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**WORKING GROUP No.8**

**APPROPRIATE TECHNOLOGY  
FOR LIGHT ENGINEERING INDUSTRIES  
AND RURAL WORKSHOPS**  
.....

**LIGHT ENGINEERING AND RURAL WORKSHOPS IN EGYPT**  
Background Paper

LIGHT ENGINEERING AND RURAL WORKSHOPS  
IN EGYPT

by

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LIGHT ENGINEERING AND RURAL WORKSHOPS IN EGYPT

1. The Government Programme in Rural Development - A short historical review

1.1 The First Programme 1953 - Combined Units

The Government's first plan in rural development started in 1953. Such a development programme had been planned by the Permanent Council for Public Welfare Services. The plan aimed to establish 864 combined units to serve 4000 villages in Egypt. Each combined unit was designed to serve about 15000 people or about 5 villages on an average cultivating about 5000 feddanas.<sup>(1)</sup> The combined units programme was a comprehensive one. It was a scheme for integrating the existing functions and responsibilities of the various ministries concerned with rural welfare and development programmes. A combined unit assumed three concerted functions:-

- a) Co-ordination and execution of public welfare programmes sponsored by the ministries of Social Affairs, Health, Education, Agriculture and Rural Affairs. The combined unit was considered as the local government channel for all these programmes.
- b) Working with people through their local private organizations (Co-operatives, rural reform associations and village project committees)
- c) To serve as a centre for training and stimulation of industrial activity in the area. It ought to serve as a centre for the exploration of various possibilities for the tackling of existing rural crafts on a scientific basis, and for the revival of useful but almost extinct crafts.

Each combined unit comprised the following sections:

- a) Social services section (Public meetings hall, movie theatre public library, local exhibition, public assistance office). The objective of this section was to create better social inter-action in the rural community.
- b) Education section (Rural primary school, nursery, adult education centre, and rural handicrafts units). The

(1) One feddan equals 4200 Sq. meters

- objective of this section was to develop the creative and productive abilities of the rural citizens
- c) Agriculture development section (Co-operative aids, plant nursery, animal breeding unit, dairy and bee-keeping demonstration), the objective of this section was to introduce new and better agricultural methods and crops and also to help co-operatives to increase their membership, activities and practices.
  - d) Health section to plan and promote health programmes including preventive and clinic medical services. Table (1) shows the distribution of combined units in Egypt and the number, planned, to be built in each province.

Table (1)  
Distribution Plan of Combined Units in Egypt

Province	Population estimation in 1953	Number of Planned Units	No. of Units (1) existing 1977
Behera	1,445,000	69	25
Kafir el Sheikh	878,000	41	14
Menofia	1,330,000	70	20
Kalubia	804,000	41	19
Garbieh	1,857,000	88	26
Dakahlia	1,659,000	83	33
Sharkia	1,485,000	75	29
Giza	980,000	44	19
Fayum	760,000	37	16
Beni Suef	702,000	42	19
Minia	1,203,000	70	27
Assiut	1,549,000	53	18
Sohag	1,440,000	69	30
Kena	1,238,000	65	25
Aswan	328,000	17	10
<b>Total</b>	<b>17,658,000</b>	<b>864</b>	<b>330</b>

Source - Atlas El - Khedamat - The Permanent Council for Public Services  
 1957 - Cairo

(1) Department of Village Development - Ministry of Local Government.



1.2 Rural and Small Scale Industries Development Programme 1956

In 1956 a new ministry for Industry was founded to look after the industry in the country, and a five year plan was prepared. One of the main sections of the plan was the development of rural and Small-Scale-Industries. The plan was issued late in 1959. The lines of development for rural and small-scale-industries were as follows:

- a) Erecting some production cum- training centres for different rural and small scale industries in their localities throughout the country to train in producing goods and rendering of services, these centres to be set as models in their neighbourhoods
- b) Erecting some small and medium size factories to supply local raw materials and industrial services to small entrepreneurs.
- c) Building some marketing centres inside the country to help in marketing rural and small-scale-industries products.
- d) Alloting a fund of about \$4.600.000 for giving loans to rural and small industries with low annual interest of 3% mainly for long-term credits.
- e) Co-operation, as a means of collecting small entrepreneurs together was considered to be an important method for developing rural and small industries.
- f) A body to look after small-scale-industries was founded as the General Organization for Productive Co-operation and Small Industries (CPO) which was formed in 1961.
- g) An institute for providing services to small industries was planned, and in November 1962, an agreement was signed between the Egyptian Government and UN Special fund to build this institute in Cairo.

