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African Countries

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**ENERGIZING THE OPERATIONAL INDUSTRIALIZATION SYSTEM:
PROJECT DEVELOPMENT AND IMPLEMENTATION ***

prepared by
UNIDO secretariat

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P R E F A C E

The subject of this paper involves complex institutional and technical aspects. The brief presentation can only establish a framework for discussion, which must be tailored to the specific requirements of each country. Thus the material offered here should be considered only as an introductory discussion.

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1. INTRODUCTION: THE FLOW OF HIGH QUALITY INVESTMENT PROJECTS CAN BE INCREASED

In many developing countries, the industrial sector is growing faster than the economy as a whole. This is largely a result of increased emphasis on industrialization as an essential means of speeding economic and social progress. Nevertheless, countries often find that industrialization proceeds at a slower pace than called for by the national development plan. Furthermore, the social and economic benefits desired from industrial investments are not often fully realized.

This paper discusses the Operational Industrialization System (OIS), which Governments have put into place to accomplish their industrialization objectives. It identifies some of the common sources of "slippage" which contribute to less than ideal performance. It describes an orderly approach to reduce the slippage and thus strengthen the national capability to identify, establish and operate industrial investment projects. Finally, it outlines a relatively simple means of ~~seeing~~ securing a rapid increase in the flow of high quality projects.

2. EVALUATION OF THE EXISTING SYSTEM

2.1 What is the Operational Industrialization System?

Although there are differences among countries and among projects, there exists a reasonably well defined series of stages in establishing and managing industrial production units. This sequence is sometimes referred to as the "project life cycle". Further, each country has evolved an institutional framework in which functional responsibilities are shared in a more or less complex fashion among various institutions. Altogether, the functions and

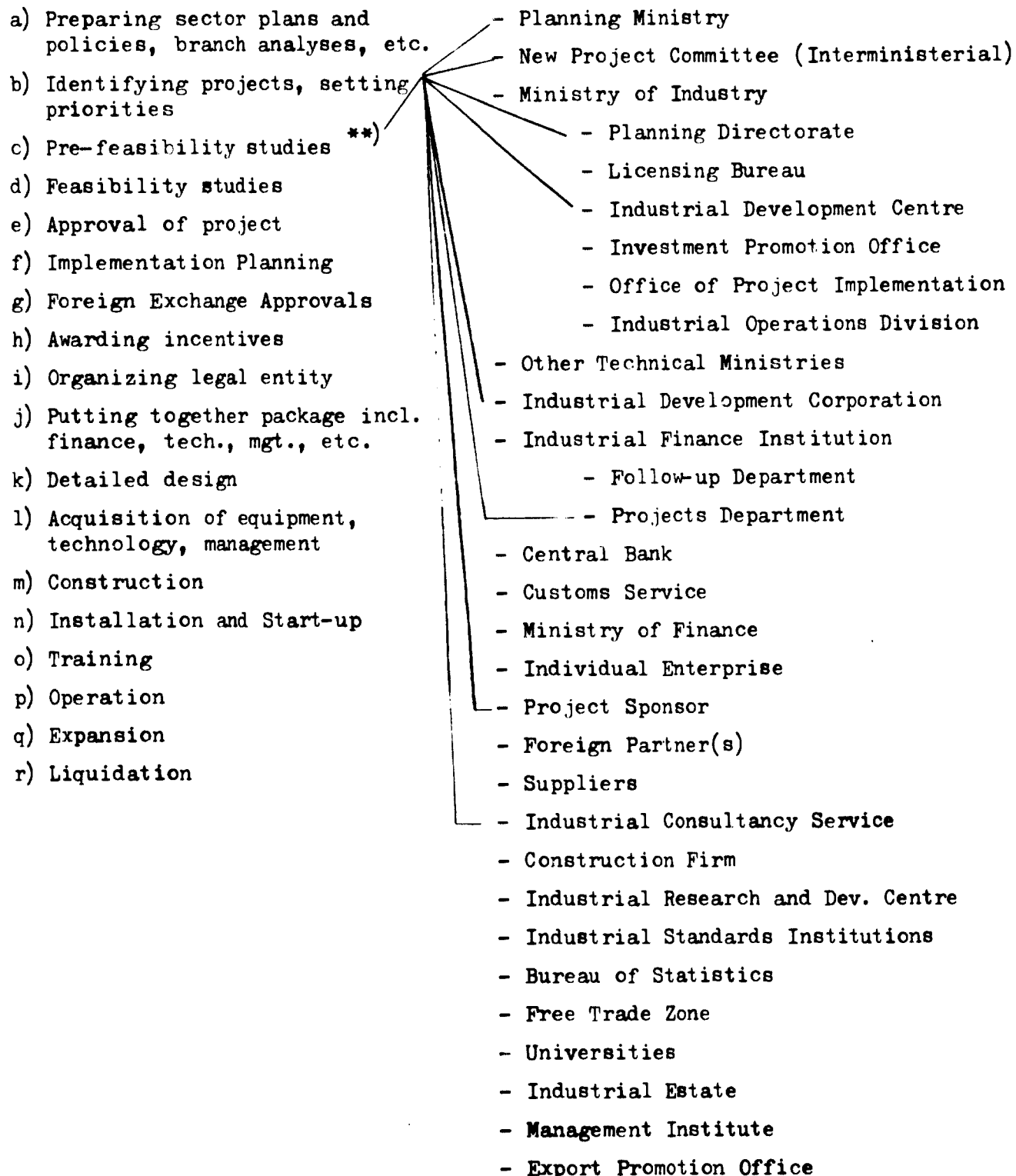
institutions comprise a system. Because the system is intended to produce operating industrial units, not just documents, it may accurately be called the Operational Industrialization System, or OIS.

