	10,280	NA
Total	128,525	108,885	128,895	101,389	246,797
<u>b. For Human Use</u>					
Vitamins etc.	9,351	8,908	11,141	10,808	2,892
Antibiotics etc.	27,653	14,712	27,378	60,232	a/b 33,378
Alkaloids etc.	251	2,257	960	616	NA
Hormones	1,099	1,146	3,521	4,098	NA
Glycosides etc	17	-	288	578	
Organo-therapeutic glands	1,189	150	2,864	-	NA
Bacterial Products, Vaccines	39,485	38,962	31,143	22,599	31,771
Aspirin	35,707	17,934	26,380	33,286	4,363
Other medicaments	1,276,668	1,508,485	1,710,203	1,691,324	1,262,741
Total	1,391,420	1,592,554	1,813,878,	1,823,541	1,335,145
2. PUBLIC SECTOR					
<u>For Human Use</u>					
Antibiotics etc	NA	NA	868	14,441	NA
Glycosides etc	NA	NA	18,193	17,628	NA
Medicaments	NA	NA	141,162	271,176	NA
TOTAL	NA	NA	160,223	303,245	NA

SOURCE: Import and Export Statistics 1973 and 1974. Department of Statistics.

IMPORTS OF PRINCIPAL MEDICINAL AND PHARMACEUTICAL PRODUCTS TO CYPRUS
BY COUNTRY OF ORIGIN 1972 - 1974 (Value GE)

A. Antibiotics for human use SITC (R) 541.39

COUNTRY	1972	1973	1974	Jan-Sept. 1975
United Kingdom	4,992	5,939	8,898	5,487
Belgium	-	-	-	1,770
Denmark	-	6,888	16,505	4,921
West Germany	490	1,019	1,912	-
Greece	831	6,706	2,227	4,686
Italy	2,156	2,078	8,651	1,620
Switzerland	1,994	3,209	2,719	2,306
U.S.A.	1,470	110	7,260	5,676
Other Countries	2,779	1,429	12,060	6,912
Total	14,712	27,378	60,232	33,378

B. Bacterial Products, Sera, Vaccines. SITC (R) 541.63

COUNTRY	1972	1973	1974
United Kingdom	5,799	8,540	15,675
Austria	82	-	-
France	1,752	1,386	1,103
West Germany	1,222	3,008	2,079
Hungary	330	76	-
Sweden	-	12,452	-
Switzerland	9,614	2,512	901
U.S.A.	802	794	1,097
Other Countries	19,361	2,375	1,762
Total	38,962	31,143	22,599

SOURCE: Import and Export Statistics 1973 and 1974.
 Department of Statistics.

TABLE 89 (Continued)

C. Aspirins SITC (R) 541.791.

COUNTRY	1972	1973	1974
United Kingdom	10,944	9,491	18,579
West Germany	5,346	5,293	6,452
Ireland	-	7,551	7,751
Other Countries	1,644	4,045	504
	17,934	26,380	33,286

D. Other Medicaments SITC (R) 541.799.

COUNTRY	1972	1973	1974	Jan-Sept 1975
United Kingdom	551,846	620,908	612,688	417,662
Canada	-	-	-	10,385
Belgium	46,924	43,014	54,209	29,464
Denmark	45,191	40,178	44,355	31,489
France	63,570	71,710	62,132	64,965
West Germany	179,715	247,302	223,750	164,746
Greece	83,563	118,818	110,352	72,146
Ireland	14,305	15,136	1,060	-
Italy	74,939	61,330	47,650	39,923
Netherlands	19,342	24,103	19,505	27,879
Sweden	26,288	29,977	32,683	19,864
Switzerland	191,449	219,643	226,760	131,208
Lebanon	39,354	40,026	40,180	21,233
Israel	-	-	-	10,280
Turkey	34,873	32,707	64,060	
United States	82	93,708	77,971	68,077
Other Countries	137,104	51,643	73,979	42,789
Total	1,508,485	1,710,203	1,691,324	1,152,119

SOURCE: Import and Export Statistics 1973, 1974 and Sept. 1975.
Department of Statistics.

TABLE 90

LEADING INTERNATIONAL PHARMACEUTICAL COMPANIES PATENT APPLICATIONS 1972

Company	Base Country	Patent Applications 1972	Pharmaceutical Turnover 1972 US \$ million
Hoffman La Roche	Switzerland	64	1,000 +
Merck & Co.	United States	59	NA
CIBA-Geigy	Switzerland	50	770
Sandoz	Switzerland	48	580
Upjohn	United States	43	NA
Squibb	United States	-	NA
Beecham Group	United Kingdom	-	195
Bayer AG	West Germany	-	525
Takeda	Japan	-	NA
Eli Lilly	United States	-	NA
*Hoechst	West Germany	-	715
Glaxo	United Kingdom	-	260
Boeringher Ingelheim	West Germany	-	360
ICI	United Kingdom	-	185
Abbott Laboratories	United States	-	NA
*Roussel Uclaf	France	-	375
Tsumitomo	Japan	-	NA
Fisons	United Kingdom	-	60
Rhone Poulenc	France	-	340
Bristol Myers	United States	25	NA

Patent applications for the companies between Upjohn and Bristol Myers are between 43 and 25 applications in diminishing sequence. Details were not available.

*Hoechst and Roussel Uclaf have merged to form the No.2 pharmaceutical company in Europe.

MANUFACTURING CENTRES OF SOME LEADING PHARMACEUTICAL FIRMS

<u>Pharmaceutical Company</u>	<u>Manufacturing units</u>
AB. Astra, Sweden	Sweden, France, United States and Argentina.
Bayer AG	West Germany, Belgium.
Beecham Group Ltd.	United Kingdom, United States.
Ciba Geigy	Europe, Egypt, Lebanon, Turkey.
Fisons Pharmaceuticals Ltd.	United Kingdom, serves export markets.
Glaxo Ltd.	United Kingdom, serves export markets.
Hoechst, Roussel Uclaf	West Germany and France, Italy, Greece.
ICI Pharmaceutical Ltd.	United Kingdom.
Gruppo Lepetit Sp A	Italy, Iran.
E Merck	United States, Iran.
Montedison Sp A	Italy.
Roche AG	Switzerland, Turkey.
Sandoz AG	Switzerland.
Schering AG	West Germany.
Warner Lambert Inc.	Belgium, United Kingdom.

TABLE 94
IMPORTS OF VITAMINS AND PROVITAMINS, ANTIBIOTICS, HORMONES
GLYCOSIDES, GLANDS, SERA AND MEDICAMENTS

INTO CERTAIN COUNTRIES 1970-1972

Value '000 US \$

COUNTRY	1970	1971	1972
* USA	66,934	90,808	113,267
* Belgium/Luxemburg	132,498	144,388	185,346
* France	106,512	117,016	141,292
* West Germany	150,512	168,261	202,048
* Italy	128,034	124,074	151,008
* Holland	104,446	112,330	136,864
* Austria	48,589	57,155	66,771
* Denmark	39,673	44,888	45,129
Finland	31,207	37,758	41,884
Norway	24,489	28,000	33,321
Portugal	35,718	35,047	42,550
* Sweden	64,855	75,326	94,691
* Switzerland	72,955	87,995	91,250
* U.K.	74,717	83,757	100,492
* Greece	45,460	49,984	55,420
* Ireland	26,028	26,941	34,943
* Spain	55,130	65,843	89,518
* Yugoslavia	31,020	34,719	35,196

* Local Manufacture

SITC (R) 541.1; 541.3; 541.4; 541.5; 541.6; 541.7

SOURCE : UN Statistics

TABLE 95
IMPORTS OF VITAMINS AND PROVITAMINS, ANTIBIOTICS, HORMONES
GLYCOSIDES, GLANDS, SERA AND MEDICAMENTS
INTO CERTAIN COUNTRIES

1969-1971
 from 14 major exporting countries (mainly OECD members)
 Value '000 US \$

COUNTRY	1969	1970	1971
Kuwait	4196	4114	4868
Jordan	2886	3078	3149
Libya	9587	10231	1529
*Lebanon	13916	14633	15448
Syria	10737	15766	13625
*Egypt	9349	9881	8732
Sudan	4776	6247	7766
S. Yemen	1737	1542	1350
Ethiopia	2947	3597	3707
Algeria	34232	34286	35805
Morocco	8913	8958	9730
Tunisia	5999	6166	8630
*Iran	34508	33077	34378
Iraq	13028	7324	19644
*Saudi Arabia	11725	13807	16461
*Turkey			

* Local Manufacture

SITC (R) 541.1; 541.3; 541.4; 541.5; 541.6; 541.7

SOURCE : US Market Share Reports

CHAPTER IIIMPORT SUBSTITUTION ACTIVITIES

Products falling under this group are listed in paragraph (ii) of the Extended Terms of Reference (Appendix III). Cotton yarns have been included in this group for reasons explained in Chapter I.

The manufacture of the above group of products was examined particularly in the context of the market requirements in Cyprus, with the possibility of utilising, whenever possible, locally available raw materials. Export markets for electric bulbs, fluorescent tubes and fittings were, however, also investigated for reasons of economies of scale.

II.1

COTTON YARNS

II.1.1

Introduction

Reference is made to Section II.2 of Stage I Report. A number of weaving mills were suggested and the need for the re-organisation of the whole textile and garment making sector was emphasised, together with the need of carrying out a comprehensive sectoral survey which would indicate ways and means of maximising eventually the exports of quality garments from Cyprus, augmented by specific feasibility studies.

The Consultants were subsequently asked by the Cyprus Government to examine the possibility of setting-up a cotton spinning mill. Pending the carrying out of the above survey, and feasibility studies, the Consultants' approach is to regard such a project as being purely of the import substitution type, and based their preliminary study on a number of assumptions regarding the growth of the demand for knitting and weaving yarns (cotton and other staple fibres, discontinuous) in the future in Cyprus. Exports prospects are commented upon briefly owing to the unlikelihood of the ability to compete with Egypt, Turkey and Greece (Tables 103 to 105).

II.1.2 Estimate of Potential Demand for Discontinuous
Yarns in Cyprus

The statistics for imports of cotton yarns and other textiles have been analysed with difficulty because they are incomplete and rather confusing. Before making use of them it was essential to assess their credibility.

During the years 1971 - 1973 there was a gradual expansion of imports of yarn, woven cloth and knitted fabrics. In 1974, the figures became erratic as to quantities and values, but they were remarkably complete, whereas quantities were often omitted in the returns for 1971 - 1973. So it was necessary to deduce quantities from the figures of import values in order to calculate the possible market for the output of a spinning mill.

It cannot be assumed that a spinning mill could furnish yarn for all varieties of textiles, but the possible market for both cotton and synthetic blends spun on the cotton system should be investigated.

It is immediately apparent from the figures in Tables 97 and 98 that a spinning mill may be necessary to substitute imports, as well as to activate textile weaving, knitting, finishing and garment making.

The method used to arrive at this general conclusion is to segregate those imported items that could reasonably be made from locally spun cotton and blend yarns.

Yarn of wool or animal hair, cotton sewing thread put up for retail sale, yarn of continuous synthetic fibres and yarn of discontinuous fibres put up for retail sale, have been eliminated.

The same basis for selection has been applied to woven and knitted fabrics although textile fabrics coated with textile derivatives have been included because the base cloth is made of cotton.

TABLE 97

IMPORTS OF SELECTED TEXTILES (1971-72) CIF VALUES

SITC No.	Description: Yarn	1971		1972	
		Cf	per/kg	Cf	per/kg
651,32+9	Cotton Yarn Unbleached	276,762	0.62	222,401	0.57
651,412+9	Cotton Yarn Finished	98,554	0.70	98,389	0.60
651,422+9	Cotton Yarn Other	111,244	0.63	127,384	0.70
651,64	Yarn of Discontinuous Synthetic	459,562	NA	496,607	NA
	Description: Cloth		per/sq/yd		per/sq/yd
652,139	Cotton Fabrics Woven Unbleached	85,650	0.063	75,312	0.060
652,299	Cotton Fabrics Woven Finished	1,222,383	0.131	1,385,317	0.133
653,529	Discontinuous Synthetic Fabrics Woven Finished	709,053	0.248	883,462	0.240
653,62	Other Synthetic Fabrics Woven Finished	196,625	0.232	201,684	0.257
	Description: Knitted Fabrics				
653,7	Knitted Fabrics	1,035,590	0.308	1,381,709	NA
655,43	Impregnated Fabrics	221,783	NA	325,484	NA
	Total Values CIF	4,417,206		5,197,749	

SOURCE : Import and Export Statistics

TABLE 98

IMPORTS OF SELECTED TEXTILES (1973-74) - CIF VALUES

SITC No.	Description : Yarn	1973		1974	
		Cf	per/kg	Cf	per/kg
651,32+9	Cotton Yarn Unbleached	321,918	0.72	172,636	1.02
651,412+9	Cotton Yarn Finished	253,894	0.72	268,627	0.90
651,422+9	Cotton Yarn Other	106,873	0.74	181,477	1.01
651,64	Yarn of Discontinuous Synthetic	518,984	NA	697,188	1.76
	Description : Cloth		per/sq/yd		per/sq/yd
652,139	Cotton Fabrics Woven Unbleached	43,704	0.066	96,264	0.126
652,299	Cotton Fabrics Woven Finished	1,764,205	0.155	1,612,586	0.211
653,529	Discontinuous Synthetic Fabrics Woven Finished	1,030,965	0.284	1,454,049	0.352
653,62	Rayon Synthetic Fabrics Woven Finished	279,774	0.319	236,120	0.420
653,7	Description : Knitted Fabrics	1,316,208	NA	933,392	NA
655,43	Knitted Fabrics	399,156	NA	414,009	NA
	Impregnated Fabrics				
	Total Values CIF	6,035,681		6,066,348	

SOURCE : Import and Export Statistics

It is obvious that total textile imports of this magnitude are worth close scrutiny because they are all based on yarn made from discontinuous cotton, rayon or synthetic fibres.