1.3 The General Egyptian Organization for Co-operative Production and Small Scale Industries (CPO) - 1961

(CPO) was established in 1961 as a public body sponsored by the Minister of Industry to execute the five year plan related to rural and small-scale-industries, to handle and develop these industries and offer them the services they need. The (CPO) founded 20 branches each in one of the Governorates and each branch was supposed to provide financial and technical services to rural and Small-Scale-Industries in the Governorate and have enough autonomy to work within the plans of the central organization. The (CPO) also built 160 production cum- training centres distributed throughout the country. These centres were managed by (CPO) branches. The production cum - training units covered the following fields of rural and Small-Scale-Industries: carpentry workshops, repair and maintenance of equipment workshops, handweaving, carpets and rugs, textile fibres, plant fibres treatment for industrial uses, Palm-date dehydration, women's knitting and embroidery, Khan el Khalily products.

1.4 The General Authority for Crafts Development and Productive Co-operatives 1969-71

In 1969 the (CPO) was converting into the "General Authority for Crafts Development and Productive Co-operative" under the Ministry of Local Government. It was cancelled in 1971, and its productive units and training centres were put under the control of the local Councils and Governorates. Three years later, it was found that there was a great need for a central machinery for planning and supervising rural and small-scale-industries sector. The Handicraft Industries and the Productive Co-operatives Organization (HIPCO) was founded in 1973.

1.5 The Handicraft Industries and Productive Co-operatives Organization (HIPCO) 1973 - present.

1.5.1 Objectives

HIPCO is a Governmental organization under the supervision of the Ministry of Local Government and has two major functions:

(1)

- a) Planning and research relating to artisanal and allied small-scale-industries which includes the formulation of general plans and policies regarding the development of these industries, studying the marketing needs of their products in both domestic and export markets and determination of the foreign exchange requirements for raw materials, new machines and spare-parts.
- b) Establishment and supervision of industrial Co-operatives.

1.5.2. The Role of Co-operatives

Co-operative societies have been formed in various rural and small industrial branches. Their number and membership by activity group in the year 1976 are shown in table (2). Light Engineering Co-ops represent 20% of the total number of Co-operatives and 23% of total membership. The Geographical distribution of productive co-operatives is quite wide and (table 3) points to their potential in providing a useful range of services to the artisanal sector.

Table 2  
Sectoral Distribution of Productive Co-operatives - (1976)

Activity	No. of Co-ops	Membership
<u>Wood working &amp; Furniture making</u>	47	13,050
Handloom weaving	40	8,483
Shoe making & leather products	34	6,202
Vegetable fibres and ceramics	31	3,330
Transportation	23	6,470
Production services	23	6,926
Constructing & housing	21	4,474
Passenger Transportation	20	4,135
Ready-Made Clothes	19	2,030
Crop weighing	19	3,538
<u>Metallic Products &amp; Engineering</u>	19	2,110
Manufacture of Carpets & Rugs	14	1,596
Professional Photographers	14	1,505
Printing & Book binding	5	130
Traditional handicraft	3	1,140
Total	332	65,119

Source: (EIPCO)

Co-operative societies are able to assist industries in rural areas; they can make bulk purchases of materials either by using their own funds or by obtaining a short term loan from a bank. On behalf of the members, the co-operative society is able to obtain a medium-term loan for the purchase of equipment. In the past, the recovery of loans made to co-operatives has been difficult; banks are reluctant to handle this class of lending without personal guarantees from members of the Co-operative society committee.

But, members who are in need of working capital are not able to obtain it easily from, or through a co-operative society.

Co-operatives are a very important factor in the development of rural industries in Egypt. The progress achieved in the development of Co-operative societies of all types of rural and traditional industries is remarkable. The Co-operatives have been given technical and financial assistance and also marketing help in a number of cases. But it is worthwhile mentioning that the impact of the Co-operative programme on the overall growth and development of light engineering industries has been a limited one. The question which arises is whether the co-operative form of organization should be extended for the development of small industries using power operated machinery.

