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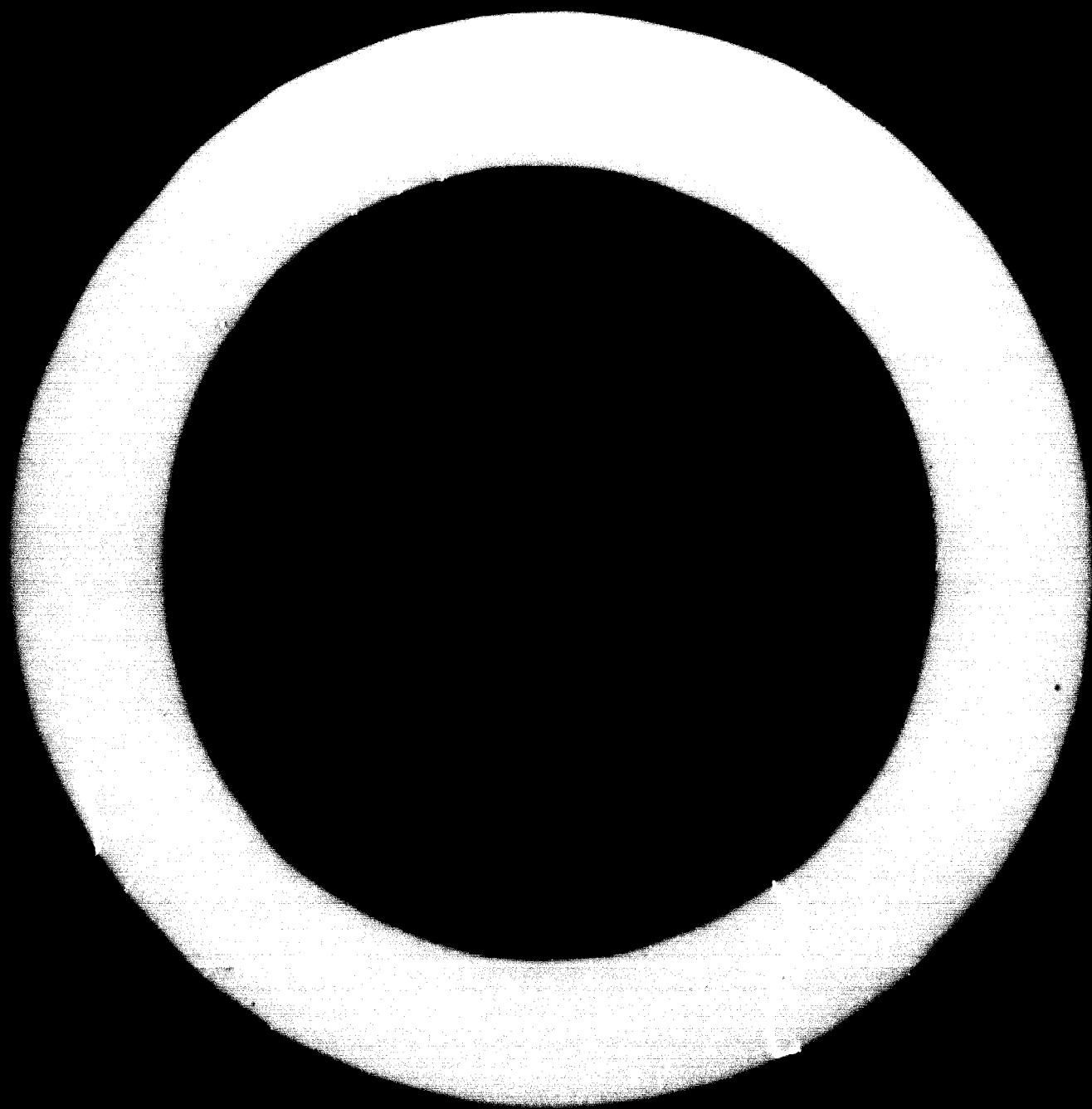
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United Nations Industrial Development Organization

IMPROVING INDUSTRIAL ADMINISTRATION

**A report on the Meeting for the Improvement of
Industrial Administration
Krems, Austria, 4-8 June 1972
and related UNIDO activities**

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.

