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in co-operation with ECA

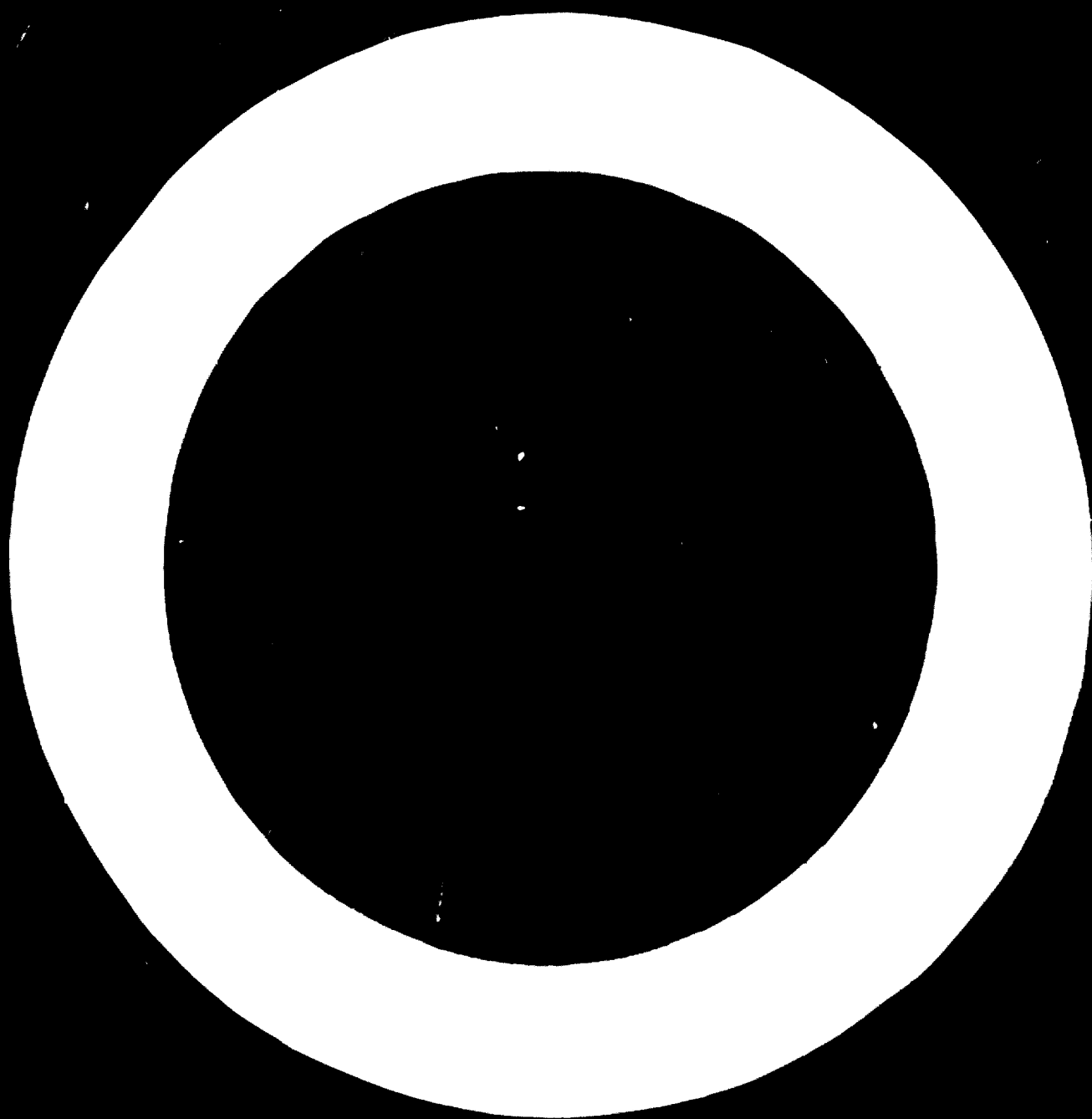
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WORKING PAPERS

prepared by

the secretariat of UNIDO

We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.