Table (3)

Geographical Distribution of Productive Co-operatives - 1976

Governorate	No. of Co-ops	Membership	Share Capital (L.E.)
Cairo	35	12,885	87,056
Alexandria	24	7,200	73,006
Port Said	14	1,619	11,682
Ismailia	7	721	13,222
Suez	9	1,276	70,404
Damiatta	11	3,283	47,809
Bahera	13	2,148	13,525
Kafr El Sheikh	14	2,490	17,169
Garbya	27	6,045	39,768
Dakhleya	22	3,458	7,570
Sharkeya	17	2,814	40,497
Menoupheya	18	3,891	24,881
Kalubeya	16	2,608	35,172
Giza	22	3,479	34,161
Fayoum	14	2,017	13,539
Benesweef	6	813	10,089
Minya	11	2,068	2,553
Asyut	14	2,329	5,856
Sohag	9	2,255	9,741
Kena	12	799	41,107
Aswan	5	302	15,381
Red Sea	3	167	4,923
New Valley	4	172	2,570
Matruh	5	250	1,532
<b>Total</b>	<b>332</b>	<b>65,119</b>	<b>623,209</b>

Source - HIPC0

1.5.3 Technical Assistance

Technical assistance to rural industries is given through training centres distributed throughout the country and supervised by HIPC0. Instruction is provided in woodworking, car repairs, fitting, turning, welding, sheet metal work, casting, blacksmithing, printing, shoemaking, ready-made garments, carpets and artistic handicrafts. The centres are stated to have 2,180 trainees (table 4)

but the actual number of trainees is less than this figure. The reasons for this low number under training are the low quality of training programmes offered, poor equipment and inadequate funds. Through their limited funds, the centres are also unable to provide adequate compensation to trainees for salaries lost whilst training, and this is a serious disincentive.

Table (4)  
(1)  
Light Engineering & Rural Training Centres and their Capacity  
Capacity in numbers of trainees in different skills/trades

Governorates	Training units	woodworking & furniture	car work shop	turning	filling	welding	sheetmetal work
Behera	Training centre Maintenance Unit	20 20	20 20	15 15	15 15	20 15	10 10
Gharbia	Training centre Maintenance unit	20 20	20	15	15	15	10
Munifia	Maintenance unit	20		15	15	15	10
Kafr el Sheikh	Maintenance unit	20	20	15	15	20	20
Sharkia	Maintenance unit	20	20	15	15	20	20
Kalyubia	Maintenance unit	20	20	15	15	20	20
Beni suef	Maintenance unit	20		15	15	20	20
Fayoum		20	20	15	15	20	20
Menya		20	20	15	15		20
Asyout		20	20	15	15		20
Kena						20	20
Aswan		20	20	15		20	20
Cairo	T.C. Co-op	40 20					
Dakahlia		30					
	TOTAL	340	180	180	150	205	220





## 2. Institute of Small-Scale-Industries (ISSI)

The Institute of Small-Scale-Industries was established within <sup>(1)</sup> the framework of the second five-year Development Plan. It was built according to an agreement between the Government of Egypt and the International Labour Organization as the executing agency, and the UN Special Fund in November 1962.

### 2.1 Objectives

The Institute was designed to render services in the fields of applied technical and economic research, development and implementation of industrial techniques, training and extension services, industrial consultation and management, so as to assist medium-sized and small-scale public sector undertakings, private entrepreneurs and government sponsored, industrial co-operatives and production organization in the promotion, establishment, operation, development and modernization of Small-Scale and medium sized industries.

### 2.2 Organization and Services

The institute comprised the following sections:

Technical Research Section: - which undertook applied technical research, industrial investigation and studies in such fields as material methods and techniques of production so as to advise on the technical modernization of Small and Medium industries.

Economic Research Section - which undertook applied economic research and surveys in the fields of financing, management, administration and marketing requirements for the products of small-scale-industries.

Industrial Engineering Section: which undertook the introduction and application of Industrial Engineering techniques.

Section for Training, Demonstration and Extension - which undertook the organization of training programmes and the execution of demonstration and extension schemes including on-the job training and industrial consultancy.

Product Design Section - which was organized to work jointly with the technical Research Section to serve Small-scale-industries in design of tools, gadgets, jigs and fixtures, machine parts, mechanical spare-parts, small prototype machines and industrial products design.

Information Section - which undertook the collection, processing and dissemination of statistical data, technical information and matters related to small-scale-industries that would be helpful in their progressive development.

(1) based on the project document signed by the ILO and the Egyptian Government.

Industrial Workshops - which consisted of a range of workshops each related to a particular aspect of industry, namely: light engineering, pottery and ceramics - textile weaving, dyeing and printing - coarse vegetable fibre products - carpentry, woodwork, furniture.

Laboratory Section - which consisted of three laboratories rendering specialized services to small and medium-sized industries: chemical laboratory development of processes and physical testing materials laboratory and industrial technology laboratory.