To convert cif value into quantities where these are incomplete or not available, the following assumptions have been made:

1 square yard of woven cloth = 125 grams = (4.4 ounces)
 1 square yard of knitted fabrics = 100 grams = (3.5 ounces)
 Price of 1 oke $\times \frac{2.2}{2.8}$ = price per kilo = C£ $\times 0.785$

For convenience, all quantities were converted into Kilos, according to the following example:

Item No. 651.39 - 1971 import value: C£ 276,762
 quality: cwt 8,832 x 112 lbs/cwt = 989,200 lbs

$\frac{276,762}{989,200}$ = C£ 0.28 per lb x 2.8 = C£ 0.784 per oke = C£ 0.62 per kilo

Reference is made to Tables 99 to 101. It will be noted that the grand totals for possible import substitution by own spun yarn during the 4 years 1971 - 1974 average 3,453,600 kilos p.a

On the assumption that 70% of imported yarns and textiles in the selected categories might be made from locally spun yarn, the first spinning mill could produce 2,417,000 kilos annually on normal treble shift, 300 days x 3 shifts = 900 shifts p.a.

Assuming an average count of 24/1 NE, the normal production per shift per spindle is 0.150 kilos.

$\frac{2,417,000 \text{ kilos p.a.}}{900 \text{ shifts}} = \frac{2,685 \text{ kilos per shift}}{0.150 \text{ kilos per spindle}}$

Number of spindles required = 18,000 approximately

TABLE 99

EQUIVALENT WEIGHT IN KILOS FOR SELECTED TEXTILE IMPORTS (1971-72)

SITC No.	1971		1972	
	Cf	Kilos	Cf	Kilos
651,32+9	276,762 ÷ 0.62	= 446,390	222,401 ÷ 0.57	= 390,177
651,412+9	98,554 ÷ 0.70	= 140,791	98,389 ÷ 0.60	= 163,982
651,422+9	111,244 ÷ 0.63	= 176,578	127,384 ÷ 0.70	= 181,977
651,64	459,562 ÷ 1.11	= 414,020	496,607 ÷ 1.31	= 379,089
Total for Yarns		1,177,779		1,115,225
652,139		169,940		156,900
652,299		1,166,396		1,301,990
653,529		357,386		460,136
653,62		105,940		94,421
Total for Woven Cloths		1,799,662		2,013,447
653,7		336,231		406,385
655,43		55,400		77,496
Total for Knitted Cloths		391,631		483,881

SOURCE : Import and Export Statistics

TABLE 100

EQUIVALENT WEIGHT IN KILOS FOR SELECTED TEXTILE IMPORTS (1973-74)

SITC No.	1973		1974	
	Cf	Kilos	Cf	Kilos
651,32+9	321,918 ÷ 0.72 =	477,108	172,636 ÷ 1.02 =	169,251
651,412+9	253,894 ÷ 0.72 =	352,631	268,627 ÷ 0.90 =	298,474
651,422+9	106,873 ÷ 0.74 =	144,423	187,477 ÷ 1.01 =	185,621
651,64	518,984 ÷ 1.38 =	376,075	696,703 ÷ 1.76 =	395,854
Total for Yarns		1,320,237		1,049,200
652,139		82,773		95,500
652,299		1,422,746		955,323
653,529		453,770		516,352
653,62		109,629		70,274
Total for Woven Cloths		2,068,918		1,637,449
653,7		355,730		233,348
655,43		86,773		81,178
Total for Knitted Cloths		442,503		314,526

SOURCE : Import and Export Statistics

TABLE 101

SUMMARY OF EQUIVALENT WEIGHTS IN KILOS FOR SELECTED TEXTILE IMPORTS

	1971	1972	1973	1974
Yarns	1,177,779	1,115,225	1,320,237	1,049,200
Woven Cloths	1,799,662	2,013,447	2,068,918	1,637,449
Knitted Cloths	391,631	483,881	442,503	314,526
Grand Total Kilos	3,369,072	3,612,553	3,831,658	3,001,175

Example of Calculation Method for Woven Cloth 1971, Code 652.139,

$$\frac{85,650 \div 0.063 \times 125}{1,000} = 169,940 \text{ kilos}$$

Example of Calculation Method for Knitted Cloth 1971, Code 653.7

$$\frac{1,035,590 \div 0.308 \times 100}{1,000} = 336,231 \text{ kilos}$$

It is pointed out that the above estimate may be low as it does not take into account a likely expansion in the exports of finished garments for which almost all the imported woven or knitted materials are used.

Looking at the possible demand from another angle, the following reasoning leads to another yarn spinning capacity.

- a) With the assumption that the weaving units in Stage I Report are set-up, their maximum output would be about 5.3 million square metres per annum, corresponding to 1,150,000 kg. Woven cloth imports in 1974 are estimated to have amounted to nearly 1,640,000. If, say, 50% of the former are included in the latter figure, then an additional 570,000 kg of yarn would theoretically be substitutable. Thus the total demand for discontinuous yarn in woven cloths would be:

$$1,640,000 + 570,000 = 2,210,000\text{kg p.a}$$

- b) Adding the latter figure to the imports of discontinuous yarns in 1974 (1,050,000kg) and to knitted cloths that year (315,000kg), a total figure of the order of 3,600,000kg is arrived at.
- c) Assuming that 70% of the above total is substitutable (discounting fine yarns), a capacity of 2,500,000kg of yarns per annum is derived. This is equivalent to a 18,000 spindles mill.

II.1.3 The Spinning Mill

It must be emphasised again that the pre-requisite for the success of a spinning operation in Cyprus is the reorganisation and expansion of the textile and garment making industry which should be the subject of further surveys and feasibility studies. Given favourable findings, the establishment of a spinning mill will itself require the carrying out of a detailed study, and should constitute a longer term development in Cyprus.

An initial capacity of 16,000 spindles could be economically feasible as was the case in several developing countries, and an expansion to 24,000 spindles in due course should be borne in mind, which is a comfortably economic size.

As said previously, the average count chosen is 24/1 which should represent the average of the 70 - 75% of imported yarns and textiles, which might be made from locally spun yarn. In actual practice, one can foresee that the mill will have to be planned for exceptional flexibility as it will obviously be required to spin a wide range of counts, qualities and blends in one medium sized building.

The count range could be from 8's -50's N.E., and both carded and combed qualities must be catered for in a variety of mixings; the main ones would be:

- a) 100% cotton of several different staple lengths and qualities, i.e. carded and combed.
- b) 100% man-made staple fibre, made from various kinds of rayon.
- c) 100% synthetic staple fibre.
- d) Blends of (a), (b) and (c), of which the most important are:
67 Polyester/33 combed cotton
50 Polyester/50 combed cotton
50 Polynosic Rayon/50 carded cotton

Flexibility complicates cotton and blend spinning; it makes it costly and requires a high standard of technical skills and a larger labour force than a one count, one quality mill.

At the start, the complications should be minimised by concentrating on a limited range of counts such as 16's - 30's made from 100% carded cotton. After running successfully on this range, which caters for the counts that are in universal demand, the small combing section can be started up. It is inevitable that the market will demand two ply and three ply twisted yarn which will lead to the initiation of Assembly Winding and Twisting.

The technology of spinning, after several decades of radical change, has reached equilibrium as far as conventional spinning is concerned. Radical change is taking place in unconventional methods of spinning, which is impinging upon the conventional route, in a limited range of counts and qualities. The first spinning mill for Cyprus should be conventional, as it is much less risky, less capital intensive and more flexible. The standard sequence of processes is as follows:

(i) Opening, Cleaning and Feeding Section

Long feeder belts are fed with a large number of cotton bales which receive a minimum of hand opening. The number of bales guarantees good mixing and homogenous blending. The cotton is fed into opening and cleaning machines which remove leaf, trash and dust.

The opened and partially cleaned cotton is fed to large capacity blenders, after which there is a final cleaning in which Kirschner beaters are used to separate the fibres for presentation to High Production Cards.

Until the recent ITMA Exhibition, the opened and cleaned cotton used to be formed into highly compressed scutcher laps which were pieced into the card feed mechanism by hand. As each lap was controlled for weight, a reasonable degree of regularity was secured at succeeding processes. It was also flexible because it was easy to change mixings by changing the laps behind the cards.

But this secular method has been superseded by direct feed of opened and cleaned cotton by chutes, which are grouped in lines of up to ten on each feeder line. The earlier production chutes were unreliable, but present models have overcome most of the difficulties with the exception of long term variations. These can be corrected by the installation of auto-levellers at the first passage of drawing, or by their application to the delivery part of the High Production Cards, which is more effective but more expensive.

Before leaving the Opening Room (which should be separated from the rest of the building for Fire Control) a short separate opening line with two Kirschner beaters should be specified for opening synthetics, which do not require cleaning. These machines feed direct into the chutes which serve the H.P. Cards that are working on synthetics. Consequently a very flexible chute feed system is essential.

(ii) High Production Carding Section

The opened material is carded efficiently and economically and a sliver is formed and wound into large capacity cans. The latest machines make little waste and all dust is extracted pneumatically as in the opening processes. Production rates depend on the raw material employed and the quality of yarn required.

Automatic waste removal is indicated at opening and H.P. carding.

(iii) Two Delivery Drawing Section

These simple and productive machines draw card sliver composed of fibres in random alignment, so that the fibres which have been drawn twice are roughly parallel to the axis of the silver. This characteristic is retained until twist is inserted into the final yarn and it accounts for the difference in strength and appearance as compared with yarn spun on the Open-End, discontinuous system.

(iv) Combing Section

Card sliver is usually pre-drawn, to facilitate combing and to avoid unnecessary waste, after which about 20 ends are rolled onto a cylindrical centre. One of these laps is fed into each comb head. The main objectives of combing are to improve strength and appearance by removing an average of 15% of short fibre. Waste removal is entirely automatic.

(v) Roving Section

Both carded and combed sliver is drawn, twisted and wound onto bobbins from which the final yarn is spun at the next process.

It should be noted that this expensive and intricate machine is not required before Open-End turbine spinning.

Modern machines are supplied with very effective drafting control by double apron system. This is a main reason why modern yarn can be much more regular than it was up to the 1960's.

(vi) Ring Spinning Section

The spinning machines represent above 50% of capital investment. Each spindle is a separate production unit, rotating at speeds up to 16,000 RPM, drafting the roving sliver to about thirty times in fineness e.g. No.1 NE Roving is used for No.30 NE yarn.

Different twist factors are used for yarn destined for piece goods, sewing thread and hosiery yarns.

The machines are cleaned automatically, and both piecing-up broken ends and doffing of full bobbins can be automated, but these costly refinements are not recommended in this case.

(vii) Assembly Winding and Twisting Section

Two or three ends are assembled into cylindrical cheeses prior to conventional twisting, which is the simplest and cheapest solution for good quality doubled yarns.

(viii) Automatic Winding Section

For low cost and high quality the best and simplest type of automatic winding is recommended.

(ix) Yarn Conditioning Section

Before packing it is advisable to augment the humidity content of the yarn; 8.5% is the internationally accepted level.

Estimated Total Investment for a 16,000 Spindle Mill

Based on 1975 estimates, the following is an indication of the capital costs:

	<u>CE</u>
Production Machinery	2,250,000
Air Conditioning	250,000
Power Distribution	130,000
Fire Protection	40,000
Steam Raising	20,000
Maintenance Section	180,000
Internal Transport	15,000
Testing Laboratory	40,000
FOB Cost	<u>2,925,000</u>
CIF Charges and Erection Costs	725,000
Total Fixed Capital (excluding land)	<u>3,650,000</u>

The mill is planned to produce about 2,000,000 kilos of 24's N.E. count on normal treble shift, i.e. 24 hours daily x 300 effective days annually.

It is expected to give employment to 200 persons including administrative and technical staff and workers.

II.1.4 Export Prospects

Because the spinning mill project is of a long term nature and dependent upon the healthy growth of downstream textile operations in Cyprus, it would be premature to envisage any appreciable exports, particularly due to the fact that the staple fibres will have to be imported, and that the size of the operation will be well below that existing in other neighbouring producing (and exporting) countries. The tables appended to this section of the report relating to exports and imports of cotton yarn are, however, given for information.

II.1.5 Conclusion

If a spinning mill could be established in Cyprus on an economic basis, it will help achieve a higher degree of efficiency and competitiveness through vertical integration of the textile industry, provided weaving is a practical proposition. It deserves serious consideration after a general survey of the sector is carried out, as stated in the Stage I Report.