INDUSTRIALIZATION

Industry, the driving force of development

To consider the industry as the driving force of development, less because of the new job and income opportunities, for unfortunately they will be low for years, but rather by highlighting the induced effects of industrial creation.

The processing of products of the soil (creation of job opportunities and monetary incomes in the agricultural sector)

Manufacturing industries for import substitution (savings in foreign currency promotion of a dynamic specialized trade stimulated by local industry which develops purchase incentives for the rural masses, forcing them that way to produce more export cash crops.

Building industry (improvement of housing facilities can also be considered as one of the best incentives for the farmer to increase his monetary income, that is to produce more. A house built of durable material is the first link of the chain of a consumers' society. Then comes clothing, household articles, transistor radios, etc.)

Investment and the creation of National Self-financing Funds for Industrialisation

Because of their poverty and their lack of equipment, the less advanced countries do not attract capital.

- To make use as much as possible of capital development funds of the United Nations and of part of the CIP in order to facilitate the establishment of industrial plants (total financing or combined with credits, such as supplier's credits or AID credits)
- To bring about the accumulation of industrial development by imposing as a condition the repayment of all the profits of these plants into a national self-financing fund for industrialization which would increase the opportunities of establishing new industries, and this until the Government is able to sell all of its shares to national shareholders.
- To encourage international credit for industrialization by granting preferential conditions to the less industrialized countries, similar to what is done in the wealthy countries in order to provide incentives for small and medium-size enterprises).
- To fix the length and the interests of the loans in accordance with the reimbursement possibilities through the cash flow of the enterprises.

- To negotiate with the International Association for Development substantial participation in these national funds for industrialization through long-term loans which grants a long moratorium without interest.
- To consider it imperative that UNIDO follow up the promotion of investments after the preinvestment studies have been completed to attract capitals, foreign partners; to undertake engineering studies; to advise before the signature of turnkey contracts; or of agreements to produce under licence or under trademarks; to promote the adaptation and the transfer of technology; to study all realistic possibilities offered by the transfer of plants, etc.)
- In the less industrialized countries, the feasibility study should not end with the report. When the conclusions of the expert are favourable, UNDP should then provide UNIDO with the means of implementing the project until it is completed.

#### Engineers, managerial staff, technicians

The less industrialized countries lack engineers and technicians.

- To develop an information and publicity campaign for technical jobs (The whole world suffers a shortage of engineers and technicians) and facilitate the free movement of technical staff between the less industrialized countries in order to increase the market for technical jobs.
- To supply direct technical assistance by sending operational experts and volunteers from the United Nations. The less industrialized countries have seen so many reports since their independence that the technical ministries no longer have the capacity to assimilate them, because of their administrative and technical under-development. They suffer from an over-saturation of reports.
- To help the Governments in organizing the technical and commercial take-over of factories by foreign specialized firms through management contracts. This will be all the more important since it would deal with export-oriented industries.
- At the completion of an operational assistance project for a factory, to study the possibility of maintaining the UNIDO expert team already on the spot by assuring them a status similar to the one granted to the OPAS experts: international protection, continuation of the pension funds, etc.

- Eventually, to create a self-financing fund for industrial assistance supplied by the factories themselves, which would allow the experts to keep their status up to the end of the project, so as to avoid a technical vacuum due to an absence of adequate professional training owing to the very limited industrial experience of their counterparts.

#### Studies of equipment suitable for the less industrialized countries

The industrial equipment which is manufactured at present is almost exclusively made for the conditions in the wealthy countries (intensive production, high salaries, highly qualified manpower, large markets, etc.) As a result, the economies of scale of most of the factory projects are very often not favourable to the less industrialized countries. To industrialise often means for them to produce at greater expense - the salaries of foreign workers, the cost of imported equipment and raw materials, with value added in the country being marginal.