Exhibit 1 on the following page presents a simplified representation of the system. The lines on the diagram indicate those institutions most likely to be strongly concerned with project identification, as an illustration. Similar connexions could be drawn for each stage of the project life cycle, and the results for a particular country summarized in the form of a matrix. It is easy to see that for most countries the system is highly complex.

Exhibit 1. Activities and Institutions Comprising the OIS.

Activities Making Up the Project Life Cycle

Typical Institutions Involved in Establishing and Managing Industrial Production Units



*) These do not necessarily take place in strict sequential order

***) These lines illustrate the system's complexity by indicating institutions playing strong roles in only one task: that of project identification.

2.2 Sources of Slippage

As mentioned in Section 1, the quantity and performance of newly established production units do not always meet development plan targets. Without attempting a comprehensive analysis, we may note that Government officials have pointed out a number of causes for the gap between expectations and results. Some which are particularly relevant to this discussion are the following:

Haphazard project selection - e.g. lack of timely preparation or updating of development plan, branch analyses, etc.; inadequate attention to alternative uses for limited inputs.

Unequal negotiations - an imbalance among the parties in bargaining power leading to inequitable arrangements for transfer of technology, management, finance, know-how, etc.

Lapses of political will - occasionally leading to approval of inappropriate or poorly designed projects

Slow decision-making - pre-investment studies often become obsolete without an explicit go/no-go decision being made. This leads to repeated expenditure of money and scarce skills to update studies of the same projects.

Marketing weakness - Numerous "marketing horror stories" testify to lack of market understanding before investment decision.

Under-utilization of capacity - semi-idle facilities abound; the reasons are many. (In some cases idle capacity can be viewed as a resource; it may lead to "windfall" gains in output.)

2.3 Identifying Gaps In the OIS

As a starting point for charting possible improvements, we may briefly examine performance of the existing system. One way to arrive at a quick assessment is to estimate answers to the following questions:

(a) Past investment and employment effects

- What has been the rate of industrial investment: number and value of projects completed last year, last five years?
- How many new jobs are represented by these projects?

(b) Industrial output and capacity utilization

- What have been the amount and rate of increase in overall industrial output (value added) during the last five years? What % of GNP is represented? How many jobs?
- How do these values compare with targets established in the national plan?
- What is the rate of capacity utilization in each of the five or ten most important industrial enterprises? What is the trend? What problems block improvement?
- Describe the foreign exchange situation in relation to the industrial sector.