TABLE 102

CYPRUS : SOURCES OF IMPORTS OF COTTON FABRICS 1972-1974Value C£

COUNTRY OF ORIGIN	1972	1973	1974
United Kingdom	222,975	241,935	186,804
India	90,439	85,122	113,939
Pakistan	195,692	104,338	242,159
Hong Kong	75,281	84,268	162,541
Austria	44,945	22,863	21,606
Belgium	31,689	59,157	64,318
Bulgaria	20,420	39,379	61,794
Czechoslovakia	122,874	173,150	173,681
France	27,616	66,108	60,990
West Germany	81,370	103,699	66,652
Greece	108,281	116,364	79,495
Hungary	66,453	104,001	124,813
Italy	39,208	82,320	24,375
Netherlands	21,818	45,609	22,058
Poland	17,148	49,755	62,875
Romania	89,787	187,823	59,010
U. S. S. R.	44,151	57,713	17,258
Japan	38,844	47,590	47,312
Others	204,864	275,133	252,716
Total	1,544,035	1,946,329	1,844,416

SOURCE: Import and Export Statistics

TABLE 103

SIGNIFICANT PROFILE DATA ON COTTON YARN PRODUCTION
IN EGYPTPure Cotton Yarn Production

	<u>Tons</u>	<u>Average Gauge</u>	<u>No. of spindles</u>
1969	162,416	24.7	1,615,226
1970	164,476	25.1	1,696,734
1971	171,026	25.3	1,762,809
1972	179,218	25.6	1,839,787
1973	182,710	25.8	1,857,085

<u>Production by gauge</u>	<u>1973</u>	<u>1972</u>
fine	4%	3%
med.	42%	40%
thick	54%	57%

It is expected that the percentage of fine gauge production will increase in the future.

Domestic Consumption of Cotton Yarn

1972	136,086	X	Tons.
1973	138,438	X	

Exports of Cotton Yarn - Tons

	<u>1971</u>	<u>1972</u>	<u>1973</u>
Arab League	2,689	1,499	1,135
Eastern Bloc.	25,425	28,961	27,436
E.E.C. & EFTA	8,053	10,442	12,181
Dollar Zone	319	1,593	397
Others	5,647	4,164	4,076
	<hr/>	<hr/>	<hr/>
	42,133	46,659	45,225

SOURCE: Confederation of Industries Yearbook.

SIGNIFICANT PROFILE DATA ON YARN PRODUCTION
IN GREECE

Cotton Yarn

Capacity: 750,000 spindles, rising to 1,200,000 spindles by 1976.

Production: 61,000 tonnes in 1973.

Exports: 27,000 tonnes " "

Wool and Discontinuous Synthetic Yarn

Combined Capacity: 350,000 spindles in 1974.

Production of Wool Yarn: 18,7000 tonnes in 1973.

Production of Synthetic Yarn: 18,000 tonnes in 1973

Exports " " " 2,340 " " "

SOURCE: 'Trade with Greece'.

TABLE 105

SIGNIFICANT PROFILE DATA ON COTTON YARN PRODUCTION
IN TURKEYCotton Yarn

Over 10 years ago Turkey was an importer, now significant exporter.

Production of Cotton Yarns - Mixed:

1962	94,124	tons
1967	136,000	"
1971	195,000	"

Average Capacity per mill: 35,000 spindles. 5 Yarn Mills have capacity of over 50,000 spindles.

Total Capacity in 1971: No. of Spindles = 1,340,000.
In 1973 further 1 million spindles was under consideration.

Cotton Yarn Exports

US \$ '000

1963	16	
1969	6826	
1970	14,887	
1971	19,105	= now largest single foreign exchange earner
1972		exports = 21,000 tons; 13,000 tons going to E.E.C.

SOURCE: 'Turkey Exports'

TABLE 106

1974 - PRODUCTION, IMPORT, EXPORT AND AVAILABLE SUPPLY OF MAN-MADE FIBRE YARN IN SELECTED COUNTRIES					
'000 tonnes					
Country	Item	Production	Import	Export	Available Supply
GREECE	Rayon & Acetate	5.4	0.3	1.5	4.2
	Non-Cellulosic	5.2	5.8	0.5	10.5
TURKEY	Rayon & Acetate	0.4	3.2	-	3.6
	Non-Cellulosic	16.0	5.3	1.5	19.8
EGYPT	Rayon & Acetate	5.2	0.6	0.5	5.3
	Non-Cellulosic	0.3	0.9	-	1.2
IRAN	Rayon & Acetate discontinuous	0.0	6.4 0.3	-	6.4 0.3
	Non-Cellulosic discontinuous	5.0	18.7 7.7	-	23.7 7.7
IRAQ	Rayon & Acetate	3.0	0.7	-	3.7
	Non-Cellulosic	-	3.9	-	3.9

SOURCE: Textile Organon

TABLE 107

IMPORTS OF GREY COTTON YARN IN BULK INTO CERTAIN COUNTRIES 1970-1972VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
*U.S.A.	-	-	-	
*Belgium/Luxemburg	20,593	28,506	40,518	France, Holland, Brazil
*France	7,060	6,852	20,384	Belgium, Greece
*West Germany	52,311	61,367	97,783	Greece, Turkey
*Italy	2,655	1,705	2,701	Turkey
*Holland	20,681	20,536	29,211	Belgium, Greece
*Austria	15,916	17,733	20,227	Switzerland
Denmark	7,218	8,497	10,356	Portugal
Finland	7,477	5,310	9,056	Portugal
Norway	4,478	3,912	4,527	Egypt
*Portugal	63	91	-	
Sweden	10,342	8,977	11,083	Portugal
*Switzerland	4,332	2,505	2,642	France
*U.K.	19,789	19,948	24,487	India, Hong Kong, Portugal
*Greece	-	82	-	
*Ireland	4,475	4,139	4,345	Portugal
*Spain	-	-	311	Brazil
*Yugoslavia	5,506	2,613	2,596	Pakistan

*Local Manufacture

SITC (R) 651.3

SOURCE: UN Statistics

TABLE 108

IMPORTS OF COTTON YARN AND THREAD (GREY) INTO CERTAIN COUNTRIES
1969-1971 VALUE '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	3	13	21	-
Jordan	3	16	15	-
Libya	8	14	1	-
Lebanon	276	451	348	-
Syria	138	5	83	UK
Egypt				
Sudan	14	22	3	
S. Yemen	2	6	n/a	
Ethiopia	176	76	63	
Algeria	1430	1230	607	France
Morocco	243	93	134	
Tunisia	452	351	504	France
Iran	21	71	59	
Iraq	16	35	19	
Saudi Arabia	1	-	12	

SITC (R) 651.3

SOURCE: US Market Share Reports

TABLE 109

IMPORTS OF COTTON YARN, BLEACHED AND DYED INTO CERTAIN COUNTRIES 1970-1972

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
*U.S.A.	11,740	15,739	21,959	Mexico, Brazil
*Belgium/Luxemburg	6,871	9,980	11,211	Italy, France
*France	3,204	5,249	8,828	Holland, Belgium, Greece
*West Germany	8,144	9,218	12,533	Italy
*Italy	17,947	8,584	19,274	Turkey
*Holland	6,697	8,137	10,252	Belgium
*Austria	1,637	1,915	2,260	Italy
*Denmark	8,668	6,906	8,670	France
*Finland	3,314	3,016	4,247	France, United Kingdom
*Norway	2,303	2,391	2,563	United Kingdom
*Portugal	305	216	390	United Kingdom
Sweden	6,051	5,911	7,162	France, Portugal
Switzerland	937	1,011	1,283	West Germany
*U.K.	3,755	4,946	6,743	Portugal
*Greece	1,921	2,377	2,700	France
*Ireland	1,199	1,992	2,282	United Kingdom
*Spain	190	188	264	France
*Yugoslavia	429	301	584	Italy

*Local Manufacture

SITC (R) 651.4

SOURCE: UN Statistics

TABLE 110

IMPORTS OF OTHER COTTON YARN AND THREAD INTO CERTAIN COUNTRIES1969-1971 VALUE '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	58	48	55	
Jordan	69	41	96	
Libya	90	128	103	Italy
Lebanon	267	297	431	France
Syria	134	65	171	U.K
Egypt	-	22	-	U.K
Sudan	734	788	610	Japan
S. Yemen	103	52	57	U.K
Ethiopia	900	750	413	Japan
Algeria	4900	5017	2853	France
Morocco	617	595	427	France
Tunisia	1534	1602	1504	France
Iran	151	322	511	Japan, West Germany
Iraq	98	47	87	U.K
Saudi Arabia	294	243	261	U.K

SITC (R) 651.4

SOURCE: US Market Share Reports

II.2 ELECTRIC LAMPS, FLUORESCENT TUBES AND FITTINGS

II.2.1 Introduction

Electric light sources are in Section 729.2 of the Standard International Trade Classification (revised), electric lamps being sub-group 729.29 and fluorescent tubes 729.21.

Lamps, lighting fittings and parts, excluding electrical parts, are in category 812.42. This covers an extremely diverse range of products which can be broadly described as general lighting fixtures and fittings.

II.2.2 The Cyprus Market

The pattern of recent imports of light sources and lighting fittings are shown in Table 111. The relative luxury element in the light fittings sector is probably reflected in the substantial fall of imports in 1975.

Electric lamp imports are obtained from more than 10 countries of which the United Kingdom was the leading supplier (Table 112). Data supplied by the Ministry of Commerce and Industry shows that, out of 850,000 light bulbs imported during 1975, 650,000 were supplied by East European countries compared with only 200,000 from Western Europe. In general, the East European products are significantly cheaper, between 50 and 60% of the price of those from Western Europe. Table 113 gives a breakdown of the light bulb imports in 1975 by bulb size which further fragments the import pattern.

Fluorescent tube imports by country of origin are shown in Table 114. Up to 1974, the bulk of imports, by value, originated from the United Kingdom. Data for 1975 imports supplied by the Ministry of Commerce and Industry indicate a reversal of this situation, with two-thirds of the imports by volume now obtained from Eastern Europe.

Imports of fluorescent tubes in 1975 were also significantly higher in value than in previous years.

Light fittings are imported from more than fourteen countries. (Table 115), mainly the United Kingdom, West Germany, Greece and Italy. A very wide range of products is included in this category.

II.2.3 The World Market

Light Sources: Available statistics for the trade in light sources combine and do not distinguish between lamps and tubes. Light sources are manufactured or assembled in a large number of countries. However, there are only a few major manufacturers, each processing their own component and material supplies as well as engineering operations.

Holland is the source of 30% of lamp and tube exports and a further 30% are made up from Japan, the United Kingdom and the United States. Table 116 shows both the scope of trade between European countries and that 13 of the 18 countries have local manufacturing resources. Six countries in the Middle East and North African countries (Table 117) manufacture locally.

Japanese manufacturers are the principal source of imports to the United States and have successfully penetrated the Middle Eastern markets in competition with their traditional European suppliers. Imports of lamp bulbs and tubes from Japan have so far achieved no significant penetration of European markets. It would seem unlikely that Japan would make a serious attempt to achieve a breakthrough in Europe without the advantage of some significant technical development on which to build a consumer franchise. The costs involved in achieving an effective distribution as a basis for a marketing and sales campaign would otherwise be prohibitive.

Britain's light bulb industry claims to be threatened by an attempt by Poland, Czechoslovakia and Hungary to 'dump' 30 million light bulbs on the British market. It is alleged that the price at which East European bulbs are being imported cannot cover the costs of materials and labour. The imported bulbs are retailing at about 60% of the equivalent local product. Eastern Europe is reported to have a massive surplus of light bulbs and of production capacity. This would limit the prospects of East European interest in setting up production in Cyprus.

In recent years, there have been a number of technological improvements in electric bulbs and tubes. At the beginning of March 1976, the American Energy Research and Development Organisation announced a development project for a long life, low consumption bulb, and Thorn Electric a longer lasting and more economic fluorescent tube. Developments of this kind could lead to significant changes in the market structure.

Light Fittings: Lamp fittings and parts are manufactured in all the countries listed in Table 118, while there is only one known manufacturing source in the Middle East countries listed in Table 119. The main exporting countries are West Germany, Holland, Italy and France.

This is a complex product field in which there is a wide range and diversity of products - fittings of many types for fluorescent tubes; lamp stands and standards; lamp shades; wall, ceiling and pendant fittings of many different materials and styles.

Although the international electrical organisations manufacture some light fittings and market a range of such items to complement their product range, the light fittings market is not dominated by a few major producers. In practice, there is a large number of small concerns engaged in the production of light fittings and in consequence international 'branding' is limited.

Light fittings fall into two main categories, utilitarian products which are promoted on the basis of price competitiveness, and consumer oriented products in which design plays an important part in exciting consumer demand.

The industry tends to be fairly labour intensive and to require rather limited skills at the operative level. This makes it suitable for consideration in a developing market.

II.2.4 Scope for Manufacture in Cyprus

Electric lamp and fluorescent tube demand

The imports of light sources in 1975 as reported by the Ministry of Commerce and Industry were 850,000 electric lamps and 300,000 fluorescent tubes. These quantities probably reflect the current consumption pattern of these products. Assuming a 50 to 70% increase by 1980 and that there are no significant technical changes which affect the nature of the products, and the level of demand, the local market would reach the following levels :

1.3 to 1.4 million electric lamps and
0.45 to 0.5 million fluorescent tubes.