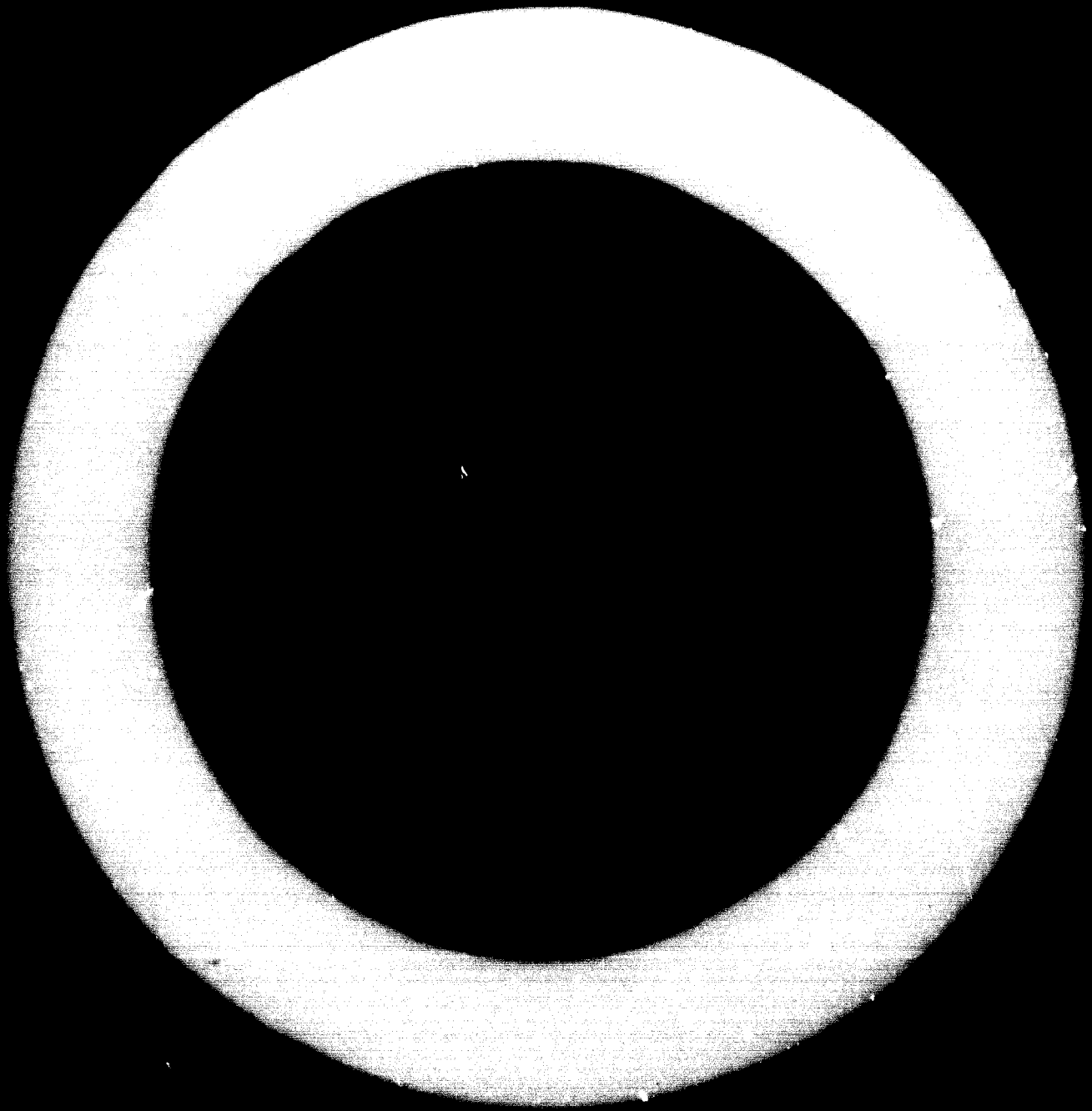


PREFACE

In 1965, the United Nations Centre for Industrial Development (CID), the predecessor of the United Nations Industrial Development Organization (UNIDO), held a meeting with the Organisation for Economic Co-operation and Development (OECD) in Paris on the Training of Economic Administrators for Industrial Development. Since then, UNIDO has been expanding its work in industrial administration. In the progressively widening scope of activities, the Meeting for the Improvement of Industrial Administration, held jointly with the Austrian Government at Krems in June 1972, marked another significant advance.

This monograph brings together the collective wisdom and experience on industrial administration as examined at Krems and at other recent meetings including those held in Vienna in November 1971, in Kuwait in March-April 1972, and at Addis Ababa in October 1972. It is anticipated that this monograph will be particularly useful to Governments and national and international organizations in the implementation of technical assistance programmes of UNIDO. It also provides a background document for a study of the feasibility of the proposed International Centre for Industrial Administration being undertaken by the Austrian Institute of Research in Education and Development (IBF).

This monograph has been prepared by the secretariat of UNIDO in consultation with IBF on the basis of a report prepared by Edward Rubin, President of Action Programs International, United States of America.