(c) New investment projects and self-reliance

- What are the six most important new projects in the pipeline? What are approximate investments, expected employment and completion dates?
- To what extent will these new enterprises contribute to increased technical and managerial self-reliance?

3. SUGGESTIONS FOR STRENGTHENING THE SYSTEM

If answers to the above questions indicate serious gaps in performance of the OIS, there may be a need to take corrective action. Although specifics depend on the individual case, some basic guidelines can be offered for consideration:

- (a) It is easier to design meaningful improvements if the existing system is clearly understood. Some attention devoted to analysing existing responsibilities - which institutions are charged with which functions - should be worthwhile (please refer to Exhibit 1). Except in unusual circumstances, first priority may be given to strengthening existing organizations by helping them to fill capability gaps, rather than creating new institutions.
- (b) If examination shows a need for rationalization of functions and re-allocation of resources among institutions, appropriate changes should of course be initiated. But individual officials can usually modify only a few elements of the system; and formal changes tend to take a long time. An interministerial task force may be effective, but results depend heavily on receiving top-level backing. Even within an individual ministry, formal structural changes may require participation of a central ministry and of a civil service commission, thus requiring considerable time and energy.
- (c) Strengthening operations of semi-autonomous bodies such as development banks and sectoral holding companies within reasonable limits may be considerably simpler since the decision-making processes tend to be less complex. In many cases modifications can be initiated through direct informal personal contact with the top operating executives.

- (d) Some countries have discovered that existing institutions are effective in carrying out pre-investment studies for new projects, but are inadequately equipped to organize their timely and economical realization or to ensure effective operation of the enterprises thereafter. This situation has resulted in creation of new divisions or whole new institutions for "project implementation", "industrial operations", "consultancy", "project follow-up", etc.
- (e) A long-range action programme for developing needed institutional capacities can be prepared in the light of the foregoing. But since the time scale for significant improvement through the above will be on the order of one to three years, consideration should also be given to parallel short-term actions. The following section outlines one such approach, for discussion.

4. A SHORT-TERM CAMPAIGN TO INCREASE THE QUANTITY AND QUALITY OF NEW INDUSTRIES

It is suggested above that the institutions responsible for the various OIS functions be assisted to fill in capability gaps - and that the system be rationalized - through a carefully designed long-range programme. It is also asserted that important benefits can be achieved by organizing a parallel action programme to obtain short-term results. This section describes an example of such a short-term campaign, which concentrates on: (1) identifying priority project opportunities and (2) adapting project designs to yield more of their potential socio-economic benefits during implementation. This type of campaign can be organized and led by one of the institutions identified in Exhibit 1 as being strongly involved with project identification.

4.1 A Quick Method To Identify and Activate Priority Projects

It is possible to carry out a simple project identification and screening exercise in no more than two or three weeks. This will allow the project development team to focus its efforts sharply on a small number of projects, without first waiting many months to obtain the results of a more orderly, comprehensive, and thorough process. This quick approach involves relatively little risk, because it takes account of the basic selection factors. The method's speed and effectiveness come from its ability to organize and process information which is readily available within the country.

Please refer to Exhibit 2 on the following page which is a reproduction of the matrix^{1/} used for collecting and analysing data, and for displaying initial results of the exercise. In practice the matrix can be made in a large size, such as 2 x 3 meters, and mounted on the wall of a conference room as a worksheet. Used in this way, the matrix is a very effective work organizer and stimulates active participation by members of the assigned task force. After collecting and recording available information on existing and "pipeline" projects, etc., the group applies collective judgement to assign ratings for each evaluation factor and to rank or group the most attractive-looking potential projects.

^{1/} Please see UN/ECA document E/CN.14/INR.200, Operational Guidelines for the Development of Investment Promotion Institutions, pp 55 - 64, for additional related material.