On the basis of inter-regional projects, engineering studies for low capacity factories which would be welcome especially those that would meet the particular conditions to be found in the non-industrialised countries. To rediscover to some extent those manufactures of the 18th century which could be repaired by the village carpenters and blacksmith, while utilising the most recent discoveries of modern technology for simplifying unexpensive equipment; which would employ a large unskilled labour force, in accordance with the limited size of the market and producing articles which would be well adapted to the needs and tastes of the population.

Some of this capital equipment could then be realised with the help of the Capital Development Fund of the United Nations.

In many cases, such equipment still exists, in Asia in particular; it would be necessary to facilitate the dissemination of information in order to prevent the poor countries of letting themselves be charmed by the salesmen of "turnkey" factories.

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SOME BROAD ECONOMIC PRINCIPLES IN CONNECTION WITH THE  
LEAST DEVELOPED COUNTRIES

1. INTRODUCTION

The present brief presentation tries to bring forward some broad economic principles and have them eventually narrowed down to manufacturing and UNILCO's role within this realm. It is further meant to stimulate throughout the Seminar discussion on such topics as under-development, growth, technology, social-overhead capital, sources of capital, banking, industrial policies, industrial studies, investment promotion, etc.

2. WHAT IS UNDERDEVELOPMENT?

Since this Seminar deals principally with the problems of the least-developed countries, it may be useful to remember that underdevelopment has many facets which may be measured in different ways, using, for example:

- income per caput;
- capital per caput;
- savings per caput;
- industrial output as a percentage of the overall output of the economy;
- degree of education of the population;
- amount of social overhead capital, per caput;
- amount of savings per head;
- percentage of resources unexploited, etc.

Some countries are underdeveloped in a few facets but developed in others. It would be difficult to compare the actual status of economy in developing countries unless we use all available different ways of measuring their development.



When doing so, we should not limit ourselves to the static approach but rather emphasize the dynamism and potential for future development of some facets such as: conduciveness to growth of the social system, and unexploited natural resources.

### 3. HOW TO GO ABOUT THE GROWTH

Economic growth is in principle a means for achieving higher general living standards of the population. In this context, one question has for many years bothered planners in developing countries who have always been faced with the problem - balanced or unbalanced growth?

Both approaches have their specific advantages and disadvantages. The principle of comparative advantage would foster specialization in certain sectors and sub-sectors (branches) of the economy. On the other hand, the balanced growth pushed to the extreme, would almost certainly result in delayed growth of the economy as such. Too much specialization in few commodities would, however, make the economy shaky due to price fluctuations of these commodities on the world market.

It seems that the best recipe would be a middle way between both extremes. It is felt that the Governments could directly effect the respective flow of investment funds which support the growth, either through financial intermediaries which they control, or by using several policy measures to influence the allocation of these funds.

#### 4. DEPLOYMENT OF SCARCE RESOURCES FOR MANUFACTURING

Most of the resources of any country composed of land, labour, capital and entrepreneurship, are scarce. Economists call such resources factors of production because they are used in the process of production. Due to scarcity of factors of production - i.e. they are insufficient to produce everything we would like to consume - choices are necessary. In other words, it implies the decision to either have more of one thing or less of something else. If we introduce the value of factors of production, we evoke the concept of opportunity costs. The idea behind opportunity costs is to measure the cost of something in terms of foregone alternatives. Such measuring should not be too difficult because it has to be decided what factors of production have to be used (so-called material balance) and to give to each one a monetary value expressing how much has to be sacrificed to use the respective factor. Since there are usually many alternative routes by which to attain the desired output (raw materials, alternative technological processes, plant location, capital or labour-intensive approach, etc.), the overriding principle in the choice among them should be the implication of cost minimization.

Of the resources mentioned at the beginning of this chapter, a prominent deficiency in developing countries is usually capital. The required capital has to come either from domestic savings (scarce quantity), imported capital (interest and principal to be repayed from the output assuming that the project, and costs, are at least breaking even), and contributed capital channeled through bilateral or multilateral agencies (grants or credit facilities). The availability of imported and contributed capital depends largely on the general situation in the pertinent country and on the soundness of the project in question.