### 3. The Engineering and Industrial Design Development Centre (EIDDC)

The Institute of small-scale-industries was attached, in January 1977, to the Engineering and Industrial Design Development Centre (EIDDC) which is affiliated to the Ministry of Industry, petroleum and mining. The combination of the (ISSI) sections with the (EIDDC) activities led to a greater emphasis on light Engineering Industries. The following services to Light Engineering Industries in several fields can be mentioned:

Product Design and Development: Design of consumer goods e.g. fans, gas cookers, iron heaters, etc. Design of engineering components for mechanical feeding industries (turntables, screw jacks, axles, woodworking design for furniture, economy housing, outfitting interior design, chairs, tables, laboratory furniture etc.. design of electrical switches, sockets etc.

Production Technology and Tool Design: for all engineering and mechanical components, any household goods, agriculture elements or tools, metal working, cutting and blanking tools, plastic mouldes and heat treatment of special parts.

Processing Industries: General assistance in study and revision of projects for processing industries, assistance in revision of various projects in view of local production facilities.

Engineering Consultancy Services to Light Engineering Enterprises Training Courses in Engineering fields

### 4. The Future Development Programmes

(1)

#### 4.1 Backward Area Development/Egypt Urban Development Programme

##### 4.1.1 Objectives and Project Components

The main project objective is to provide shelter employment and urban services for the lowest income groups in backward areas in Cairo, Alexandria and Asyout Governorates, at costs which they can afford. Through the development of new sites and services, the project would improve living

(1) A joint project with the world Bank assistance starting early 1979

conditions and increase employment opportunities to an immediate design population of about 100,000 low income persons in the three backward areas. The Egypt urban Development Project includes a number of inter-related components to strengthen and expand the economic base of the three areas, through assistance to the small business sector while at the same time improving the technical skills of local residents in associated vocations.

A list of project components with cost estimates is summarized below:

I	Cairo: Upgrading at Manshiet Nasser	L.E. Million
	a) Main settlement	1.25
	b) Zabaline settlement	0.35
II	Cairo: Upgrading at North Bassateen	0.89
III	Alexandria	
	a) Sites and Services at South Metras	1.73
	b) Upgrading at New Nogao El Arab	0.14
IV	Assiout:	
	Sites and Services at South Gharb Elbalad	2.03
V	Small Business assistance and man-power training programme.	1.68
VI	Improvement in solid waste collection and disposal - Cairo and Alexandria	1.68
VII	Improvement to water supply and sewerage in Assiut	0.56
VIII	Project Administration	0.25
	Total base cost	<hr/> 11.44
IX	Physical contingencies	0.82
X	Price contingencies	3.14
	Total Project Cost	<hr/> 15.40

#### 4.1.2 Services to Light Engineering Industry

On each project site a number of plots would be serviced and sold for small business purposes mainly light engineering workshops. In addition, the project includes a programme to assist small entrepreneurs and to provide vocational training to the three main sites in the project. The development and expansion of small business will be further assisted through

the following activities:

- a) Small business loans
- b) Extension services
- c) Manpower training
- d) Consultant and advisory services

Small business loans amount to L.E. 625.000 and can be broken down into the following categories:-

Loans for workshop construction	L.E.	250.000
Loans for equipment and working capital		
- workshops		350.000
- commercial business		25.000
		<hr/>
total		625.000

A total of 339 workshop construction loans are included which corresponds to about 90% of the number of industrial plots allocated under the project. Light engineering workshops in the project sites include: furniture and wood products, metal work and car and motor repair.

The vocational training programme will be given to unskilled individuals in the 12 to 18 years age group who have dropped out of the educational system at the primary or preparatory schools. Courses would be of approximately two years duration and incorporate six months practical workshop experience. The accelerated training programme would consist of evening courses designed for adults over the age of 18 years, and would be of three to six months duration. The programme may be extended also to include skill upgrading courses for adults with previous job experience or technical training. The training courses will be in furniture and woodwork, welding, sheet metal, automotive repair, automotive mechanics and automotive electric.

Extension services would be provided through local Governments, to small entrepreneurs on the project sites and, as appropriate, in the surrounding community. A team of three persons would be organized for each site, including:

- a) a technical advisor and
- b) a liaison officer

The technical advisor would assist the entrepreneurs in such areas in production engineering, product quality, productivity, equipment and raw material purchasing and marketing.