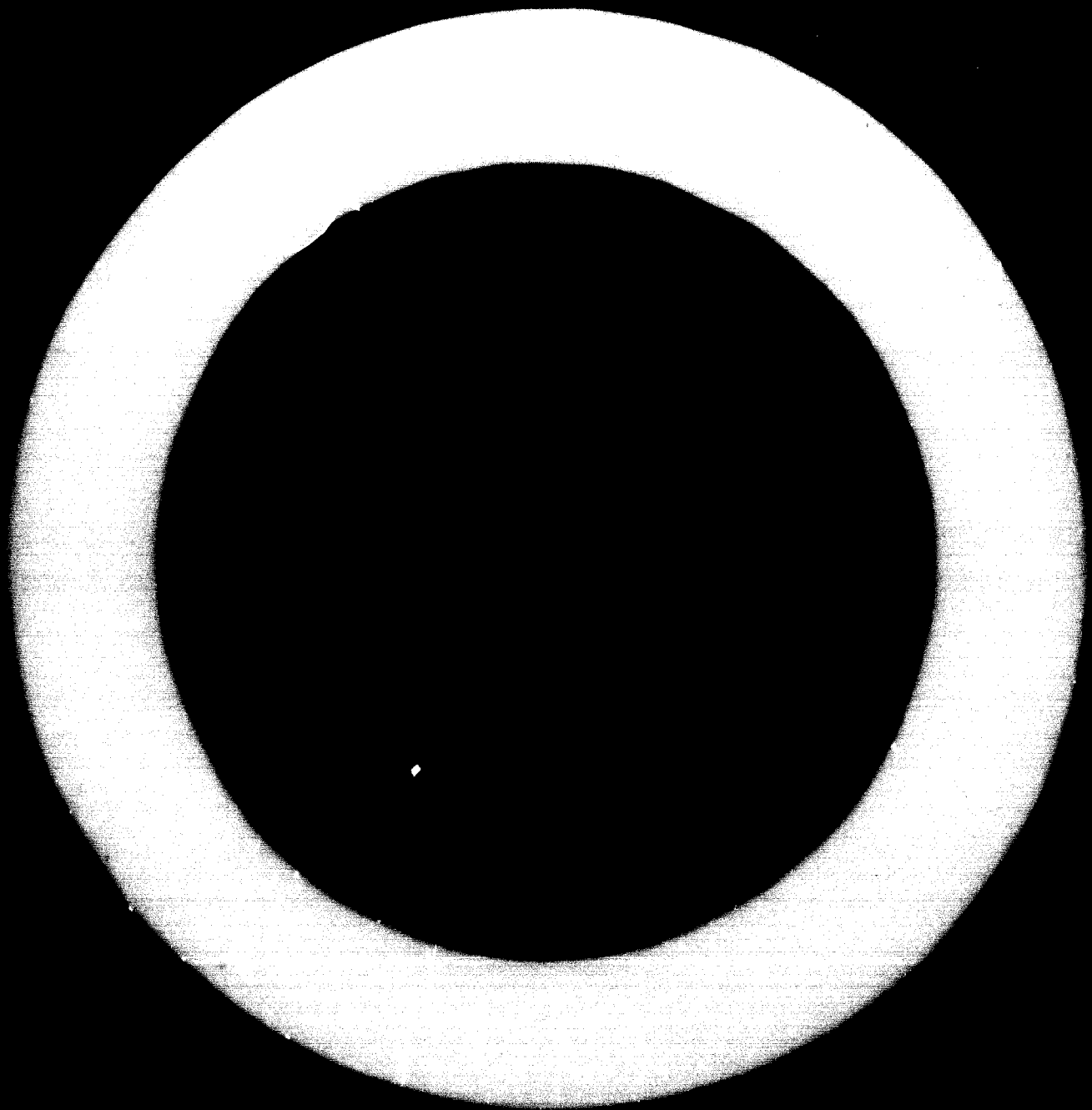


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INTRODUCTION

The Meeting for the Improvement of Industrial Administration held at Krems, Austria, 4-8 June 1972, was organized by the Austrian Institute of Research in Education and Development (Institut für Bildungs- und Entwicklungsforschung - IBE) in co-operation with the Government of Austria and UNIDO. It brought into focus the cumulative thought and effort of organizations and groups concerned with the administrative machinery for industrial development. The Meeting laid the basis for a more comprehensive understanding of industrial administration, which is the operation of that machinery, and of the individuals who run it, the industrial administrators.

The preparation for the Krems Meeting involved much thought and effort and included specific meetings on industrial administration, which are described in Chapter I of this monograph. Chapter II contains a report of the Krems Meeting. Chapter III discusses UNIDO activities in industrial administration. It devotes particular attention to the regional workshop in industrial administration held at Addis Ababa, following the Krems Meeting, which further defined the field and described specific means for its improvement.