Incandescent bulb and fluorescent tube manufacture: The production of glass bulbs themselves is highly capital intensive and typical machines (Corning) have outputs ranging from 10 to 25 units per second, depending on size. The glass is of a specific composition which requires a separate melt in the glass making operation which is a continuous process.

Fluorescent tube drawing installations are also characterised by a high output, normally exceeding 30 million per annum, and the glass composition is different from that of the incandescent bulb.

Light bulb assembly: The minimum economic size is a semi-automatic line with a capacity of 3-4 million units per annum. This unit would be capable of handling the assembly of General Service bulbs of 60-80 mm. in diameter and from 40-200 watts.

It would be necessary to import all the components to be assembled, blank bulbs, erected filament, support wires, lead glass rod, electrodes and metal caps with bayonet or screw fittings as appropriate. Suitable components are readily available and represent a substantial proportion of production costs (50% in Western Europe).

The main items of equipment in order of operation are a machine for glass assembly, a filament mount mill, a head seal and exhaust machine, a capping machine and filament testing unit. The complete line including

conveyors and loading equipment is estimated to cost £300,000 sterling f.o.b. UK. The operation of such a unit would require a labour force of about 30 persons.

For such a unit to be economically viable, in comparison with the products currently available in Cyprus, it will be necessary to operate the equipment at close to full capacity. This output would have to be absorbed in the domestic market. Export prospects in competition with the major manufacturers, from whom most of the Cyprus components will have been purchased, are likely to be poor.

Even assuming that the Government is prepared to grant a local monopoly for electric lamps, future demand is likely to be significantly below the production levels at which the consumers can be supplied with products at a competitive price.

Fluorescent tube assembly is more complex than that of light bulbs and requires greater skills and expertise. All components, tube blanks, cathodes, caps, flare and exhaust tubes, lead wire, mercury and fluorescent powder will have to be imported. The material costs are higher than for lamps, approaching 60% of production.

The smallest integrated unit available from manufacturers gives a capacity of 1.5 million tubes a year and can handle tubes from 2 to 8 feet in length. Such a plant would cost £900,000 sterling f.o.b. UK, and provide employment for about 30 persons.

Slower speed equipment, with a capacity more suited to the consumption in Cyprus, is available with a capacity of 0.4 to 0.5 million units a year. Total equipment cost is £600,000 sterling f.o.b. UK. However, the operating costs of the plant are about 40% higher than for the larger scale unit.

Assuming that the Government is prepared to grant a domestic monopoly to the unit, the larger assembly unit, at an efficient operating level at close to capacity output, can produce finished tubes which might be competitive in price with imported products. There are, however, no

economic prospects of exporting the surplus of local requirements. The smaller scale unit would not be capable of producing a comparably priced product, in view of the higher production costs.

More limited assembly functions are possible; one manufacturer has established a joint venture unit in Greece to cap fluorescent tubes at a rate of about 0.5 million units a year. Despite the limited nature of the operation, the tubes assembled in Greece are more expensive than the equivalent product imported from the United Kingdom.

Light Fittings

Manufacture of these items is based on fairly simple technology apart from the electrical accessories and components which are dealt with in the following section. Design, whether functional or elaborate, restrained or flamboyant has a major function in the success of many light fitting products.

Fittings for fluorescent tubes are fairly standardised units from a manufacturing standpoint although there are numerous design variations. Essentially, the fluorescent units are composed of a basic block of pressed sheet steel, a body, lid and two ends. This could be locally made and assembled. At the time of the Stage II field survey an application for a unit to produce some 100,000 fittings was made to the Ministry of Commerce and Industry (it is planned to export 70% of the production). Should this venture prove to be successful, there might be scope for developing the production of other light fittings as a combined undertaking.

Electrical Accessories

Electrical accessories include plugs, sockets, switches, bulb holders and more specialised items such as miniature circuit breakers, control gear, etc. The basic accessories are among the most mass produced items in the electrical goods field. Investment in large quantities of the most up to date production machinery must be continuous if a manufacturer is to compete in terms of quantity, quality and price.

The accessory market is complicated by the lack of an international standard to replace the five existing standards which currently apply in different parts of the world. Moreover, within any of the present standards the scope for innovation is limited to small design changes usually of a technical nature.

New products in this sector, for example light dimmers, are so expensive that their market is limited to the few really affluent countries where demand may justify the marketing costs.

Accessory manufacture uses plastic compression moulding techniques which require a substantial output from each mould to justify the mould costs, quite apart from the requirements of the business.

Production capacity for electrical accessories has been established in one or two developing countries, where the output from mass production is justified. This has led to the exporting by those countries of the basic products which have the greatest output and are therefore most profitable. Such products have the minimum technical standards necessary to meet local specifications and are being marketed at low prices in export markets.

At this stage, Cyprus demand is not likely to justify a production unit, especially one which is highly capital intensive. If the production of electrical equipment and fittings develops in the future, the viability of accessory production may be worth considering.

II.2.5

Conclusion

Light bulbs: A local assembly unit based upon equipment and materials from Western Europe would not be competitive with imports from Poland and Hungary. Export prospects are minimal.

Fluorescent Tubes: The establishment of an assembly unit is not advisable as there is insufficient scope in the domestic market for an economic scale of manufacture. Any possibility of exports could not be contemplated in competition with established suppliers to the Middle East and North African markets.

Fluorescent Fittings: A local production unit is projected. Should it prove successful, it could extend its operations to other forms of light fittings.

TABLE 111

IMPORTS OF LIGHT SOURCES TO CYPRUS 1971 - SEPT 1975VALUE C£

	1971	1972	1973	1974	1975 Jan-Sept
Fluorescent Tubes	20,814	29,934	30,802	34,126	
Electric Lamps	84,307	115,689	130,225	94,127	88,066
Lamps and Lighting fittings and parts	244,669	314,936	498,881	394,635	129,227

SOURCE: Import and Export Statistics 1973, 1974 and Sept. 1975.

TABLE 112

IMPORT OF ELECTRIC LAMPS TO CYPRUS BY COUNTRY OF ORIGIN1972 - 1974Value C£

COUNTRY	1972	1973	1974
United Kingdom	43,627	45,797	38,181
East Germany	7,718	22,246	15,514
West Germany	8,758	8,860	9,728
Hungary	18,016	11,042	14,240
Italy	4,529	6,340	2,133
Holland	3,586	4,248	4,571
Poland	7,919	5,681	2,585
Russia	13	721	6
Japan	6,174	4,241	2,257
U S A	1,626	2,872	591
Other	13,723	18,166	4,321
T O T A L	115,689	130,225	94,127

SITC (R) 729.29

SOURCE: Import and Export Statistics 1973 and 1974
Department of Statistics

TABLE 114

IMPORT OF FLUORESCENT TUBES TO CYPRUS BY COUNTRY OF ORIGIN

1972 - 1974

COUNTRY	1972	1973	1974
United Kingdom	18,177	22,504	27,596
Hungary	7,947	3,897	1,457
Italy	219	251	-
Other Countries	3,591	4,150	5,037
T O T A L	29,934	30,802	34,126

SITC (R) 729.21

SOURCE: Import and Export Statistics 1973 and 1974.
Department of Statistics.

TABLE 113

ESTIMATE OF IMPORTS OF ELECTRIC BULBS AND FLUGRESCENT TUBES TO CYPRUS 1975Quantity

Product	Source	Wattage	Quantity (units)
Electric Light Bulbs	East European	0-40	90,000
		40	90,000
		60	190,000
		75	90,000
		100	170,000
		150	15,000
	West European	0-150	200,000
		TOTAL	845,000
Fluorescent Tubes	East European	40	100,000
		65	100,000
	West European	40-65	100,000
			TOTAL	300,000

SOURCE : Estimates of the Ministry of Commerce and Industry

TABLE 115

IMPORTS OF LAMPS AND LIGHTING FITTINGS AND PARTS TO CYPRUS BY COUNTRY OF
ORIGIN 1972 - 1974

VALUE CE

C O U N T R Y	1972	1973	1974
United Kingdom	132,671	209,461	125,535
Hong Kong	4,046	3,093	9,121
Czechoslovakia	3,897	4,663	5,176
Denmark	904	2,871	1,275
East Germany	-	720	-
West Germany	60,913	82,750	87,007
Greece	47,153	100,537	63,122
Italy	28,526	48,935	59,035
Holland	5,547	17,589	7,362
Spain	2,698	3,699	7,414
Yugoslavia	1,028	-	856
Japan	5,827	4,547	1,967
Lebanon	6,280	1,164	1,077
Other Countries	15,446	18,852	25,688
T O T A L	314,936	498,881	394,635

SITC (R) 812.42

SOURCE: Import and Export Statistics 1973 and 1974

TABLE 116

IMPORTS OF ELECTRIC LAMPS INTO CERTAIN COUNTRIES

1970 - 1972

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
*U.S.A.	33,741	40,462	62,134	Japan
*Belgium/Luxemburg	14,449	19,057	22,799	Netherlands
*France	27,076	30,193	38,776	Netherlands, West Germany
*West Germany	42,019	48,813	56,176	Netherlands
*Italy	23,199	24,493	31,437	Netherlands
*Holland	34,529	34,974	53,261	Belgium/Luxemburg
*Austria	5,882	8,200	8,702	West Germany,
Denmark	9,056	10,408	10,116	Netherlands
*Finland	4,272	4,982	5,096	West Germany, Netherlands
Norway	6,001	7,813	8,197	West Germany
*Portugal	2,483	3,021	3,110	Netherlands
*Sweden	17,450	19,687	20,115	West Germany
Switzerland	9,920	10,576	12,339	West Germany
*U.K	13,655	15,659	19,292	Netherlands
*Greece	2,049	2,064	3,087	West Germany, Netherlands
Ireland	1,403	1,735	2,068	United Kingdom
*Spain	4,623	5,695	10,068	West Germany
*Yugoslavia	3,088	4,557	4,348	Hungary

* Local Manufacture

SITC (R)

729.2

SOURCE:

UN Statistics

TABLE 117

IMPORTS OF ELECTRIC LAMPS INTO CERTAIN COUNTRIES

1969-1971 VALUE '000 US \$

from 14 major exporting countries (mainly OECD members)

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	517	301	254	United Kingdom
Jordan	79	74	77	United Kingdom
Libya	490	333	404	West Germany, Italy
Lebanon	429	413	532	Japan, France
Syria	125	65	115	Japan
*Egypt	246	156	202	United Kingdom
Sudan	114	116	84	United Kingdom
S. Yemen	45	58	27	Japan
Ethiopia	86	54	58	West Germany, United Kingdom
*Algeria	1,224	1,469	851	France, Italy
Morocco	515	686	591	France
*Tunisia	340	436	226	France
*Iran	1,595	1,659	2,996	West Germany, United Kingdom
*Iraq	363	333	584	United Kingdom
*Saudi Arabia	507	584	556	Japan
*Turkey				

* Local manufacture

SITC (R) 729.2

SOURCE: US Market Share Report

TABLE 118

IMPORTS OF LAMPS AND LIGHTING FITTING AND PARTS OF BASE METAL

VALUE '000 US \$

COUNTRY	1970	1971	1972	Principal Supplier
*U.S.A	35,174	36,186	52,443	Spain, Japan
*Belgium/Luxenburg	13,876	17,893	21,395	West Germany
*France	25,840	29,276	38,969	West Germany
*West Germany	16,181	21,114	28,601	Italy
*Italy	5,223	5,668	7,690	West Germany
*Holland	21,027	27,179	32,241	West Germany
*Austria	3,449	4,874	6,726	West Germany
*Denmark	5,975	6,063	6,619	Sweden
*Finland	2,399	2,319	2,740	Sweden
*Norway	4,223	5,041	6,555	Sweden
*Portugal	1,156	1,288	1,986	West Germany
*Sweden	8,378	8,944	10,888	Norway
*Switzerland	6,687	7,720	10,526	West Germany
*U.K.	6,767	9,520	17,696	West Germany
*Greece	948	774	1,063	West Germany
*Ireland	1,881	2,231	2,565	United Kingdom
*Spain	1,988	2,306	3,352	West Germany
*Yugoslavia	1,804	1,785	1,956	Italy

* Local Manufacture

SITC(R) 812.42

SOURCE: UN Statistics

TABLE 119

IMPORTS OF LAMP FITTINGS AND PARTS INTO CERTAIN COUNTRIES
1969-1971 VALUE '000 US \$

COUNTRY	1969	1970	1971	Principal Supplier
Kuwait	1182	1270	1040	West Germany, U.K
Jordan	274	144	153	U.K
Libya	1257	1102	1304	Italy
* Lebanon	626	692	934	Italy
Syria	92	38	110	Netherlands
Egypt	649	382	195	Netherlands
Sudan	144	118	39	U.K
S. Yemen	105	85	71	Netherlands
Ethiopia	363	330	416	United States
Algeria	1086	1715	1854	France
Morocco	878	1179	1284	France
Tunisia	561	295	319	France
Iran	1872	2070	2937	West Germany, U.K France
Iraq	367	291	593	U.K
Saudi Arabia	1577	1756	1871	United States, West Germany, Japan

SITC (R) 812.41

SOURCE: US Market Share Report

II.3. FORMULATED PESTICIDES

II.3.1 Present Situation

A wide variety of branded, formulated pesticides are imported into Cyprus through private agents and the Co-operative Central Bank. The latter handles a large proportion of the market and formulates compounds from imported active ingredients. Three other formulators also produce and pack finished pesticides under licence.