Exhibit 2: INDUSTRIAL PROJECTS

Projects and Eval. Sectors	Existing Industry		Evaluation		
	Principal Enterprises	Appropriate Volume	Import Volume	Market/Financial	
				Demand Growth	Avail. Mkt. (Dom.)
Food and Beverages Tobacco Textiles and Clothing Leather and Footwear Wood Products Paper and A.P. Printing and Publication Chemicals Pharmaceuticals Petroleum and A.P. Rubber and Plastic Prod. Non-metallic Minerals Basic Metals Metal Products Machinery non-elect. Machinery elect. Transport equipt. Other T O T A L	Name, products, size indication			Relative values indi-	

IDENTIFICATION MATRIX

criteria					Pipeline of new investment projects			Apparent opportunity for further effort
"External Benefits"					Under construction or committed	Active in negot./under consideration	Prel. studies but inactive	
Fin. prospects	Local Inputs	Linkages	Labour Intensity	Foreign Exchange Gain				
cated by "High", "Medium", or "Low"					Name, Products, Size indication			Intuitive or other judgement
					identification of document			

It is assumed that a number of high priority projects have been identified through the process described above or have previously been designated by the authorities. For the purposes of a short-term campaign it is useful to select perhaps three to eight projects for intensive action. Subject to adjustments to suit the local situation, the following tasks could be initiated during a period of six months to one year:

- (a) Prepare a brief project profile for each project to facilitate effective and economical "canvassing" of support.^{1/}
- (b) If foreign participation in detailed preparation or implementation is contemplated, establish contact as early as possible with potential participants. This can be done through existing investment promotion channels or by initiating new contacts.^{2/}
- (c) Be sure that all stages (including initial) of the project design, and subsequent negotiations for the acquisition of technology, management, finance, etc., take full account of national industrial development policy objectives (see section 4.2, following).

4.2 Project Evaluation: Increasing "Benefits of Industrialization"^{3/}

Project evaluation in the financial sense is fully described in the new UNIDO manual on feasibility studies^{4/}, which is a highly recommended tool for the project developer.

^{1/} Please see "A Guide for Preparing Industrial Project Profiles", UNIDO/IOD.204

^{2/} See, for example, Financial Resources for Industrial Projects in Developing Countries, PI/61

^{3/} Please see "Mutual Advantage" as a Key to More Equitable Arrangements for the Transfer of Industrial Resources, UNID/IOD.167 Rev. 1, for further discussion and recommendations.

^{4/} Please see Manual for the Preparation of Industrial Feasibility Studies, United Nations Sales Number E.78.II.B.5

But when it comes to the broader range of socio-economic aspects, the picture is more complex. A compact version of the corresponding UNIDO manual has been newly issued^{1/}. Although application of the method still involves some rather complicated machinations, the guide is certainly a useful contribution.

However, the subject of non-financial evaluation is so important that it seems essential to seek a simpler way to make the benefits and costs visible - even if the simpler method is not very precise. As a readily available reference point, each country has a set of industrial development policy objectives; frequently the list is similar to that given in the Annex (see section 6). If a formal method of social cost-benefit analysis is not already in use - or if time does not always permit its full application - a brief evaluation checklist can be used to highlight some of the potential benefits and to compare project alternatives. This additional visibility will encourage project designers to include desirable features. An illustrative comparison checklist is given in the following table (Exhibit 3). The selection of "design features" is derived from the list of national policy objectives referred to above.

^{1/} Guide to Practical Project Appraisal - Social Cost-Benefit Analysis, United Nations Sales Number E 78.II.B.3

Exhibit 3: Illustrative Table for Comparing Non-financial Benefits of Project Alternatives.

Project Title		Ratings of Project Alternatives ^{1/} (H-L-N)		Explanation of Rating
Illustrative Checklist of Potentially Beneficial Design Features	Alt.no.1	Alt.no.2		
- Local involvement in engineering and construction				
- Local production of materials and equipment for the plant (examples are building materials, structure, storage, tanks, piping, handling equipment)				
- Use of local raw materials, supplies, services				
- Local sub-contracting				
- Local production of components, e.g. foundry				
- Use of locally available renewable energy sources				
- Local production of spare parts				
- Local distribution and maintenance network				
- Complementation agreements, i.a. to increase local production for export				
- Suitable plant location				
- Links to other industrial projects and to development activities in other economic sectors - agriculture, transport, infrastructure				
- Others, to be determined				

^{1/} Ratings used are High, Medium, Low, and Not Applicable.