(5) CONCISE CONCLUSIONS FOR ASSISTANCE TO THE DEVELOPMENT  
OF THE ECONOMY IN GENERAL AND THE INDUSTRIAL SECTOR IN  
PARTICULAR

One of the major obstacles of the least developed countries is the extreme scarcity of available resources, i.e. a deeper scarcity than that prevailing in other developing countries. If this holds true, it means that the utilization of scarce resources must be paid far more attention than elsewhere. Any mistake in investment decisions might influence to a much larger extent the development of the country as a whole.

It is therefore important to establish in each country a systematic tapping of natural resources (mineral, agricultural, water and energy resources, available trained labour, capital and entrepreneurship), and plan their sustained development for the immediate and distant future.

The growth of economy in each least developed country should be conceived as one of the major strategical objectives based on reasonably balanced development of sectors, fortified by rationally established backward and forward linkages among them.

The elaboration of inventories and development of natural resources, as well as of strategical objectives, is obviously the duty of planning institutions in the respective countries, in co-operation with substantive ministries and their specialized agencies. It is no doubt a field where international assistance will be greatly appreciated by the least developed countries. If these strategical objectives are missing for some sectors of the economy, it is difficult to function properly even on a project level.

For the sake of example, we may quote the case of a crude oil refinery. The planning of its output would require a consideration of consumption of oil products by different sectors of the economy.

The consumption of gasoil will be ascertained by the number of tractors used in agriculture. The gasoil consumption will further be arrived at by the number of lorries required in the transport sector of the economy. The same applies to other products to be manufactured by the oil refinery. It goes without saying that whoever does the feasibility study for such an enterprise cannot alone evaluate the needs of different sectors but these needs must be made available to him from the respective sectoral development, comprising short-term and long-term strategical objectives.

As regards the industrial sector, the best method of tapping in the most rational manner the available resources for gainful manufacturing, is to undertake regular industrial censuses supplemented by occasional action-oriented industrial surveys. Such industrial surveys undertaken by a team of specialists would use available data on potential resources for manufacturing and propose the most viable subsectors (branches) of industry to be further developed on a preferential basis. These surveys also suggest a portfolio of investments which will deserve further studies before they move into the implementation stage. Here we might quote the example of hides, skins and leather products sub-sector in Ethiopia, which exports mainly raw hides and skins amounting to 10 percent of the country's overall exports. If these hides and skins were processed through to the finished products, their value could equal that of the current overall Ethiopian exports. Undoubtedly it is a prospective subsector and the survey includes a variety of identified investment potentials (establishment of tanning facilities, production of different leather products). The result of the industrial survey would be meaningless if there were not a well established institution which would capitalize on the results of the survey and provide for follow up of those investment potentials identified in the

respective survey portfolio. Such an institution may have the form of an Industrial Development Centre as is the case in many African countries.

The least developed countries should have preferential treatment in obtaining Industrial Development Centres provided with more - and high quality - expatriate experts, and also with larger short-term consultancy component, and equipment which would warrant their efficient work including techno-economic libraries, calculating machines, transport facilities, etc. It is further believed that such Centres should be autonomous and should include, by necessity, investment promotion services. It is thought that any separation of identification and preparation of projects from their promotion is a waste of resources and time.

It should also be borne in mind that the expatriate assistance to such institutions should be planned in advance for several years; it is estimated that the expatriate experts, even on the basis of a diminishing number of experts, should average about ten years.

In many developing countries there are other institutions which are eligible for strengthening by Senior Economists or Engineers. These institutions are usually Development Corporations, Investment - or Development - Banks, Ministries of Commerce and Industry, Planning Ministries, Standards institutions, Treasuries, etc.