The industrial administrator can play a strategic role in ensuring an adequate flow of resources to the industrial development sector and in using them effectively. He has the special responsibility of serving as the bridge between the manufacturing industry and the public and private agencies providing administrative services to industry.

Industrial administration can make its contribution to development only if the field receives serious attention and strong support from the Governments of developing countries. These countries are charting new courses in industrial development. They are creating the need for the new type of industrial administrator who may play a more direct role in industrialization than his counterparts in developed countries.

I. BACKGROUND

The Pearson report stated clearly one of the primary lessons of the First United Nations Development Decade:

"The capacity to plan and implement development programs has also improved, though planning remains ahead of implementation in most countries. The capacity to prepare development plans depends on a relatively small group of well-trained individuals. These can be trained quickly abroad and they can be supplemented readily by small numbers of foreign advisers. The implementation of such plans, however, involves the whole administrative structure of the government together with the private sector. Because administrative structures are still weak, effective implementation is still too rare. Yet implementation is the test of a plan's realism as an instrument of development, of the accuracy of project analysis, and of the capacity of the country to invest and to operate better public services."^{1/}

In the Second Development Decade, the problem persists. Development Co-operation, the 1972 report of the Development Assistance Committee of the Organisation for Economic Co-operation (OECD), touches on some of the problems of management in the developing countries:

"It is hardly necessary to say much about the gap that exists in most developing countries between what is agreed by the experts should be done and what in fact is done by people in every sector of the society.... Often, though not often enough, political authorities accept the need for action and are prepared to use their position to bring it about. What is lacking is the essential link between knowledge, political will and action - an efficiently organised bureaucracy, public or private, staffed by trained, experienced and devoted people. It must be capable of translating political decisions into operational plans, translating plans into specific programmes and projects, and translating programmes and projects into action on the spot - and the spot can be any remote corner of a country where humans live or can go for useful purposes....

"Improvements in these situations will also take time, a long time. Donors should be looking much more actively than they have been for ways to help improve management capacities. A particular gap is the absence of training in either business or public administration from the curricula of most developing country universities, modelled as they have been on European universities in which these subjects are just

^{1/} Partners in Development: Report of the Commission on International Development (New York, Praeger, 1969), pp. 43-44.

beginning now to find a limited place. A considerable piecemeal effort has been made by donors to train those already in bureaucracies, usually in a special skill of some sort, through scholarships, training grants, and the work of technical assistance experts."^{2/}

UNIDO has long been aware of the special need for training industrial administrators. Its predecessor organization, the United Nations Centre for Industrial Development (CID), made a survey in 1962 of training institutes concerned with industrial development and found serious deficiencies. While much progress has been made since then in methodology and training in project appraisal, the workings of the various institutions within which projects are generated and developed are no better understood, and there is still little agreement on the roles and functions of industrial administrators within the institutions.

A CID and OECD Working Party made an important start in examining the need for training industrial administrators in a meeting in Paris in September 1965. The report^{3/} emphasized that industrialization is an integral part of the process of development. Figure 1 illustrates the steps in devising and carrying out industrialization, indicating feedback from lower to higher steps. The entire process is dynamic. Action on individual industrial projects continues while national, sectoral and programme plans are being made and revised. The impact of the individual efforts on the economy as a whole and on the plans must be taken into account. Individuals responsible for each step in the progression should understand the functions performed in the other steps.

Industrialization itself involves the co-operation of many institutions and of many disciplines. Developed countries have built their institutions and patterns of relationships over a very long period. Developing countries must build their administrative machinery in a short time, while training individuals to operate it. National organizations to promote, oversee or finance industrial development have been established in many countries. A wide variety of other institutions and organizations has been created. Many ways of interrelating these organizations and institutions in a national industrial administrative framework have been adopted. Alternatives are necessary because of different political orientation, national goals, and human and industrial resources in developing countries.

The training of industrial administrators depends directly on who is classified as an industrial administrator. As shown in figure 1, industrial administrators are

^{2/} OECD Development Co-operation: Efforts and Policies of the Members of the Development Assistance Committee (Paris, December 1972), pp. 30-31.

^{3/} Training of Economic Administrators for Industrial Development (United Nations publication, Sales No. 68.II.B.12).