In 1974, the total Cyprus market was valued at C£ 600,000; the share of the Co-operative was about C£ 375,000, excluding sulphur dust (imported). The large farms aggregating some 6,000 donums (mainly in the Limassol area) which grow intensive crops are estimated to import about C£ 200,000 worth of pesticides through international tendering.

Table 120 shows the consumption of pesticides by category in 1972 and 1973 and the projected requirements in 1977, as estimated by the Plant Protection Division of the Ministry of Agriculture, which controls the registration of pesticides and their quality. The Co-operative provides an extension service to farmers for the application of pesticides.

In the opinion of the Co-operative, the estimates of the Plant Protection for 1977 are on the high side, particularly with regard to the organophosphorous insecticides, citrus oils and organic fungicides. No precise estimates were, however, provided.

According to the Co-operative, pesticides were used mainly in the following forms in 1974:

Dust:	70%
Wettable powder:	20%
Emulsion concentrates	10%

New pesticides are being introduced to displace less active established ones or organochlorine compounds for toxicity reasons. As a result of detailed discussions with the Co-operative, the following estimates of the probable demand in Cyprus in 1977 were arrived at

	<u>tons</u>
Dusts	1,200
Wettable powders	300
Emulsion concentrates	100

Existing Formulation Capacity

The Co-operative Central Bank has a plant equipped with a 1 ton/hour ribbon mixer and 0.5 ton/hour horizontal mixer for dusts and wettable powders. A separate grinding/mixing line for weedkillers also exists, with a capacity of 1 ton/hour. A packaging plant for powders and a filling machine for bottles (emulsion concentrates are imported by them in bulk) complete the installations.

Two other formulators have a combined capacity of 1.5 ton/hour for dusts and about 1.5 ton/hour for emulsion concentrate. Thus, the total installed capacity in the Government controlled area is of the order of 9,000 tons/annum for powdered formulations and 3,600 tons/annum for liquid formulations, when operating 8 hours a day, 300 days a year; this is well in excess of the future demand for many years to come.

With regard to household pesticides, there are 15 brands of aerosol insecticides produced in Cyprus by several concerns, two major units being located in Limassol. Combined capacity is stated to be ample.

One brand has a 50% market share and two others 15-20% each. The majority of the packs are 12 ounce cans. Only 5% of the total sales of aerosol insecticide are imported.

Aerosol sales fluctuated between 850,000 and 1,200,000 cans annually between 1973 and 1975, and the manufacturers' forecast for 1975 is about 1 million units.

Export Prospects

Cyprus imports not only finished branded pesticide products, but also sulphur powder from Greece as well as inert diluents such as talc from Greece and elsewhere. Small quantities of local chalk are used in certain formulations, but this filler is not usually compatible with many active ingredients because of its alkalinity thus giving unstable products.

There are no other inert diluents in Cyprus, such as kaolin and talc, but the latter is allegedly reported to exist in the Limassol area. A sample was visually inspected, but did not appear to resemble talcum powder. The matter is being taken-up by the Geology Department of the Ministry of Commerce and Industry.

For liquid formulations, solvents such as xylene and toluene, and white oil are not produced locally. Thus, Cyprus would have no particular advantage in exporting formulated pesticides, as practically all the ingredients would have to be imported.

Competition would come first from Greece which exported about 128 million drachmes worth of formulated pesticides, as compared with 1 million drachmes in 1972. There are five formulating plants, one of the venture being particularly active, with a total sales record in 1975/76 reportedly of the order of 2,000 million drachmes, including deliveries to the Agricultural Bank of Greece, exports to Pakistan, Syria, Tunisia, Jordan and Iraq. A new unit is being installed in the North. A large Swiss Group which has a plant in Pakistan, is reported to be installing another formulation unit in Greece.

Greece possess talc deposits and aromatics are available from the petrochemical Complex in Salonika, and has a substantial local market for pesticides.

Conclusion

It appears from the above that, until such time as the availability in Cyprus of suitable inert diluents or "carriers" is ascertained, there is no case for export-oriented operations for formulated pesticides. Local formulation capacity for the home market is ample.

TABLE 120

CONSUMPTION OF PESTICIDES (1972-1973) AND
ESTIMATED REQUIREMENTS IN 1977

(tons of active ingredient)

	1972	1973	1977
Herbicides	105	104.5	38
Insecticides			
Organophosphorous	136.5	149.5	113
Organochlorine	43	39.5	5
Carbamate	4	4.5	6
Other (a)	503.5	526	383
Fungicides			
Inorganic (b)	2,225.5	2,325.5	2,453.5
Organic (contact)	270	290	265
Organic (systemic)	-	0.5	1

SOURCE: Ministry of Agriculture (Plant Protection)

(a) Mainly winter and summer oils for citrus

(b) Practically all sulphur dust for vines (powdery mildew)

TABLE 121

CONSUMPTION OF PESTICIDES IN CYPRUS

	Tonnes per year		
	1971	1972	1973
DDT	46.6	19.7	23.0
BHC	33.5	38.9	39.0
Aldrin	10.8	5.6	8.0
Other Chlorinated Hydrocarbons	1.5	1.1	1.1
Parathion	59.4	58.9	59.0
Malathion	14.1	29.2	29.0
Others	37.6	28.4	28.0
Arsenicals	3.9	1.2	1.2
Carbamates	2.5	2.6	2.6
Dinitro Compounds	2.1	3.7	3.8
Mineral Oils	296.0	476.9	500.0
Other Insecticides	15.8	34.1	34.0
Sulphur	1544.5	2030.0	2000.0
Copper Compounds	16.1	8.7	10.0
Dithiocarbomates	217.7	159.8	160.0
Other Fungicides	14.9	10.7	11.0
2,4-D	58.6	70.3	70.0
MCPA	17.5	23.0	25.0
Others	7.1	6.8	7.0
Fumigants	5.6	12.8	13.0
Rodenticides	2.5	3.8	4.0

SOURCE : FAO Statistics

TABLE 122

IMPORTS OF INSECTICIDES, FUNGICIDES, DISINFECTANTS
(including sheep and cattle dressings) AND SIMILAR PREPARATIONS INTO CYPRUS:
1972-1974 QUANTITY AND VALUE

Product Category	1972		1973		1974		1975(9 months)	
	Tonnes	Cf	Tonnes	Cf	Tonnes	Cf	Tonnes	Cf
Domestic Insecticides	45,75	14,878	40.6	21,805	29.4	18,861	22.77	19,324
Disinfectants	107.3	18,534	171.45	26,784	81.25	15,471	29.96	6,530
Insecticides	937.15	254,375	788.25	243,001	422.7	251,403	101.33	102,847
Fungicides	255.95	65,827	168.25	56,252	218.05	100,541	79.66	55,177
Weed-killers	116.6	171,906	83.95	116,235	45.4	44,819	21.6	25,419
Others	135.95	131,281	110.0	68,733	43.8	32,344	26.17	27,520
T O T A L	1,598.7	656,801	1,362.5	532,090	840.6	463,439	281.49	236,817

SITC (R) 599.2

SOURCE : Import and Export Statistics

TABLE 123

PESTICIDES: SOURCES OF IMPORTS INTO CYPRUS 1972-1974VALUE C£

COUNTRY OF ORIGIN	1972	1973	1974
United Kingdom	68,397	88,908	76,893
France	15,904	27,963	3,895
West Germany	38,897	54,188	46,836
Greece	4,463	17,752	79,579
Italy	50,800	15,261	39,054
Netherlands	26,638	26,684	19,319
Spain	16,858	31,258	14,396
Switzerland	53,083	61,219	54,688
Israel	44,999	32,474	68,959
U.S.A.	287,632	116,075	31,837
Others *	59,130	60,308	27,983
T O T A L	656,801	532,090	463,439

* mainly Belgium, Denmark, Japan, Bulgaria and E.Germany

SOURCE : Import and Export Statistics

TABLE 124

IMPORTS OF INSECTICIDES, FUNGICIDES & DISINFECTANTS
INTO CERTAIN COUNTRIES

1969 - 1971

From 14 major exporting countries (mainly OECD members)

VALUE '000 US \$

C O U N T R Y	1969	1970	1971	Principal Supplier
Kuwait	542	383	455	Netherlands
Jordan	476	373	412	United Kingdom
Libya	1806	1843	3007	United Kingdom
Lebanon	1559	1943	2513	France
Syria	586	369	557	France
*Egypt	11545	19510	19807	Switzerland
Sudan	5721	5074	10059	France
S. Yemen	201	165	87	United Kingdom
Ethiopia	1254	878	1483	Italy
*Algeria	2800	5558	5504	France
Morocco	2702	3249	3219	France
*Tunisia	843	636	762	France
Iran	3955	3727	5100	West Germany
Iraq	1315	1011	845	United Kingdom
Saudi Arabia	1126	1131	1602	United Kingdom

* Local manufacture

SITC (R) 599.2

SOURCE : US Market Share Reports

II.4

MARBLE CHIPS

II.4.1

Past Trends and Present Situation

The production of marble fell appreciably over the past two years due to the loss of the Kyrenia range quarries to the Turkish occupied area:

TABLE 125PRODUCTION OF MARBLE IN CYPRUS 1970-1975

1970	43,110 long tons
1971	32,680 short tons
1972	56,200 short tons
1973	50,000 short tons
1974	38,900 long tons
1975 (Jan-Aug)	14,000 short tons

SOURCE: Ministry of Commerce and Industry

The production of Mosaic Tiles over the same period is given in the table below:

TABLE 126PRODUCTION OF MOSAIC TILES

	m^2	Gross output, Cf
1970	910,000	NA
1971	968,000	NA
1972	989,000	1,868,000
1973	1,131,000	2,310,000
1974	715,000	1,787,000 (est)
1975 (Jan-Aug)	190,000	NA

SOURCE: Ministry of Commerce and Industry

Marble chips are used in a proportion averaging 50% by weight in mosaic tiles. The decline in the production of the latter is due to the loss of the Kyrenia range as well as in the decline of the building industry.

Before the invasion, there were over 30 mosaic tile factories and some 20 now remain in the Government controlled area. They are all working well under capacity. One of them alone near Nicosia is capable of producing over 100,000m² per annum on a single shift basis.

Three quarries are operating the deposits in the Paphos area. A limited range of colours exists (as opposed to the Kyrenia quarries), white, orange-red, red and black. The latter two are on the soft side and are unsuitable for tile making. These quarries sell only chips (C£ 0.300 per 30kg paper bag in 1975, which is high compared with previous prices). There is only one marble slab producer in Limassol who uses Paphos marble.

Imports of marble chips and stones would be prohibitively costly due to high freight charges and import duties (the latter amounting to 28% if imported from Greece). The mosaic tile industry is in a critical situation to the extent that a leading manufacturer intends to set-up a production unit in one of the Arab Emirate States using local marble stone.

Discussions with the Geology Department revealed their interest in the exploitation of various hard stones occurring mainly in the Troodos range and the Limassol forest. These include Gabbro (a type of granite) with various colourations and granulation (e.g. Granophyre characterised by fine granulation, with blackspots on a whitish background), Serpentine in vast quantities and Harsbugite which is ideally suited for facings after polishing and sanding. All these materials could be converted into slabs, cubes for mosaic tiles and building aggregates.

Conclusion

A thorough geological survey would be required to identify possible substitutes for marble and aggregates in general. It is understood that UNIDO is envisaging to assist in the carrying out of such a survey which would be valuable to the building industry as a whole.

CHAPTER III

THE DEVELOPMENT OF EXPORT-ORIENTED INDUSTRIES UNDER REVIEW

The objectives of the Government of Cyprus are to encourage the development of industrialisation in Cyprus, to provide employment for the substantial number of unemployed and refugees, to develop an industrial work force which has learnt new technical skills, and to stimulate and expand the national economy. In achieving these objectives, the Government wishes to provide scope and opportunities for the investment of available private capital in new industrial developments.

Three methods, not necessarily mutually exclusive, can be considered to implement the development of export oriented industrial activity :

- 1) local initiative and enterprise;
- ii) manufacturing under licence;
- iii) foreign companies manufacturing in Cyprus.

III.1

LOCAL INITIATIVE AND ENTERPRISE

There is scope for local entrepreneurs to establish manufacturing operations within the product fields under consideration as demonstrated by the keen interest shown by several entrepreneurs.

Consumer goods marketing, like engineering, is still at an early stage of development in Cyprus. The marketing strategy to establish Cyprus products in export markets will require research, planning and thorough and efficient implementation. Target markets must be identified, distribution organised, consumer advertising and promotion designed to compete effectively with that of rival manufacturers, and provision made for after-sales service. In the consumer goods market, in which products

are promoted under a 'brand' name, this must be established in each market. A product launch in the mass consumer market presents several problems :

- i) the scale of production, distribution and advertising must be large enough to achieve an impact and meet anticipated demand;
- ii) the distributive trade must be persuaded to stock the product and that it will be sold for them by the consumer promotional campaign which is planned;
- iii) adequate stocks must be available for national or regional launch;
- iv) advertising and promotion are likely to be a major initial expense (investment) and must be maintained to create a consumer franchise for the product and a base for future growth;
- v) the break-even point for an operation of this type in the advance consumer markets may take several years to achieve.