It has to be borne in mind that proper deployment of experts to such institutions might be viable, but it should not go so far as to spread too thinly the available assistance resources. The best way in which to evaluate such requests for strengthening is to make an overall study of the institutional set-up, preferably to be undertaken by a qualified management consultant. Here may be

quoted the example of the Tanzanian Government which recently assigned the streamlining of the institutional set up of the Government institutions to a reputed consulting firm in Great Britain. Such an approach excludes unnecessary over-laps and tries to create an efficient machinery, the parts of which are complementing each other in a rational way.

It is felt that, especially in the least developed countries, the shortage of qualified personnel is larger than in other developing countries. That is why the proper distribution of available expertise should be carried out in the most careful manner.

A very important impact might be achieved on the industrial sectors of the least developed countries by the maximum utilization of their resources for manufacture of products which may partly substitute actual imports but which may also be exported to developed countries.

Proper attention should also be paid to the latest achievements in reduction of some tariffs in European countries for products of developing countries which would enable developing countries to penetrate more easily with their manufactures into these markets. Here again can be quoted the case of leather products which could now be imported into the majority of developed countries without being subject to customs duties.

The UNIDO Export Product Adaptation Programmes, closely co-ordinated with UNCTAD and the International Trade Centre, offer good prospects for the least developed countries to have selected products exposed, and adjusted, to the acceptance tests of markets in selected developed countries. There is a possibility for several countries to pool their efforts under the UNDP/UNIDO financed Inter-country Export Product Adaptation Projects. It would be more rational if the whole exercise were organized for a number of products of the pooled countries.

Another programme which has to be pursued with more vigour is the so-called sub-Contracting. This means setting up in least developed countries those manufactures which are more labour intensive to be viably continued in developed countries with high-cost manpower. Of special value would be such joint-ventures between manufacturers from developed countries and local entrepreneurs or public sector agencies which would involve manufactured products into the marketing network of joint-venture partners from developed countries. It is obvious that the least developed countries lack resources to finance their own representatives in the developed countries to promote such joint-ventures. It should be undertaken, preferably, by multilateral aid to make available such experts, established in developed countries, for promoting manufacturing and marketing joint-ventures with least developed countries. These experts could also look into other possibilities of investment promotion, and also advise on export promotion.

Small-scale industries have a particularly important role to play in the least developed countries. A more sustained effort should be made by the multilateral and bilateral donors in helping least developed countries to develop small-scale industries and handicrafts. Such assistance would be most effective if strategical planning and preparation of programmes of development for small-scale industries were to be made by such policy making institution as is Ministry of Industry. Then a subsidiary of local development or investment bank, or an autonomous organization for promoting small-scale industries should be established for the practical implementation of the aforementioned programmes. It is felt that the least developed countries should get more assistance not only as regards the required expert component but also in financial contributions to physical structures of industrial estates, etc.

This brief summary of different kinds of assistance to be made available to developing countries does not pretend to be exhaustive or innovative. On the contrary it is strongly felt that there is no need to invent new ways and means of helping the least developed countries. The basic Assistance Programmes for the industrial sector have already been developed and tested by UNIDO and have shown some good results. The only thing which should be considered in the context of the least developed countries is to make these programmes more deeply rooted with a higher number of expatriate inputs, and with a more prolonged timing of these programmes to be maintained in the least developed countries.



## INDUSTRIAL DEVELOPMENT AUTHORITY, IRELAND

1. Ireland has had extensive experience of the problems of developing countries. The purpose of this statement is to relate the Irish experience to the problems of African countries.

### 2. INDUSTRIAL PROMOTION AGENCIES IN IRELAND: USE OF THE STATE AGENCY

2.1. The State Agency is used extensively for industrial promotion in Ireland. Characteristics of the State Agency in Ireland are (a) it is set up by the State usually by legislation, (b) it is financed by the State (with some exceptions), and (c) it is given freedom of action to do its job. The last characteristic is of vital importance. There are controls by the State but these are reduced to a minimum.