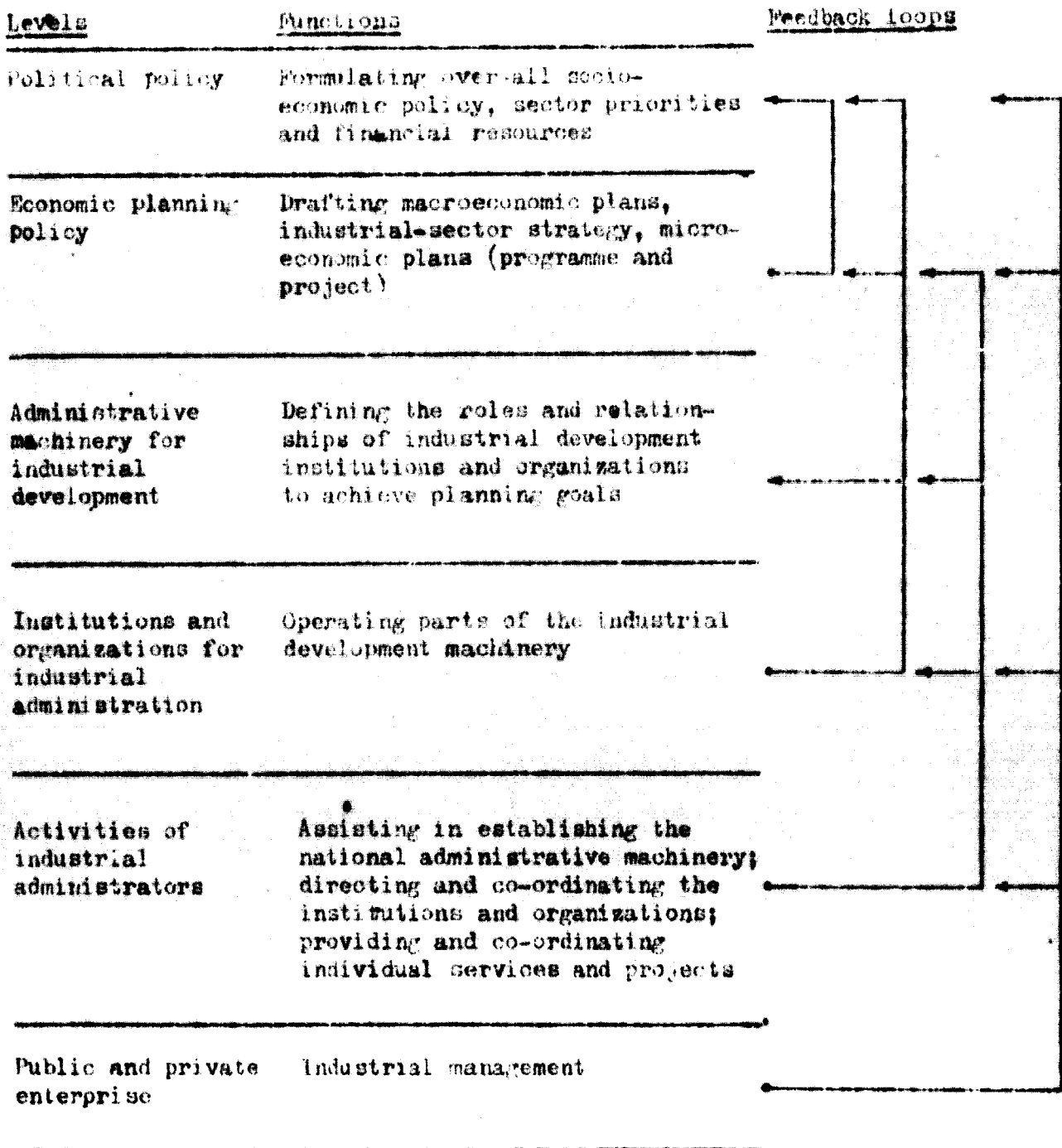


Figure 1. Industrial development progression

responsible for: assisting in establishing the national administrative machinery; directing and co-ordinating industrial institutions and organizations; and providing and co-ordinating individual projects and services. It should be stressed that industrial administrators are primarily co-ordinators and managers of implementation of industrial development, and they should be trained accordingly.

In one sense, individuals involved in each step of the progression are industrial administrators. The CID/OECD Working Party took this position, defining economic administration as "every person who has responsibility for, or participates in, devising and/or implementing policies directed towards industrial development".^{4/} Its report viewed both senior and middle administrators as involved with planning and implementation.

In a paper presented to the CID/OECD Working Party, Celso Furtado stated: ..

"Although... the viability of the objectives of a programme has to be verified by comparing the partial results obtained with those objectives in a continuous process, for practical purposes it is very important to draw a clear distinction between the formulation and scheduling of a programme and its implementation. The reason for introducing this clearly defined distinction is that, during the first phase, concerned with formulation and scheduling, it is easier to rely on skilled personnel hired temporarily out of the area or supplied by agencies specialized in technical assistance. On the other hand, those responsible for implementing the programme must have a thorough knowledge of the country and be familiar with the cultural patterns and aware of the role of the leading elements in the community. As the two kinds of skills very rarely can be found together in developing countries, it seems advisable to emphasize the difference between the formulation phase, when technical requirements are most needed, and the implementation phase, when knowledge of the social reality is more essential."^{5/}

The Paris meeting considered other important aspects of training, as outlined below.