Alternative strategies may be feasible and less demanding of financial investment but, if the prime objective is the development of an export oriented production unit in these highly competitive product fields, much more will be required than putting the marketing in the hands of local distributors. The motivation must come from the producer because the corollary to mass production and high capital investment is high sales volume, essential to profitability and, in adverse circumstances, to survival.

This argument is not designed to deter industrial development initiated by the entrepreneurs of Cyprus. Provided that the target is carefully selected to avoid the well supplied and overcompetitive sectors, and it is accepted that progress will be slow, such development should be encouraged where the project looks feasible. Such projects are unlikely to meet the Government of Cyprus' objectives of employment and industrial growth at a speed or time to produce results when they are most needed.

III.2

MANUFACTURING UNDER LICENCE

Manufacture under licence resolves one of the problems facing local entrepreneurs by providing established products and the technology necessary to produce them. In a licensing situation, it is usually possible to obtain additional assistance from the licensor in respect of management and training.

Licensing has the major disadvantage that it rarely extends to the right to compete in export markets. Manufacturers are reluctant to undertake overseas operations or to licence production which detracts from the potential to supply products from the capacity of existing factories. Licensing tends to be either a means to extend production and supply capability when capital for such expansion is limited (a form of franchising), or a method of penetrating a market, or retaining a presence in a market, in which it is not possible or desirable to make a direct investment. The benefit to the licensor is a licence fee or royalty payment coupled with the continued existence of its branded or patented product in that market.

Most companies prefer to control production and sales to maximise the return on investment. For this reason, licensees rarely get access to overseas markets for export sales. In the event that such access is available 'under licence', it is probable that the export markets have not been pioneered by the licensor. A licensed manufacturer in Cyprus would then have the advantage of a good technical product but would face the problem of marketing it in export markets at a competitive price with the need, as already outlined, to establish distribution and a consumer franchise. This would entail launch costs and a delay before break-even is achieved during which the risk factor would be high.

III.3

EXPORT-ORIENTED MANUFACTURE BY FOREIGN COMPANIES

The best method of achieving the Government objective is through the encouragement of foreign manufacturers to establish factories in Cyprus to service consumer demand for their products in export markets. Any benefit obtained in supplying local demand in Cyprus would be rather incidental to exporting.

Cyprus is not the only country seeking to establish an export-oriented industrial capability. A number of countries have already succeeded in promoting rapid industrial growth; of these several are considered elsewhere in this Report, namely Ireland, Malta and Singapore. In a competitive situation, the inducements offered to influence manufacturers to select Cyprus rather than one of several alternatives must balance the necessary and the expedient. Ideally, any scheme should make provision for the participation of local capital in an export oriented production operation in Cyprus. This might be a useful incentive to foreign manufacturers and an alternative to local investors who are looking for industrial investment opportunities.

Export industry development incentives have the possible disadvantage that manufacturers can leave a country once the benefits are reduced or terminate. In practice, there may also be occasions on which a manufacturer may withdraw from a project due to the vagaries of world trade which affect activities in other parts of the world. Overseas operations tend to be the first to suffer in a period of retrenchment.

The provision of competitive incentives, coupled with the effective promotion of the attractions of Cyprus as a manufacturing centre, offers the best method of achieving the Government's objectives. Industrial developments by local entrepreneurs and by means of licensing can be pursued in parallel, but neither offers a real alternative to the foreign manufacturer who requires production to supply an export demand which he has already created.

There are two essential elements for successful competition in the world trade in engineering products :

- i) economies of large scale production;
- ii) technological superiority.

In the consumer product field, Cyprus is too small a market for a large scale production unit independent of foreign resources to provide a base from which to develop an export business in highly competitive markets.

Greece has developed local manufacture in a number of the product fields under consideration. This has been achieved both with the assistance of leading foreign manufacturing companies and independently. The scale of production has provided scope for export development (often subsidised) but the comments of distributors and users in Cyprus are revealing ;

- i) Greek refrigerators - "not competitive with Italian models in price and quality";
- ii) Greek imitation leather - "good quality but too expensive".

It may be difficult to establish an engineering operation in Cyprus with its limited local demand and lack of technological advantages even with the assistance of protection. Protection would facilitate local manufacture which, initially at least, is likely to offer lower quality products at a higher price, in comparison with the free choice of imported goods.

III.4

POTENTIAL EXPORT MARKETS

Europe is the largest and most attractive in the vicinity of Cyprus. Its living standards are generally high and the demand for consumer goods is enormous. In the European Economic Community (EEC), there are almost 300 million consumers, compared with about 100 million in the Middle East and North Africa.

The EEC is a major outlet for Cyprus products. As an Associate Member of the EEC, Cyprus enjoys a preference in respect of manufactured goods of non-agricultural origin, and is engaged in progressive tariff reductions relative to EEC countries. This could be advantageous for manufacturers based outside the EEC, who are interested in access to the European consumer markets. American and Japanese manufacturers might use Cyprus as a point of access to Europe.

The Middle East and North African markets are at an earlier stage of development than those of Europe. Oil wealth is the basis for accelerated progress in a number of countries, but in general the standard of living of the majority of the population is low compared with European standards. The oil rich countries are investing in new industrial and public services development and in several cases producing consumer goods locally.

Cyprus has friendly relations with most Middle East countries. However, in individual states, local industrial development is protected from outside competition and there is a growing inter-dependence which could develop into a system of 'Arab preference'.

III.5 CONTACTS WITH ORGANISATIONS ENGAGED IN MANUFACTURE AND EXPORT MARKETING OF PRODUCTS UNDER REVIEW

To provide a realistic commercial perspective in respect of the various projects under consideration, it was agreed with the Ministry of Commerce and Industry to contact a number of appropriate manufacturing companies. In the course of the study, contact has been made with about 40 manufacturers selected by virtue of their international standing, as leaders in their product field or as well informed participants in a particular market (see Appendix II).

The object of these contacts and subsequent discussions was :

- i) to evaluate the merits of the proposition in the context of the manufacturers' commercial experience;
- ii) to define the circumstances and conditions in which a firm might be prepared to engage in manufacture outside its established centres and in particular in Cyprus for export;
- iii) to identify the type of organisation which might be attracted by this proposition.

While it was hoped that the contacts would produce some positive interest in opportunities in Cyprus, this was not unfortunately the case. Many of the manufacturers proved most helpful in discussing the proposition.

Responses to the general enquiry directed by the Government of Cyprus through the medium of the Commercial Representatives of a number of countries have been slow in coming.

The consensus of opinion relating to the proposition to establish export oriented industries in Cyprus is summarised below.

The local market was considered inadequate to provide a basis of demand on which to develop an economic and competitive new export business from Cyprus. This would be no constraint in a project designed primarily to service an already established export market demand from Cyprus.

Labour: Quantity and availability were considered to be of greater significance than cheapness. While it was accepted that wages in Cyprus were low compared with most European countries, this was secondary in the final equation to the question of productivity. Cheap labour can be affected by :

- i) the low productivity of labour which lacks previous experience and traditions of work in an industrial environment;
- ii) exceptional cost of training, supervision and management, which are incurred at least during the initial development of a project;
- iii) loss and wastage in the production process tends to be high during the period of project development.

In the context of labour availability, concern was expressed about the possible form and consequent effects of a solution to the Cyprus problem. A change in the status quo, now or in the future could end, or seriously diminish the surplus of labour.

III.5.1

Favourable Factors

Those industrial respondents with a knowledge of Cyprus agreed that the country has a number of advantages to offer :

- i) it is well organised and devoted to 'free enterprise';

- ii) Cypriots have a reputation for their entrepreneurial capability;
- iii) the English language is generally spoken and well understood;
- iv) the climate is pleasant.

III.6

INDUSTRIAL DEVELOPMENT INCENTIVES

A number of companies were interested to learn of the incentives available to manufacturers and investors in Cyprus. Several companies are evaluating the inducements in relation to possible future projects.

The incentives offered by the Government of Cyprus, as they now stand, were on occasion compared unfavourably with competitive schemes. Industrial development has been accorded a high priority in a number of countries, both developing and developed, and a major factor in their achievement has been the inducements offered to investors and manufacturers. In view of the significance of incentive schemes to the achievement of the Cyprus Government objectives, the industrial development programmes of Cyprus, the United Kingdom, Ireland, Malta and Singapore have been examined. Table 126 outlines the incentives available in the various countries and illustrates the competitive attractions available to manufacturers.

TABLE 126

COMPARISON OF INDUSTRIAL INCENTIVES OFFERED IN CYPRUS, REPUBLIC OF IRELAND, UNITED KINGDOM, MALTA AND SINGAPORE

INCENTIVE	CYPRUS	IRELAND	UNITED KINGDOM (Areas of Expansion)	MALTA	SINGAPORE
1. INVESTMENT GRANTS	None	Grants in designated areas (mainly N. Ireland) (a) 35-50% for small scale industries, employing less than 50 persons with a fixed asset investment below £100,000 *(b) 35-50% where investment is less than £1 million or below £10,000 per employee *(c) Incentives negotiated for larger or capital intensive projects.	Rates of grant in development areas: - Plant and machinery 20-22%, 30% in N. Ireland. - Buildings 20-22%, 30-40% in N. Ireland	None	None
2. LOANS	Interest on loans from Cyprus Development Bank is deferred the first two years.	Loan guarantees and subsidies are available in respect of capital investment borrowing.	Concessional government loans (usually at 3% below commercial rates).	Subsidy up to 50% of the rate of interest negotiated on loans from local banks.	Government loans at attractive rates for establishing high technology industry. Equity participation considered.
3. CAPITAL ALLOWANCES					
(a) Depreciation	Accelerated depreciation of 100% allowed for capital investment if within 3 years of 1/1/75. Extendable	Accelerated depreciation of 100% permitted in designated areas.	Accelerated depreciation permitted throughout the United Kingdom of 100%.	Depreciation over 6 years.	Accelerated depreciation over 3 years.
(b) Investment Allowance	Investment allowances of 30% on plant & machinery 25% on hotel buildings 20% on industrial buildings	Investment allowances of 20% on plant & machinery in designated areas up to 1977.	No investment allowances.	Investment allowances of 20% on plant & machinery.	None
(c) Export Earnings	3% of export earnings, arising out of domestic manufacture, are tax exempt. This for an initial period of 5 years from 11/7/75, and may be extended.	Proportion of profits attributable to export trade are tax exempt up to 1990.	No concessions on export earnings.	None	Profits on export trade taxed at concessionary rate of 5% for first 5 years, when export sales over \$100,000 and 20% of turnover. Concessionary period of 15 years when capital investment is \$5 150 million. Latter exemption permitted at a level of \$5 150 million when over 5% of share capital owned by Singapore residents.
(d) Grants	Not applicable	Grants towards capital assets are not treated as reducing capital in computing tax allowances.	Grants towards capital assets are not treated as reducing capital in computing tax allowances.	None	None

TABLE 126 (cont'd)

INCENTIVE	CYPRUS	IRELAND	UNITED KINGDOM (Areas of Expansion)	MALTA	SINGAPORE
4. CORPORATION TAX	42.5% For Public companies established after 1/1/75, tax rate is only 25% for the first 7 years	50%, but tax only liable on profits arising in Ireland. Export profits exempt until 1990.	52.5%	32.5%	40% Tax exemption periods: (a) Pioneer industries 5 years, or up to 10 years if substantial investment and long gestation period to reach profitability. (b) High technology industry, 5 years plus further period of 90% exemption from tax on export profits. (c) Plant expansion involving \$50 million capital expenditure. Income from the investment is tax exempt for 5 years.
5. RESEARCH AND DEVELOPMENT INCENTIVES	All scientific research has tax relief.	Grants of 25-35% towards cost of fixed assets for industrial research facilities.	None	None	None
6. FACTORY RENTS	No assistance	No assistance	For standard government factories, first two years are rent free. In Ireland 3 years rent free, and reduced rental for further 2 years.	Subsidized rents	No assistance
7. LOCAL RATES	No assistance	Usually 0.3-1.5% of capital cost of land & buildings, but reduced by 2/3 in designated areas for first 10 years.	No assistance	No assistance	No assistance
8. TRAINING GRANTS SERVICES	None	Full grants for cost of workers training at home or overseas.	Free training services run by government. In N. Ireland, grants of £15 per week during basic training in new skills.	None	Grants for training in highly skilled/specialist trades \$55,000-9,000 per worker.
9. IMPORT DUTY RELIEF	All plant & machinery, components and raw materials are duty free, or at least reduced duty. Not applicable to materials available locally. Outright exemption is permitted on export goods incorporating the imported materials. Free Zones planned.	None except for materials imported from outside the EEC and then re-exported as manufactured goods.	None except for materials imported from outside the EEC and then re-exported as manufactured goods.	None	Free Port

TABLE 126 (contd)