#### 2.2. Industrial Development Agencies in Ireland

Industrial Development Authority  
Shannon Free Airport Development Company Limited  
Irish Export Board  
Industrial Research Institute  
Industrial Training Authority  
Industrial Credit Company  
National Design Centre  
National Building Agency

### 3. THE INDUSTRIAL DEVELOPMENT AUTHORITY (IDA)

3.1. Has national responsibility for industrial development.  
Primary functions: (1) to encourage establishment of new home-based manufacturing industries, (2) to facilitate their expansion and modernisation, (3) to attract overseas industrialists to use Ireland as a manufacturing base for exports.

Industrial incentives: Grants towards fixed assets (buildings, machinery, equipment).  
Loan guarantees and interest subsidies.

Training grants.

Tax concessions (especially for export profits)

Industrial estates.

Factory buildings at subsidised rents.

Industrial sites.

Houses for industrial workers

Grants for research.

Overseas offices (8)

Regional offices (within the country) (9)

Special Small Industries Programme

After-care service to ensure success after establishment.

Extensive advertising campaigns and various other kinds of promotional activities (personal visits overseas by senior staff and by Ministers of State; publications; radio and television; briefing of foreign journalists, etc.).

### 3.2. Achievements

Between 1960 and March 1972

New industrial projects	668	(medium sized and large categories)
Irish	212	}
Overseas firms	456	
Total Investment	£222 m.	
Irish firms	£53 m.	
Foreign based firms	£169 m.	

British 40%, American 25%, German 20%, Dutch 5%, Austria, Belgium, Canada, Denmark, Finland, France, Italy, Japan, S. Africa, Sweden, Switzerland.

Almost all these enterprises are export industries.

New jobs created in manufacturing industry since 1960 - 58,000.

### 3.3. Benefits to Ireland

Higher employment and lower emigration. Rapid expansion of industrial exports. Expansion of manufacturing base. Reduction in regional disparities. Creation of skills not hitherto available. Foreign exchange to finance imports. Reduction of dependence on agriculture. Volume of industrial exports increased by 26% during 1960's (average 14% per year).

#### 4. THE SMALL INDUSTRIES PROGRAMME

4.1. Established in 1967 as a pilot scheme. Later expanded. Applies to small-scale manufacturers employing up to 50 workers. Directed towards industrialists who wish to establish small-scale projects, expand existing ones or diversify their product range.

Special division of Industrial Development Authority. Staff geared to special problems of the small-scale industrialist. Assistance on production, management, finance and marketing. Also an after-care service to ensure satisfactory establishment of new enterprises.

Generous financial and other incentives available. Proposals not dealt with through the ordinary decision-making channels. There is a Small Industries Committee composed of persons with special knowledge of small industry requirements.

Special arrangements with Banks for provision of working capital.

#### 4.2. Results

Small industries assisted from 1967 to the present time	850
Number of these which were existing enterprises	{ 610
Number of new projects	
New employment	8,000

Job target for next 5 years - 1,500 new jobs per year.

Failures: less than 5%

Expectations exceeded: 20% (growing into medium-sized range: some likely to become large firms).

#### 4.3. Products

Furniture, boat-building, crafts, ceramics, pottery, plastics, printing, toys, chemicals and pharmaceuticals, engineering, electronics, precision instruments, building components, joinery, electrical goods, structural steel, coach building, textiles, food and drink.

## 5. OTHER IRISH ACTIVITIES OF SPECIAL INTEREST

### 5.1. Regional Industrial Plans, 1973-77 (Note: Regional here refers to the sub-national level)

Responsibility placed on IDA by law: "to foster the national objective of regional industrial development."

Job target for 1973-77: 50,000 new jobs.

Aim is to locate the new jobs so as to help to reduce regional disparities by increasing the growth rate of manufacturing industry in the less developed parts of the country.

Overall target is to increase employment in manufacturing industry in Ireland by 20% during the next 5 years.

### 5.2. Industrial Estates

Two industrial estates have been established by the IDA and one by the Shannon Free Airport Development Company. These have been very successful as a means of industrial promotion. There are also about 12 privately promoted industrial estates.