Industrial administrators should be trained to grasp the structural and analytical concepts and tools used in industrial development. The International Bank for Reconstruction and Development (IBRD) gave a course for government officials whose work was directly related to the formulation and evaluation of industrial development projects that included the following topics: definition of the industry sector and its internal structure; main elements of industrial projects, defined in terms of input and output, with the concept of value added; accounting and financial analysis, differentiating between private accounting and social accounting; cost analysis, use of break-even charts and economies of scale; analysis of the market

4/ Ibid., p. 5.

5/ Ibid., p. 57.

and role of transport and distribution costs, relationship between planning and implementation and between engineering, costing and execution of projects selected for implementation, promotion of industrial capital markets and role of development banks, evaluation of organization and management and creation of an industrial labour force protection of new industries; analysis of infrastructural projects closely related to industrial growth (e.g. power), and establishment of various supporting institutions such as industrial estates, productivity centres and technological institutes.

The industrial administrator should also understand the relationship of industrial development to the rest of the economy, and particularly to agriculture, the obstacles to economic growth in developing countries⁶ and the problems of urban concentration, income inequities and unemployment.

Industrial administrators should know how to extend the industrial planning phase into detailed operational sub-programmes. These detailed plans filled the gap between general plans and schedules and the specific decisions that the industrial administrator was expected to make when he embarked on implementation. As Furtado pointed out, this operational sub-programming was necessary whether the industrial programme was to rationalize an existing industry, to establish a new industry in the public or private sector, or to transform craft enterprises into an organized manufacturing industry.⁷ The importance of the sub-programming stage had been greatly underestimated. It was one of the industrial administrator's most important activities.

A variety of training programmes was needed: general and specialized programmes, national, regional and international programmes emphasizing exchange of experience, on-the-job training; and programmes in which government officials and executives of enterprises and organizations participate.

In the five years following the Paris meeting, UNIDO initiated and conducted a number of activities specifically addressed to industrial administration. These are discussed in chapter III. On the basis of this experience, it concluded that a new approach to the implementation phase of industrial development should be adopted and that training programmes for industrial administrators needed thorough recasting. UNIDO therefore welcomed the suggestion of the Government of Austria that a joint meeting be held to explore possible areas of co-operation with UNIDO and the United Nations Institute for Training and Research (UNITAR) in training activities in industrial administration, including the feasibility of a centre for industrial administration to be located in or near Vienna.

⁶ A good summary of these obstacles in Africa is contained in the report of the ECA/CAJ Conference of Ministers of Industry, Addis Ababa, May 1971 (E/CN.14.525).

⁷ Training of Economic Administrators for Industrial Development, p. 64.

The three-day Joint Meeting of the Government of Austria and UNIDO to Consider More Effective Training in Industrial Administration was held at Vienna in November 1971. Participants included representatives of the Austrian Government, of UNIDO and UNITAR, of private organizations and internationally known professionals engaged in technical assistance. One of the background papers^{8/} presented to the Meeting described the features of industrial administration that differentiate it from public administration in general. It made a strong case for training industrial administrators to use modern techniques of problem solving and programme implementation. It discussed how the training should be organized, i.e. on which one (or more) of the following bases: countries at a given stage of development; problems to be resolved; content and level of training inputs; or a selected corps of key officials from one country representing the various interlocking organizations and institutions forming the national administrative machinery for industrial development. A marked advantage of the last named type is that it could achieve a "critical mass" of new management skills and new techniques for working in a changing environment. The report of the Joint Meeting^{2/} summarized both the deliberations of the Meeting and those of the Joint Committee appointed during the Meeting to carry on the work initiated. There was agreement that developing countries would respond favourably to a programme or set of training programmes if they genuinely embodied a new approach that could be expected to lead directly to improvements in the implementation of industrial development.

The Meeting then concerned itself with the contribution a centre for industrial administration could make to a more effective programme of industrial development. Among the points stressed were:

- (a) Emphasis should be placed both on developing the sophisticated skill needed for decision making and on setting up adequate machinery for implementation of decisions;
- (b) The centre should offer short-term programmes addressed to the immediate upgrading of knowledge and skills of administrators; and long-term programmes based on research into the problems of industrial administration, conducted primarily by professionals from the developing countries;
- (c) The centre should provide an environment in which industrial administrators from developing countries could exchange experience and work together in areas of mutual concern.

^{8/} R. N. Jai, with the assistance of the secretariat of UNIDO, "More effective training in industrial administration" (ID/WG.115/2).

^{2/} "Draft report: the improvement of industrial administration" (ID/WG.115/3).