INCENTIVE	CYPRUS	IRELAND	UNITED KINGDOM (Areas of Expansion)	MALTA	SINGAPORE
10. TARIFF PROTECTION	Associate member of EEC. Protection is offered for 1 year and then progressively reduced to industries capable of developing into viable concerns.	None except for EEC external tariff	None except for EEC external tariff	Associate member of EEC	None
11. EXPORT CREDIT GUARANTEE	Yes	Yes	Yes	No	No
12. OTHERS	None	None	1. Preferential treatment when tendering for contracts placed by nationalised industries and government departments. 2. Regional employment premium in Special Development Areas of £3 per week per male adult employee.	None	Double deduction of export promotion expenses when computing tax allowances.
13. ADMINISTRATIVE BODY DATE FORMED: (SOURCE OF DATA IN THE TABLE)	Research & Industrial Development section of the Ministry of Commerce and Industry. July 1975.	Industrial Development Authority, Dublin 1955	Industrial Development Advisory Board, incentives have been offered since before the 2nd World War, but project incentives have been incorporated in the Industry Act of 1972.	Malta Development Corporation, 1967	Economic Development Board, Singapore. Established 1961
14. NUMBER OF FOREIGN CONTRACTS SETTING-UP MANUFACTURING ENTERPRISES	Not available	179 of which: 49 basic engineering 32 advances engineering 25 electronics 25 pharmaceuticals 17 plastics	Not applicable	34 of which: 10 textiles 7 engineering 6 chemicals, plastics & rubber 5 electronics	132 of which: 25 advanced engineering 22 electronics 15 chemicals 13 electrical 10 instrumentation
15. NATIONALITY OF ABOVE COMPANIES	-	35% British 27% U.S. 19% German	-	50% British 18% German 9% Dutch	33% U.S. 32% U.S. 28% Japan
16. POPULATION	679	3,029	55,933	327	2,155
-GDP per capita	1,419	2,144	2,471 (1972)	982	1,890
-Z unemployed latest available data	est. 8-12%	10% (March 1976)	5.5% (March 1976)	4.5% (Nov. 1975)	4.5% (Dec. 1975)

N.B. *Selection criteria for Section 1 (Ireland)

1. High market growth
2. Long term stability, little risk of technological obsolescence
3. High added value.
4. High male skill content
5. High degree of exportability
6. Low capital requirements per job, or where high, good potential for spin-off or linkage effects.

1/ (Section 4 - Singapore) Most important criterion is a high ratio of technical personnel and skilled workers to total work force.

III.6.1 Comparison of the Incentive Schemes

From the viewpoint of a manufacturer who is considering the establishment of an export oriented production unit, two of the more important factors are quantifiable.

Benefits of Investment Grants and Allowances are compared in the following table, which is based on a hypothetical project. Assuming an investment of C£ 1 million on fixed assets, of which 60% relates to plant and machinery and 40% to industrial building in 1977, the appropriate grants and allowances from Table 126 have been applied with the following results:

TABLE 127

BENEFITS OF INVESTMENT GRANTS AND ALLOWANCES ON FIXED ASSETS OF C£ 1 MILLION IN CERTAIN COUNTRIES IN 1977

COUNTRY	Capital Expenditure Fixed Assets C£'000	Net Expenditure less maximum grants C£'000	Maximum Investment Allowance C£'000	Tax Saving C£'000	Net Capital Cost C£'000
Cyprus	1,000	1,000	260	110.5	889.5
Ireland	1,000	500	-	-	500.0
Malta	1,000	1,000	120	39.0	961.0
Singapore	1,000	1,000	-	-	1,000.0
United Kingdom (Development Area)	1,000	780	-	-	780.0
Northern Ireland	1,000	660	-	-	660.0

Profit on Exports, based on the tax incentives currently available, are compared in the following table which relates to a hypothetical situation. It is assumed that a new manufacturing project is established in 1977. Over a fifteen year period, profits are calculated as none in the first year, C£ 0.5 million in the second year and C£1 million thereafter.

TABLE 128

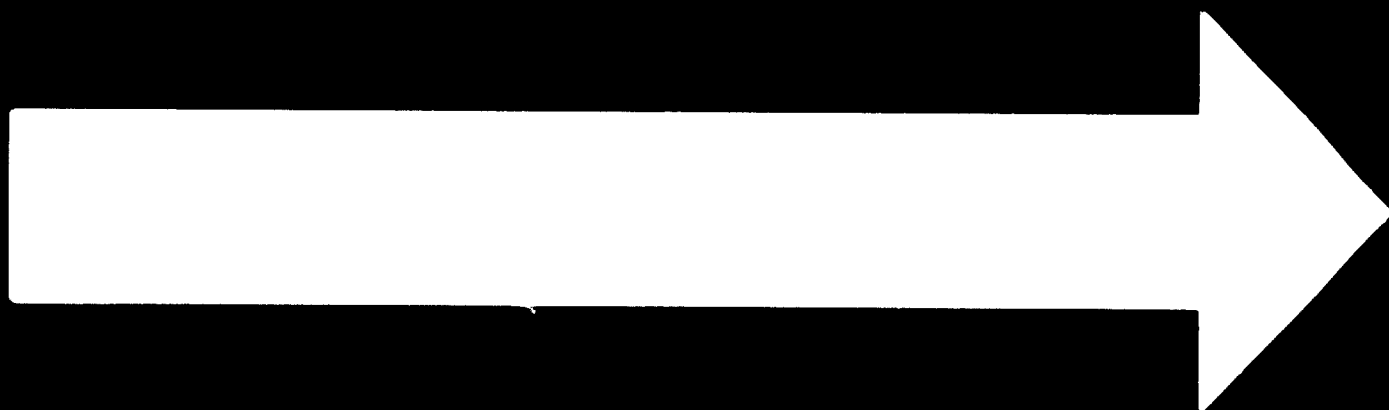
PROFIT RETURN ON EXPORT BUSINESS IN CERTAIN COUNTRIES

Value C£'000

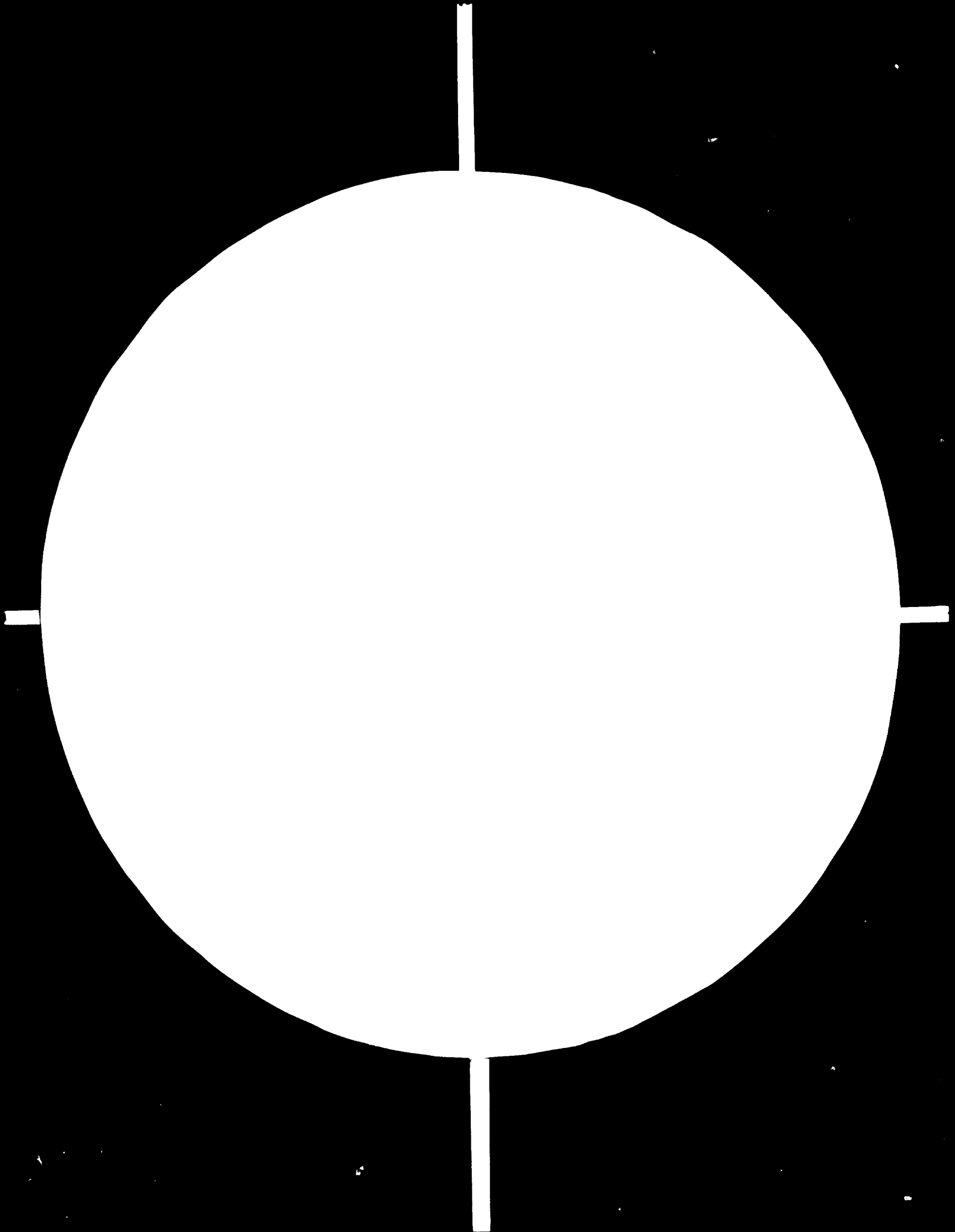
Year	Profits	Tax Liabile				
		Cyprus	Ireland	U.K.	Malta	Singapore
Year 1 1977	nil	-	-	-	-	-
Year 2 1978	500	121.25	-	-	262.5	-
Year 3 1979	1,000	242.5	-	525	325.0	-
Year 4 1980	1,000	242.5	-	525	325.0	-
Year 5 1981	1,000	250.0	-	525	325.0	-
Year 6 1982	1,000	250.0	-	525	325.0	400
Year 7 1983	1,000	250.0	-	525	325.0	400
Year 8 1984	1,000	425.0	-	525	325.0	400
Year 9 1985	1,000	425.0	-	525	325.0	400
1986-1990	Tax liability in each year is the same as in 1985					
Year 15 1991	1,000	425.0	500	525	325.0	400
Cumulative Total	13,500	4,756.25	500	7,078.5	4,387.5	4,000
Tax due w/o incentives	- -	5,737.5	675	7,078.5	4,387.5	5,400
Profit w/o incentives	- -	7,762.5	6,250	6,421.5	9,11.5	8,100
Extra profit from incentives		981.25	6,250	-	-	1,400
TOTAL PROFIT RECEIVED		8,743.75	13,000	6,421.5	9,112.5	9,500

w/o = without

C-346

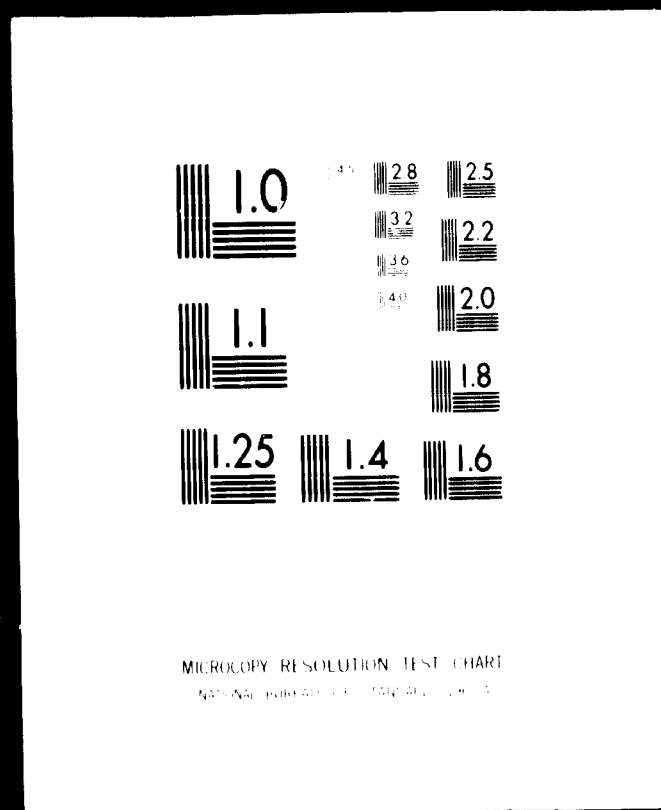


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Rates of Return: On the basis of the hypothetical examples in Tables 127 and 128, a Discounted Cash Flow (DCF) calculation has been made to indicate the rates of return of the project over a 10-year period in each of the countries. This is shown in Table 129.

TABLE 129

DCF RATES OF RETURN OVER 10 YEARS OF PROJECT IN VARIOUS COUNTRIES

C O U N T R Y	Without Incentive	With Incentive
Cyprus	47%	67%
Ireland	44%	142%
United Kingdom	39%	49%
Malta	56%	58%
Singapore	49%	74%

These DCF rates of return will increase significantly if profits are achieved in year 1 and are better than assumed for year 2. The position in Ireland may be dangerously attractive. In theory, a company could gain all the advantages in establishing a production unit in Ireland, make a substantial profit in a short period and then close the factory. It has been reported that the screening procedure in Ireland has occasionally failed to prevent this happening. However, reports of the Irish Industrial Development Association contain ample evidence of organisations which are long-established and continuing to expand their operations in Ireland.