#### 4.2 Technical Assistance Project for Light Engineering Industries

##### 4.2.1 Objectives, Project Components & Implementing Agencies

The Government of Egypt with the financial assistance of the World Bank will carry on a technical programme to help the development of modern Small-Scale-Industries and Light Engineering Industries in particular. The total estimated cost is L.E. 201,150 in local and US \$ 200,000 in foreign currency. The first stages of the programme implementation were already started in 1978:

The objectives of the programme are to:

- a) raise the productivity of enterprises by improving manufacturing processes and extension of assistance to solve            in areas of production engineering and industrial management.
- b) increase skills needed to SSI by accelerated training and skill upgrading, and
- c) improve various aspects of industrial management.

The programme components and their implementing agencies are as follows:

- i) Technical extension services including project preparation assistance for, engineering, metal-working, woodworking and furniture - making trades to be organized and implemented by the Engineering and Industrial Design Development Centre (EIDDC)
- ii) Skill upgrading of workers in engineering, metal-working, woodworking and furniture trades to be carried out by (EIDDC)
- iii) Accelerated training for unskilled or semi-skilled workers in engineering trades, to be implemented by the productivity and Vocational Training Department of the Ministry of Industry (PVTD)
- iv) Industrial Management development to be executed by (EIDDC)

4.2.2. Technical Services & Regional Coverage

The extension service for SSI to be organized and operated by (EIDDC) will have two functions:

- i) to undertake diagnostic surveys of enterprises in the target group, pinpoint technical problems associated with the production process and recommend appropriate solutions which can be implemented by the firm on its own or with the help of the diagnostic team.
- ii) to encourage the firm to obtain specialized services from the centre.

The skill upgrading programme will also be implemented by the (EIDDC) using the Centre's mechanical engineering and woodworking workshops; for successful implementation of the training programme, trainees will be paid a reasonable stipend per day. The accelerated training programme to be implemented by (PVTD) is intended to prepare unskilled workers mostly employed in light engineering private establishments and others unemployed, for semi-skilled and skilled jobs. Trades for which training will be improved and the corresponding number of trainees are, turners, fitters, and sheet-metal workers, 120 each, machinists, welders, auto-mechanics/electricians, 90 each giving a total of 630 trainees. Trainees will also be paid a reasonable stipend per day.

The management consulting service which will undertake consulting assignments for interested firms will be a longer term objective. The objective will be to gather material for case studies on typical management problems of local SSI as an input to the training programme. Many of the light engineering enterprises benefiting from the project will be the Industrial Development Bank clients, and others are likely to become its clients.

The regional coverage for this pilot project has been restricted to Cairo and, for part of the programme to Alexandria where the majority of light engineering workshops are located. Given sufficient progress and experience in the Cairo and Alexandria areas, the project could then be extended to other governorates.

5 Regional Distribution of Industry in Egypt

5.1 General

The regional distribution of industry in Egypt is shown below in table (5). Greater Cairo presents the major concentration of manufacturing industries with over 50% of establishments, 44% of employment and close to 38% of gross value added. Over 70% of the gross value added in light engineering industries (metallic products, electrical and non-electrical machinery, furniture and wood-working products) are produced in greater Cairo. There are a few regional centres with some concentration in selected industries notably Damietta in woodworking and furniture. The value added shares of the provinces in all industries - except for textiles, food and chemicals - are exceedingly small. The market in the rural provinces does not seem to have attracted modern industry other than textiles and food. The high concentration in Cairo and Alexandria, aside from the early development of industry in these two cities can be attributed to a combination of factors:

- the size and diversity of these urban markets,
- the quality of infrastructure
- access to supporting services
- availability of skilled and unskilled labour and suppliers of inputs, or consumers of industrial products and services.

Table (5)  
Regional Distribution of Establishments, Value Added,  
and Employment in Industry 1966/67 (1)

Area	Establishments	Gross Value Added	Employment
Greater Cairo	51.6	37.7	44.1
Alexandria	14.6	20.9	20.8
Lower Egypt	20.6	24.4	23.5
Upper Egypt	10.0	6.6	6.4
Canal Zone	2.8	7.0	3.6
Frontier Governor-	0.4	3.4	1.6
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

(1) Source: General Authority for Central Mobilization & Statistics

5.2 Rural Industries and their Ranking

(1)

Rural Industries fall under the artisanal sector. The 1966/67 Census of Industrial Production records 144,000 establishments employing less than ten workers, providing employment to some 283,900 persons, or 33% of total manufacturing labour force. About 51% of the establishments are operated by a single individual while 49% employ five or less persons. Table 6 below provides a ranking of the eight most important branches in the artisanal sector in terms of number of establishments and value added, accounting for about 70% of the sector. Furniture and metal products occupy the second and the third ranks. The furniture and fixtures branch produces a wide range of household items for the construction industry. It includes wood carving, arabesque, wooden boxes, wood engraving, shoe lasts. Engineering and metal products branch is an all encompassing activity involving a variety of crafts and embracing a wide range of consumer and inter-mediate products. Car repairs is another activity with important employment generation implications and considerable potential in a modernizing economy.