### 5.3. Management Training

The Irish Management Institute provides a management training service to business firms and a library and information service. Training courses are available for all levels of management in management techniques (marketing, finance, production, personnel). Courses in general management are provided for senior and junior managers.

There are in-company management training courses and also courses related to specific needs in certain sectors.

The Institute has a special small industries training programme to cater for the small-scale manufacturers.

### 5.4. Achievement Motivation: Irish Experiments and Experience

A joint IDA/IMI experiment has been carried out based on the work of David McClelland of Harvard University and his colleagues. This work is described in his book "Motivating Economic Achievement."

### Need Achievement Research Project

Participants chosen from small-scale industrialists helped under the small industries programme. Two groups chosen randomly - participating group and control group (14 in each). The participating group was given a 3-day course in January 1970, conducted by staff of IMI who went to Harvard to acquire techniques. No training was given to the control group, nor did they know they had been selected.

Evaluation of subsequent performance of both groups showed that the performance of the participating group was significantly better than that of the control group.

Other experiments have also been carried out.

Need Achievement Training is now built into a number of the IMI's training courses. Further research into effectiveness and uses of achievement motivation is going on. Community group approach is one experiment.

### 5.5. Industrial Free Zone concept as a means of stimulating industrial development

The industrial free zone for export industries was pioneered in Ireland (Shannon Airport was the first in the world). It has been successful. Followed by Taiwan (Kaohsiung) which was established in 1962 with the help of advice from Ireland. Two further free zones have been established in Taiwan since then.

Export processing zone is now being established in Malaysia also with Irish advice and using Shannon as a model. A report has been made by Brendan O'Regan, Chairman, Shannon Free Airport Development Company, to the Minister for Finance, Republic of Liberia, on possibilities for establishment of a Free Airport Industrial Development at Roberts International Airport.

A report has also been furnished by Mr. O'Regan to UNIDO on the problems and opportunities presented by the free zone concept as a means of stimulating industrial development in the less developed countries of Asia.

### 5.6. Production and utilization of peat

Peat has been <sup>in</sup> commercial production in Ireland for many years. It is used as domestic fuel in the form of sod peat and in the form of briquettes. Milled peat is used for power production (electricity). Sod peat is also used for power production to help poorer areas. Other uses: Moss peat for horticultural

use (there is a growing export market for this). Peat pots also for horticultural use.

## 6. HOW IRELAND CAN HELP

6.1. The country papers presented at the Seminar indicate a need for such institutions as Industrial Development Centres, Export Promotion Centres, Industrial Information Centres, Industrial Research Centres. All these already exist in Ireland. A study of the Irish centres by interested countries would be useful. Ireland will facilitate such study.

Also the Irish Centres will provide advice on the setting up and management of corresponding facilities in the developing countries.

### 6.2. Industrial Estates

There is a lot of interest in these. Advice will be made available by the official agencies in Ireland on construction and management of industrial estates. This has already been done from time to time by the Shannon Free Airport Development Company which has extensive experience in this field.

### 6.3. Regional Planning (sub-national level)

Tanzania and Botswana are endeavouring to attract industrial projects to locate in the regions. Ireland has the same problem and has produced regional industrial plans aimed at (a) 55,000 new jobs in 1973-77, and (b) location of a proportion of these jobs in the various parts of the country in which employment is needed. Copies of the plans are available and will be given to the participating countries and the international agencies.