5. WHAT TO DO ABOUT THE SKILLS GAP

Ultimate success of both the short-term and long range activities depends upon applying necessary technical and managerial skills. There is no uniformly effective way to make up for shortage in these areas, but there are techniques for increasing the efficiency with which available skills are allocated. One such method is to organize certain high level skills in a national industrial consultancy service. This approach does result in a multiplier effect and may be helpful in achieving improved project results^{1/}.

UNIDO co-operates with Governments in identifying and overcoming gaps in the range of skills required for designing and manning the national OIS system. A number of operational approaches which develop skills while also producing direct economic benefits are identified in the paper entitled "Managerial Self-Reliance for Industrialization".^{2/}

^{1/} Please see The Case for National Industrial Consultancy Services, UNIDO/IOD.125 and Development of National Industrial Consultancy Services: A Phased Programme, UNIDO/IOD.134

^{2/} ID/WG.262/2, 10 November 1977

6. ANNEX: ILLUSTRATIVE LIST OF COMMONLY ADOPTED
INDUSTRIAL DEVELOPMENT POLICY OBJECTIVES

- Increased industrial output (value added) for domestic and export markets
- More jobs, more equitable income distribution
- More local "value added"
- Less foreign exchange outflow
- Less dependence on outside skills
- Leapfrogging^{1/} development of local management and technical personnel
- Stimulation of local entrepreneurship
- Integration of the national economy: both within the industrial sector and through linkages with agriculture and infrastructure
- Geographical dispersion of industry
- Development and application of independent technology
- Less environmental damage (or even positive enhancement, especially in social and technological aspects)

^{1/} A specialised executive development programme in one African country used this term to describe its objective.