The Joint Meeting revealed the need for a subsequent meeting to suggest practical measures for improving industrial administration services to industry in the developing countries, including modern management techniques that industrial administrators could adopt, and to review and evaluate the work of the Joint Committee, which was to co-operate with IBE in formulating a scheme for the centre and its financing. This meeting was held at Krems.

II. THE KREMS MEETING

Organization of the Meeting

The Meeting for the Improvement of Industrial Administration was attended by 42 participants from both developing and industrialized countries, from organizations and agencies concerned with industrial administration and from UNIDO.

The Meeting was opened by a Senior Industrial Development Officer in the Industrial Services and Institutions (ISI) Division of UNIDO, who welcomed the participants. Welcoming statements were also given by I. H. Abdel-Rahman, Executive Director of UNIDO, as read by the Director of the ISI Division, and by K. Rischka (Austria).

The Meeting unanimously elected Mr. Rischka as President and Abid Hussain (India) as Rapporteur. It was agreed to follow the provisional agenda and programme of work and to hold panel discussions on each day of the Meeting. A background paper prepared jointly by IB¹⁰ and UNIDO^{10/} and other papers were presented to the Meeting.

Each panel consisted of a chairman, a panel leader and panel members. The following panel discussions were held:

Panel A: The environment for leadership
Chairman: H. T. Ide Anak Agung Gde Agung
Permanent Representative of Indonesia to UNIDO

Panel B: The improvement of human potential
Chairman: W. Rogowski
Senior Professor of Management
International Centre for Advanced Technical
and Vocational Training
Turin

Panel C: The administration of technological innovation
Chairman: H. T. Jorge Fernandini
Permanent Representative of Peru to UNIDO

^{10/} "A proposal for the establishment of the International Centre for Industrial Administration" (ID/WG.129/4).

Panel D: The decision-making process

Chairman: T. Rogowski

Panel F: The International Centre for Industrial Administration

Chairman: Sir George Pollock
President
Institute for Industrial Strategy
London

Conclusions

The conclusions reached during the last session of the Meeting as summarized by the Rapporteur are as follows:

The Meeting considered that there was a need to accelerate the industrialization of less developed countries and that improved administration was a strategic factor in a sound industrial development programme. It was agreed that an action programme was needed to assist these countries in promoting and developing industrial administration. To satisfy this need, it was recommended that IBE undertake a study of the feasibility of establishing an appropriate organization (the proposed International Centre for Industrial Administration), taking into account the discussion at the Krems Meeting, and that an "office" be set up in Vienna with appropriate staff for the implementation of this recommendation.

Discussion

The background paper prepared for the Meeting, which is contained in annex II, served as the basis for the discussion. It is urged that it be read at this point. For ease of reference, the summary of the discussion follows the outline of the background paper.

The concept of industrial administration

The Krems Meeting defined industrial administration as the "planning, organization, co-ordination, guidance and control of all non-manufacturing activities having to do with the industrialization process". The interpretation of this definition put the emphasis on the co-ordinating and implementing functions rather than on those of policy and planning. Industrial administration was concerned with the special techniques required by administrators responsible for various aspects of industrial development, and these techniques had strong similarity to those used in industrial management. The definition of industrial administrator would embrace the following: government officials concerned with industry; senior staff members of an industrial development bank; heads of organizations such as export-promotion

agencies, industrial research institutes, or a chamber of industry; key decision makers in public and private enterprise; and members of public boards or industrial development authorities.

The Meeting devoted considerable attention to the role of the entrepreneur who moved industrial organizations out of the traditional model into a stage of dynamic growth. The skills and orientation of the entrepreneur were very different from those of the manager of an established organization. There was growing evidence that the entrepreneur found greater satisfaction from overcoming challenges and from obtaining results than from financial success. Conversely, entrepreneurs were frustrated by excessive regulation; they required some freedom of action.

The discussion involved entrepreneurship in two ways. First, it was recognized that in the early stages of industrial development the industrial administrator could play a creative role in recognising and encouraging the entrepreneur. This was of key importance because entrepreneurs in developing countries played a vital role in developing the base of small-scale industry, so needed in the industrialisation process. Secondly, the Meeting regarded the industrial administrator as an entrepreneur himself. He had to move from traditional bureaucratic practices to innovative ones. Helping create the machinery for industrial administration, starting new industrial development organizations and institutions, managing and co-ordinating industrial development projects - all of these involved entrepreneurial challenges and rewards.

Effective industrial administration

The background paper described 15 requisites for improving industrial administration. Functionally, they related to training and education, motivation, administrative systems, staff development, information and communication and resource utilization.