Table 6  
Ranking of Employment, Establishments and Gross Value Added in Artisanal Sector (1966/67)

Code	Branch	Employment		Establishments		Gross Value added	
		No.	Rank	No.	Rank	No.	Rank
243	Clothes and Garments	63,623	1	42,926	1	8,690	1
266	Furniture and fixtures	27,849	2	15,447	2	6,667	2
350	Metal products	27,706	3	13,404	3	5,493	4
231	Spinning and weaving	20,835	4	9,685	5	2,830	7
241	Shoes	18,874	5	9,693	4	3,702	5
201	Bakeries	14,258	6	2,955	8	5,625	3
205	Grain Milling	14,222	7	3,747	7	2,972	6
384	Car Repairs	12,213	8	4,749	6	2,214	8
Total		199,580		102,606		38,193	

Source - Central Authority for General Mobilization & Statistics

(1) Establishment employing less than ten workers are referred to as the artisanal sector



## 6. Light Engineering Industries in Egypt -

### Organizational and Operational Characteristics

#### 6.1 Ownership

The most common forms of ownership in light Engineering Industries are the individual proprietorship and partnership. In the artisanal sector ownership by an individual is the common form. Entrepreneurs in many cases have risen from the shop floor. They started as apprentices and became artisan entrepreneurs before graduating to modern small industries. Owners of light engineering workshops show initiative, deep knowledge of their trade and considerable skill in the development of machines. They have demonstrated an ability to add to their capital stock by manufacturing machinery in their own machine shops or by reconditioning old equipment.

#### 6.2 Operating Conditions

The majority of skilled workers in light engineering workshops are from the on-the-job training system and only a small fraction come from vocational training schools. In Egypt, there is a continuous loss of skilled workers in light engineering industries, by emigration to oil-rich Arab States where they are attracted by much higher wages. There is need for skill up-grading in tasks requiring precision work. In the engineering field there is a need to train fitters and machinists to become capable of making press tools, dies, jigs and fixtures. In furniture making, skills are needed to operate machines such as large lathes, copying lathes, multi purpose machines, etc... as well as the introduction of working to closer tolerances. The increasing emigration of skilled workers in light engineering industries has led to a steady rise of the wage level in this sector. The bulk of the machinery in use is of foreign origin. The Government permits the importation of such machinery provided it is not more than 3 years old. Some lathes and milling machines are produced locally by large Government factories. A good part of the machinery used in metal working industries is outdated, and this has an adverse effect on productivity. Concerning the degree of utilization of equipment it can be said that the jobbing engineering shops, with only a few exceptions are highly utilized. In the furniture industry, however, machinery is not fully utilized. A large number of light engineering workshops in rural provinces are housed in bad premises; they are too small for the machinery they contain. Raw materials in light engineering industries are mostly imported. Certain amount of soft wood, iron, steel and

copper are produced within the country. The entrepreneurs are allowed to obtain the imported raw and intermediate materials they need through Co-operative or private sector sources.

### 6.3 Market Competition

Competition from the public sector in light engineering products is rather limited. There is little competition in the household furniture line, the public sector is dealing mainly with furniture of Government offices. Foreign competition is not important as the goods imported are of a different quality and higher price brackets. Apart from capital goods, local production enjoys a considerable level of protection. The quality in furniture products is good, but there is still a need to introduce contemporary styles, in which local particle and hardboards can be used. Many of the metal fittings now used in furniture industry are unworthy of the craftsmanship that goes into the making of furniture. The range of goods produced in metal products is very wide and the quality is variable. Items such as nails, screws, taps, valves, transformers and metal hollow-ware could compete with those made elsewhere. Electrical fittings such as plugs, outlets and sockets are still in need of considerable improvement.