7. SOURCES OF ADDITIONAL INFORMATION^{1/}

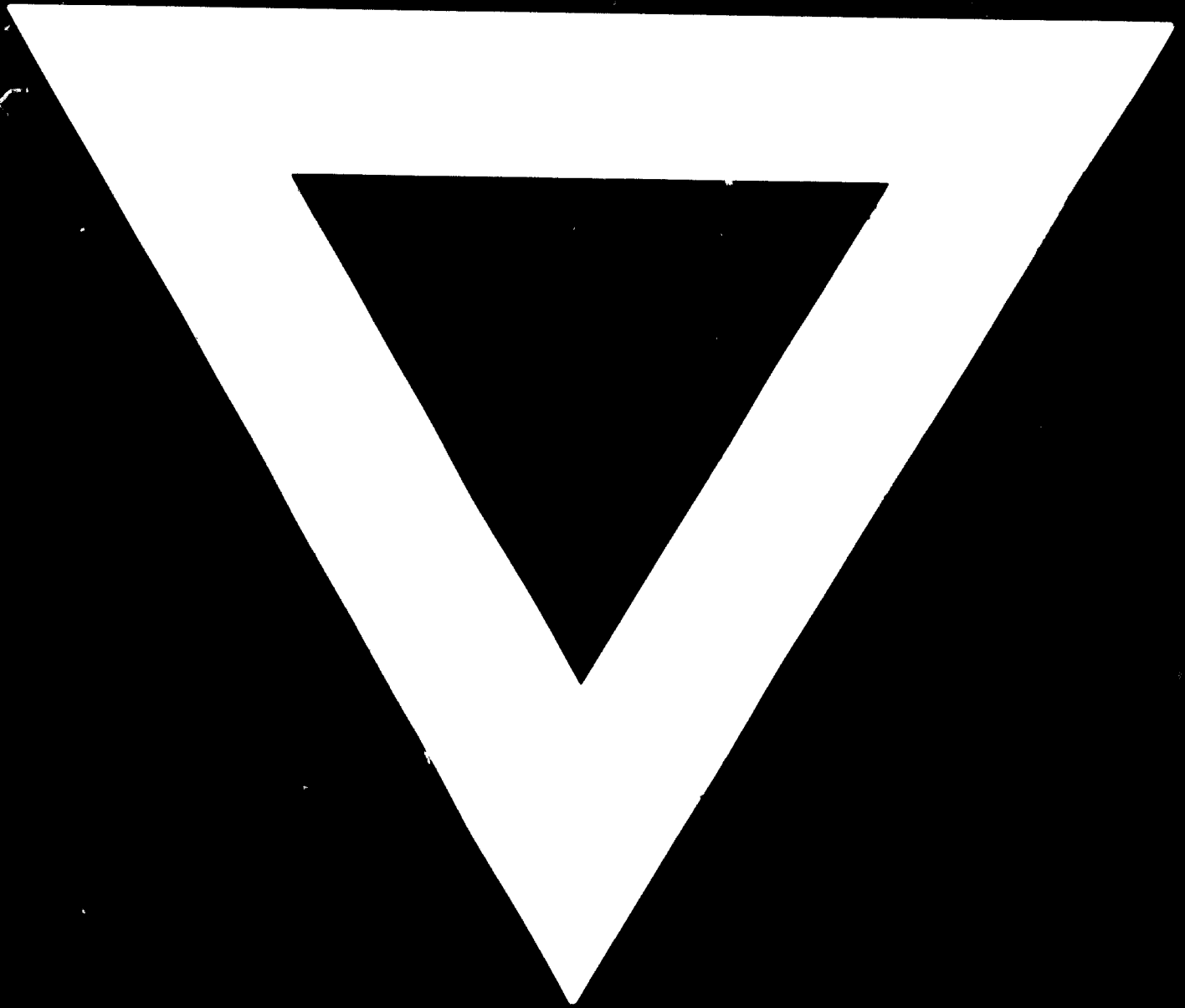
- Directory of Organizations in Developing Countries for Development and Implementation of Industrial Investment Projects, UNIDO/IOD.135/Rev. 1
- Guide to Practical Project Appraisal - Social Cost-Benefit Analysis, United Nations Sales No. E 78.II.B.3
- Establishing Factories for the Low-Cost Production of Grey Box Board: A Preliminary Guide, UNIDO/IOD.157
- Establishment of Factories in Developing Countries for the Production of Electrical Distribution Transformers: A Preliminary Guide, UNIDO/IOD.139
- Establishment of Factories in Developing Countries for the Re-Refining of Automotive Lubricating Oil, UNIDO/IOD.111
- Closing the Factory Establishment Gap, UNIDO/IOD.105
- Financial Resources for Industrial Projects in Developing Countries, PI/61
- A Guide for Preparing Industrial Project Profiles, UNIDO/IOD.204
- Manual for the Preparation of Industrial Feasibility Studies, United Nations Sales No. E.78.II.B.5
- Final Report of Expert Group Meeting on the Role of Industrial Consultancy in Developing Countries, Ljubljana, June 1978, ID/WG.278/6
- Development of National Industrial Consultancy Services: A Phased Programme, UNIDO/IOD.134
- The Case for National Industrial Consultancy Services, UNIDO/IOD.125
- Regional Joint Consultation on Management of Public Industrial Enterprises in Africa, Dakar, Feb. 1978, UNIDO/IOD.166/Rev. 1
- Standardization of Industrial Accounting Methods, UNIDO/IOD.147
- Managerial Self-Reliance for Industrialization: Issues and Opportunities, ID/WG.262/2
- Marketing Research and Sales Promotion in Africa, ID/WG.222/8
- Consultation Panel on the Use of Management Information Systems (MIS) for Raising Industrial Performance, ID/WG.230/11
- Managing Technical Institutions for Industrialization, UNIDO/IOD.116
- Activating the Potential of Universities for Industrial Development, UNIDO/IOD.150
- University Involvement in Industrial Development Initial Responses to UNIDO Survey, UNIDO/IOD.201
- Industrial Executive Conference: Computer Applications for Policy and Decision-Making, UNIDO/IOD.103
- Minicomputer Systems to Manage Industries, UNIDO/IOD.91

^{1/} Limited copies of the "UNIDO/IOD" documents are available from Factory Establishment and Management Section, UNIDO, Vienna.

- Operational Guidelines for the Development of Investment Promotion Institutions (including application cases), E/CN.14/INR/200, Economic Commission for Africa.
- 'Mutual Advantage' as a Key to More Equitable Arrangements for the Transfer of Industrial Resources, UNIDO/IOD.167/Rev. 1



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