### 6.4. Small-scale industry

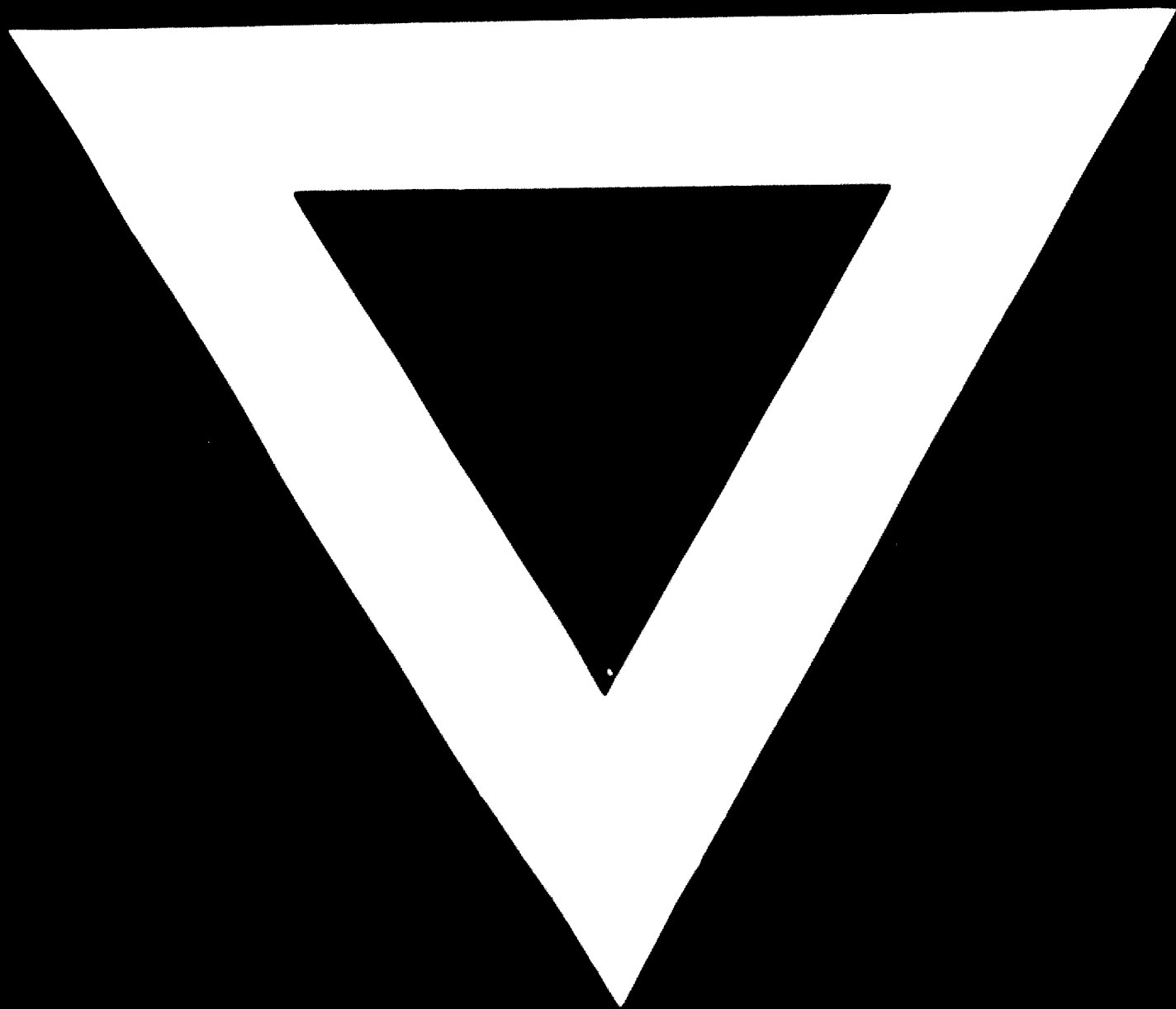
An acute need exists in the African countries for workshops for repair, maintenance and manufacture of agricultural implements and machinery. There is a large number of these workshops in Ireland. Many of them have been assisted under the Small Industries Programme. Ireland can advise on the establishment of these workshops.

Ireland can also advise on small industry programmes based on the Irish experience.

6.5. Industrial free zones

The advisory report made to UNIDO by the Chairman of the Shannon Free Airport Development Company relates to the problems and opportunities presented by the free zone concept as a means of stimulating industrial development in the less developed countries of Asia. This report indicates Irish willingness to share the Shannon experience with developing countries. The opportunity thus presented might also be taken up by the African countries.





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