### 6.4 Sources of Finance

Institutional financing to SSI is provided by the following banks:

#### a) The National Bank

A small loan was introduced in 1965 to meet the needs of the artisan sector. The Bank provided short-term and medium-term loans. At the end of 1975 outstanding loans amounted to L.E. 486,000 involving 3,473 clients. The average size of the loan is very small - less than L.E. 150 (₤ 210). The loans extended are mainly in the regions: 69% in Lower Egypt and the Canal Zone; 20% in Upper Egypt and 11% in Cairo and Alexandria

#### b) The Nasser Social Bank

Loans are mainly given for social purposes, but to some extent, it can be given for productive purposes as machinery and equipment (lathes, woodworking, etc..). The Bank requires a 10-20% down payment and extended credit up to three years. It

occasionally grants credit for raw materials to members of Co-operatives which is repaid when the final product is sold. Such loans are guaranteed by members of the Co-operative Committee. The Nasser Bank charges a fee for its services and does not charge interest. Total lending to S.S.I has not been very significant.

c) Development Industrial Bank (DIB)

The Bank is considered to be the major supplier of short and medium-term funds to SSI. During the first six months of 1977, short term financing to SSI accounted for about 75% (some L.E. 3.5 million) of DIB's local currency approvals. About one half of DIB's loans are concentrated in Great Cairo. Engineering and woodworking are two of the major borrowing industries. Lending rates for local currency loans are 8-9%, while for medium and long-term in foreign currency 10-11%

Rural workshops in dispersed localities are not benefiting from the above mentioned banks. Small industries loan fund may be created and placed at the disposal of the governorates to supply loans to rural industries up to a certain limit.

## 7. Problem Areas in Light Engineering & Rural Industries

### 7.1 Statistics

Lack of basic statistics about rural industries in respect of the number of units, their investment, production, employment requirement of raw materials and credit requirements is still a problem facing the development of this sector. There is still no system of collecting data about unregistered small industries and the smallest independent units.

### 7.2 Government Coordination

Co-ordination of activities in the field of SSI is required for its growth. The artisanal industries - including rural and handicraft enterprises employing less than ten workers and with fixed capital less than L.E. 5,000. - fall under the Ministry of Local Government. Enterprises with total assets over L.E. 5000 and employing ten or more workers are regulated by the Ministry of Industry. The Ministry of Social Welfare regulates household production such as knitting and garments in rural areas.

### 7.3 Technical Assistance

The main technical needs of rural industries including workshops organized by Co-operative societies are: advice on making new products, new design, material selection, quality control, modern work methods and preventive maintenance all of which could be provided through the extension services activities.

### 7.4 Raw Material Import Procedures

Complicated and long procedures in respect of importing raw materials represent a problem facing the growth of SSI. The Industrial Control Department in the Ministry of Industry is responsible for approving applications for imports of raw materials from the parallel market for enterprises with capital in excess of L.E. 5000, while the Handicrafts Industries and Productive Co-operatives Organization (HIPCO) is responsible for those submitted by the artisanal sector. Grants of import licenses by the parallel market decision committee depend upon these approvals.

### 7.5 Financial Assistance

Financial assistance to light engineering and rural industries in dispersed localities is a great problem to their effective development. A liberalized scheme for making credit available to this particular industries in time and in adequate amount is strongly needed. Small industries loan fund should be created and placed at the disposal

of the Governorates to supply medium and long-term loans to rural industries up to a certain limit so as to extend the facilities of finance available to entrepreneurs in dispersed localities.

#### 7.6 Availability of Skilled Workers

Lack of skilled workers in light engineering industries proves a restraining factor on the growth of these industries. Due to continued emigration, shortage of skilled workers is increasingly felt and is reflected in rising wages. There is need to train more skilled workers and to up-grade the skills of those employed in different crafts.

#### 7.7 Linkages with Large Scale Industry

The development of light engineering industries in Egypt can be complementary to large scale industry development. A government programme for the development of light engineering units as ancilliary feeder units to large scale industry. The aim is to induce large Government factories to go in for sub-contracting, so as to enable light engineering industries to supply them with parts and components as to the required specifications on a commercial basis. Light engineering workshops have greater flexibility and they can better adjust themselves to produce parts in small batches and are fully capable of manufacturing most parts except those which may require very costly jigs and fixtures.

#### 7.8 Summary

Major problems affecting the growth of light engineering workshops in Egypt can be summarized as follows:

- a) out of date machinery
- b) lack of production engineering and management  
(product design, production planning and work methods, material selection, quality control, preventive maintenance, etc.. )
- c) poor working conditions and housekeeping
- d) marketing problems

Their relative importance varies with the particular industrial activity and size of establishment.