APPENDIX I

"HI-FI" SYSTEMSThe Basic Hi-Fi System

A block diagram to illustrate a typical High Fidelity sound system is attached. Systems which are available in consumer markets offer some or all of these elements in a variety of combinations.

Block 1. Stylers, Cartridge, Arm, Turntable Unit

These items may be obtained separately or in various combinations.

The Stylus is a piece of delicate precision work that may be easily damaged. It consists of a diamond tip attached to a light metal support. The support may sometimes be made of plastic.

The Cartridge is also delicate and may be either of crystal construction, or more likely electromagnetic. It is supported in a plastic or metal case, for which a light construction is essential for quality reproduction.

The arm supporting the cartridge is of watchmaker quality as the stylus record pressure is usually less than one gram. Mass and friction forces must be small in comparison for adequate tracking.

Turntables vary enormously in quality for example from a simple pressed-steel disc to a turned precision component with individual balancing. Construction is mainly mechanical with minimal electrical wiring. The mechanism can be quite complex if automatic facilities are incorporated. Little skill is required in the assembly of these units, the mounting of the turntable and drive belts is often left to the consumer.

Block 2. Cassette Tape Deck Unit

These units are more popular than the reel-to-reel type because of their compactness in an integrated system and straight-forward operation. Manufacture and assembly is fairly complex due to their compact nature. An equal mix of electronics and mechanical work is involved.

Block 3. A.M/F.M Radio and Stereo Decoder Unit

Electronic work is mainly involved in assembly. Care has to be exercised during construction because the layout of the radio may be a critical factor in performance, especially at high and very high frequencies. Skilled staff and special test equipment are required for alignment. Less skill, however, is required in the construction of the stereo decoder. Production problems may be eased in the future as integrated circuits are increasingly employed in radio construction.

Block 4. Amplifier

This is possibly the most straightforward component for manufacture in terms of plant and operative skills required. Test procedures are simple and if a sound production design is used the test phase may require little more than a simple functional test of the "go" - "no go" type.

Block 5. Loudspeaker Unit

The unit comprises of two or three loudspeakers, each covering a unit of the audible frequency range, a crossover unit to feed appropriate signals to each loudspeaker, and a cabinet usually of solid construction in wood or wood-based material. Minimal electrical wiring is required but care must be taken when handling unmounted speakers. Complete units or kits may be purchased which exclude the cabinet but may include the baffle board on which speakers are to be mounted.

The preceding remarks are equally pertinent to transistor radios and reel-to-reel type recorders where applicable. Reel-to-reel type recorders are usually a separate item in any audio system although the plugs and sockets of each will be compatible for integration into the system.

BASIC "HI-FI" SYSTEM

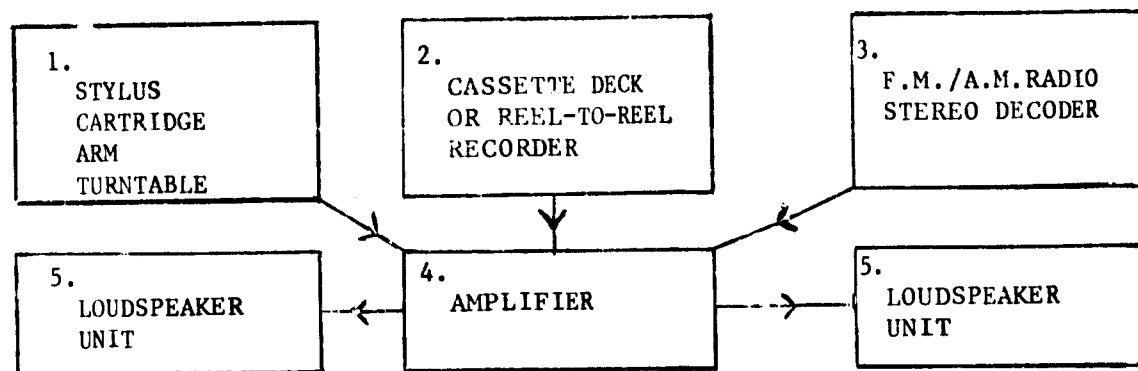


TABLE 130

PRODUCT RANGE OF HI-FI EQUIPMENT AVAILABLE IN ONE SPECIALIST STORE IN THE UNITED KINGDOM

Item	Models	No. of Manfrs	Retail Price St.£		Block No.
			min.	max.	
Stylus		2	2.60	15	1
Cartridge	24	6	2	45	1
Arm	5	4	15	49	1
Turntables	35	10	15	182	1
Cassette recorder	24	8	54	300	2
Reel-to-reel recorder	10	3	19	462	2
Tuner/decoder	17	8	43	179	3
Tuner amplifier ("receiver")	32	8	59	320	3 & 4
Stereo amplifier	38	10	28	411	4
Loudspeaker unit	49	12	31	250	5
Music centre	10	7	130	386	1,2,3,4 & 5

November 1975

APPENDIX II

LIST OF MAIN MANUFACTURERS APPROACHED

1. Hi Fi Equipment
Philips (Holland)
Thorn Electrical Ltd.
AEG (West Germany)
ITT Inc. (Europe)
Rank Radio Ltd.
Decca Gramophones Ltd.
Plessey Ltd.
Racal Ltd.
Farnell Instrumentation Ltd.
2. Domestic Appliances
GEC (Hotpoint) Ltd.
Pifco Ltd.
Thorn Electrical Ltd.
Philips (Holland)
Electrolux SA (Sweden)
Moulinex SA (France)
AEG (West Germany)
Valor Ltd.
ITT Europe (Belgium)
SODIR (France)
3. Bicycles
Raleigh International Ltd.
AJW Motorcycles Ltd.
4. Watches and Clocks
Smiths Industries International Ltd.

5. Pharmaceuticals

Beecham Ltd.

Boots Ltd.

May and Baker Ltd.

Glaxo Ltd.

Roussel Uclaf SA (France)

Hoechst AG (West Germany)

Parke Davis (Warner Lambert) (United States)

6. Pencils

California Cedar Ltd.

7. Slides and Films

Kodak Ltd.

Kowal

8. Electric Lamps

GEC (Osram) Ltd.

Philips (Holland)

Thorn Electrical Ltd.

AEG (West Germany)

Mullard (Philips)

EXTENDED TERMS OF REFERENCE

- i) On the basis of available market data and of enquiries made through manufacturers as may be necessary, advise on the prospects of establishing production facilities in Cyprus particularly export oriented for the following products:
- a) HIFI equipment: tape recorders, amplifiers, loudspeakers
 - b) Domestic appliances: coffee percolators, mixers, refrigerators, cookers, washing machines, air conditioners
 - c) Bicycles and mopeds
 - d) Watches and clocks
 - e) Cotton yarns
 - f) Pharmaceuticals
 - g) Imitation leather
 - h) Lead pencils
 - i) Slide and film projectors
- ii) On the basis of available market data and necessary information secured in Cyprus through the Ministry of Commerce and Industry, advise on the prospects of establishing in Cyprus manufacturing facilities for the production of the following products:
- a) Electric bulbs, fluorescent tubes and the fittings of the latter
 - b) Formulated pesticides
 - c) Marble chips
- iii) In the light of the findings emerging from the above investigations, prepare an estimate of the resources required for the new manufacturing units which appear to offer good prospects, both in terms of manpower and machinery, and suggest a list of projects for detailed feasibility studies.

CYPRUS



REPUBLIC

MINISTRY OF COMMERCE AND INDUSTRY
NICOSIA—CYPRUS.

Ref : 325
Telephones Nos. 40-3441-8
Telex No. 2283 MINCOMIND Nicosia
Telegram & Cable MINCOMMIND Nicosia.

22nd December 1975

TO WHICH IT MAY CONCERN

I wish to inform you that we are exploring the possibility of establishing a number of manufacturing units in Cyprus which are particularly export oriented. For this purpose, an Industrial Opportunity Survey is currently being carried out by a London based firm of Consultants, I.H. Manderstam and Partners Ltd., on behalf of the United Nations Industrial Development Organization (UNIDO).

Among the manufacturing activities being considered is the production of pharmaceuticals, HI-FI equipment, fluorescent tubes and domestic appliances such as refrigerators, cookers, air-conditioners, washing machines, kitchen mixers and coffee percolators, primarily based on local assembly of imported components.

Leading manufacturers of such products who would be in principle interested in participating in such a venture on a financial and/or licensing basis are invited to discuss the matter as soon as possible with the Consultants, in a preliminary manner. Should the prospects appear to be favourable, discussions would be held at a later stage between the manufacturers and the Government of the Republic of Cyprus with a view to reaching an agreement.

Attention is drawn to the fact that Cyprus is geographically well located with regard to potential markets, has readily available low cost labour and maintains good relations with neighbouring countries. The perusal of the Guide for Prospective Investors published by the Ministry of Commerce and Industry (1974) augmented by the recently promulgated Tax Incentives law is recommended.

At this stage, all communications should be addressed to:-

I.H. Manderstam and Partners Ltd.
38 Grosvenor Gardens
London SW1A 0QB - United Kingdom
Tel. 730-9224

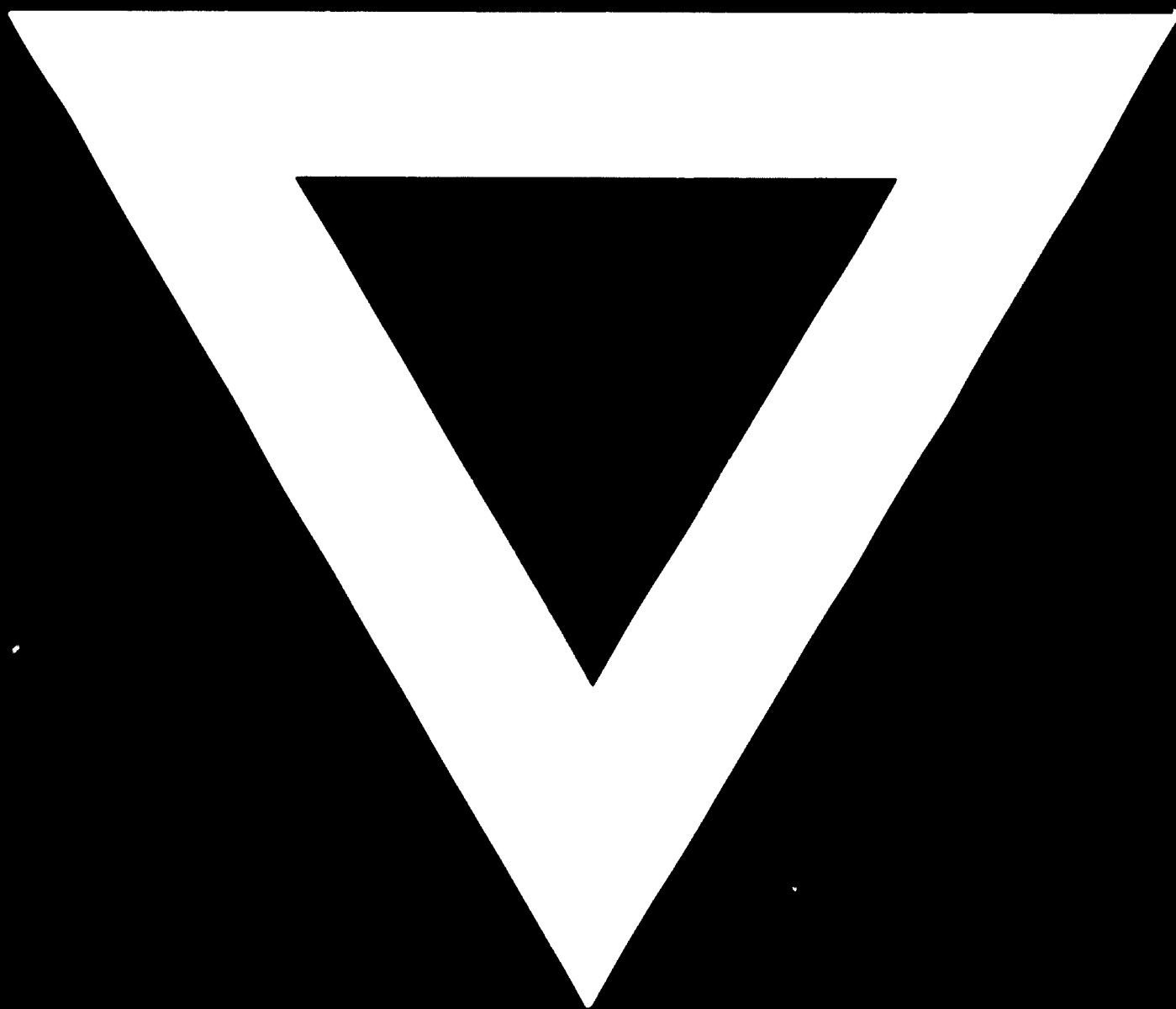
Telex: 24707 Cable address: MANDERSTAM - LONDON
Attention Mr. Henry Chlala

With kind regards.

Yours sincerely,

S. Pylaktis
for Director-General

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77. 10. 07