8. Some profiles of Light Engineering Industries in Rural Areas

- Manufacture of sieves for rice milling machines, sugar cane juice extracting equipment, and pumps
- Making new tractor wheels
- Repairing Agriculture implements
- Automobile and tractors repair
- Repairing crank shafts
- Regrinding cylinder heads
- Welding
- Foundries - to produce castings required by the local engineering shops related to agriculture irrigation, pump housings, spare parts for tractors, spare parts for food and textile machinery
- Making wooden doors and windows for rural houses and shops
- Making domestic furniture
- Making agriculture wooden implements
- Manufacture of hand looms and wooden spare parts required for carpets, rugs and textile looms
- Manufacture of wooden trailers

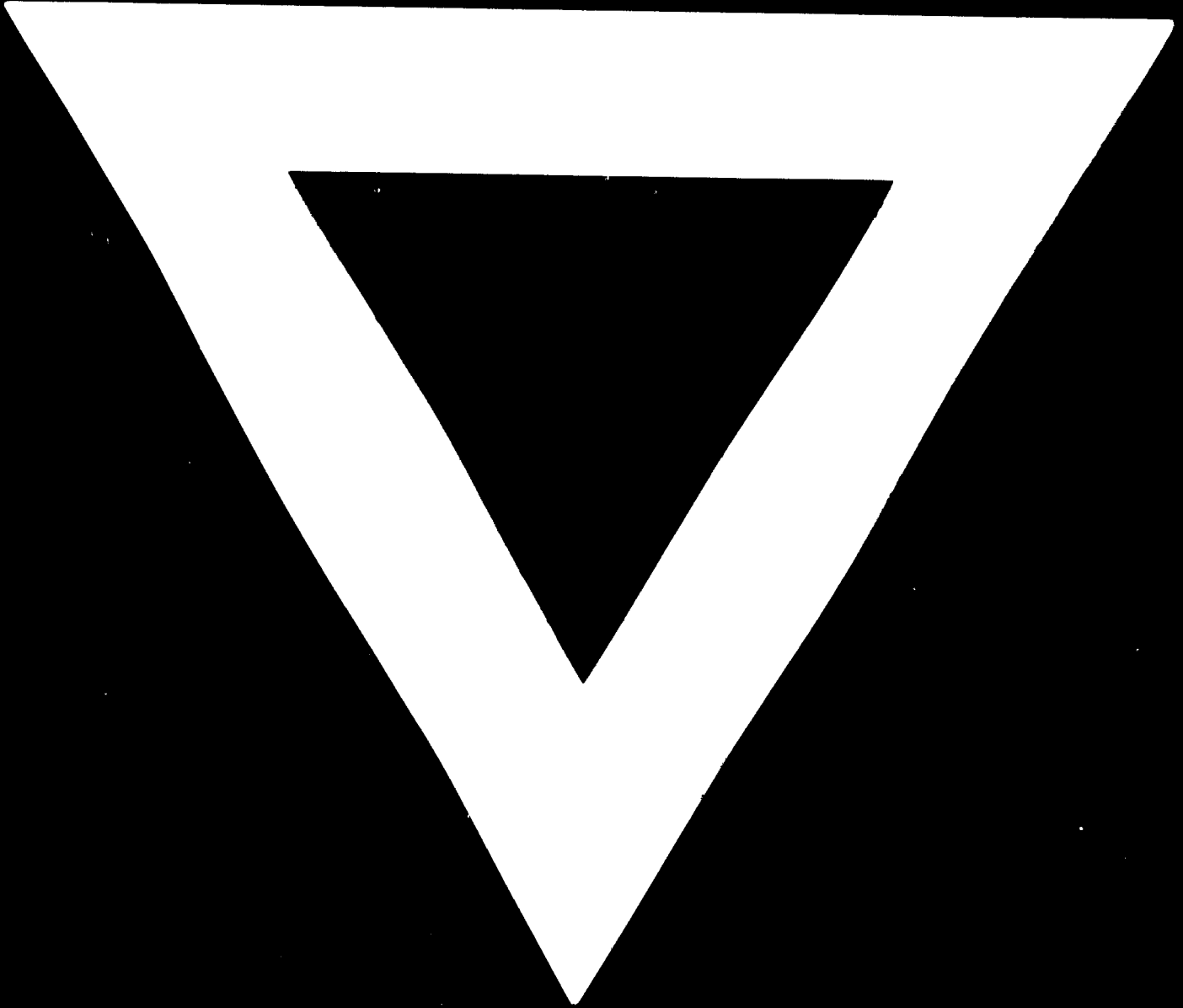
Machinery repair and parts manufacture workshops are quite well equipped with lathes, boring machines and welding apparatus. Automobile and tractors repair workshops are equipped with modern machinery with high labour skills.

Equipment in foundries are simple, consisting of cupola furnace, ladles, smoothers, sieves, rammers and mould boxes. Sand mixing and mould preparation are done by hand. The basic raw material is Scrap metal. In woodworking workshops hand tools are universally employed.

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