The Meeting stressed that improvement of industrial administration required both the development of the capability of industrial administrators and the creation of an environment that would enhance industrial administrative development. It agreed that an effective industrial administrator was educated in one discipline, but that he should develop generalist knowledge and skills so that he could function in interdisciplinary teams as required in industrial development. It was recognized that no scientific body of knowledge presently existed concerning the skills needed for effective industrial administration. The task was more comprehensive and complex in developing than in developed countries. In particular, the work of industrial administrators varied from country to country according to its stage of industrial growth.

Role of the proposed International Centre for Industrial Administration

The background paper enlarged on the reactions of the Vienna preparatory meeting to the proposed international centre. It pointed out that although training at the centre could demonstrate and stimulate new attitudes and practices, on-the-job training, designed largely by experienced senior industrial administrators, would produce the lasting benefits.

The Meeting noted the need for flexibility in programme design at the centre as well as the importance of broad participation in its activities. Executives of public and private enterprises, consulting organizations, and specialists from United Nations agencies should be encouraged to participate in the work of the centre. The discussion of the centre's programme focused on four topics:

Environment for industrial administrative leadership

Improvement of the human potential

Administration of technological innovation

Decision making

Environment for industrial administrative leadership

The Meeting identified the principal interactions between the industrial administrator and his environment as the following: interaction with other individuals in his own industrial development organization; with the other organizations that make up the national administrative machinery for industrial development; with industry, public and private, in his own society; with the larger society; and with the outside forces that affected the industrialization process.

In these interactions the industrial administrator played many roles. As an innovator of ideas, such as ideas for new industrial legislation, he influenced the industrial policy makers; as a negotiator with the private sector he mediated between the interests of investors and the broader socio-economic interests of the government; as a manager and co-ordinator he had to understand the structure and dynamics of his national administrative machinery and how to operate effectively within it. The Meeting cautioned that in creating new machinery and new attitudes the positive elements of the present system and culture had to be taken into account. It was sounder to build on elements that were in place and working than to introduce wholly new ones.

Improvement of the human potential

The background paper introduced new techniques for improving administrative skills and motivations, such as organization development and achievement development, which the centre might utilize. The Meeting took note of these, but was

more concerned with how the centre could speed the professionalization of industrial administration. Some of the suggestions in this regard were to establish a common body of knowledge; to create a code of ethics; to set up a career development system with a clear-cut point of entry; and to form a professional association of industrial administrators. It was believed that dialogues held at the centre could, over time, be a valuable means of building the common body of knowledge that would in turn be the basis for professional training.

Administration of technological innovation

The background paper described the challenge that new technologies presented to industrial administrators and introduced the subject of development technologies that were appropriate to the country of use rather than the country of origin. The Meeting noted that the administration of technology in developed countries had been inadequate as evidenced by the environmental crisis now being experienced. The developing world would have to forge new and improved criteria for administering technology.

The Meeting expressed concern over the low rate at which technology flowed to developing countries and its high cost. This technology included processing know-how as well as engineering. The role of industrial research institutions in increasing the amount and improving the type of technology being transferred was brought out as was the role of the industrial administrator in helping to build the internal institutional structure to receive and to adapt the technology.

Perhaps the most important point made was that the developing countries should determine effective policies with regard to present inadequacies in technology transfer: it was unlikely that the developed countries or the multinational companies would come forward with solutions on their own initiative.

Decision making

The Meeting discussed new management techniques that might be among those employed in the centre's training activities, such as the use of matrix organizations and project management in industrial administration. These and other techniques are discussed in chapter III.

Programme of the proposed centre

The background paper presented a carefully elaborated programme for the centre. The Meeting did not endorse the programme or any of the particular proposals, but did offer guidelines concerning four types of activities that it agreed should be carried out at the centre:

(a) Research and documentation should be carried on in the field as well as at centre headquarters; the research should be done to the maximum degree by developing country experts;

(b) Consultations and discussion meetings were seen as means of identifying and dealing with specific industrial administration problems, chiefly through the dialogue method rather than the conventional lecture method;

(c) Advisory services should be patterned after those consulting services that had proved to be effective instruments of national growth. The chief characteristic of these successful services was adaptability to local conditions;

(d) Training programmes were viewed as evolving from the other activities and integrated with them. Those conducting the training should be closely associated with the local culture.

Resources available to the proposed centre

The background paper listed Austrian organizations that might be associated with the centre's work and international, national and regional organisations that might co-operate in carrying on the activities of the centre.

Suggested administration and budget for the proposed centre

The Meeting considered the proposals put forward in the background paper and the recommendation made that IBE undertake a feasibility study of the centre, taking into account the discussions of the Meeting. IBE expressed willingness to make the study, subject to the availability of financing. Since there was a saving out of the funds contributed by the Austrian Government and by UNIDO for the Meeting, it was recommended that the saving be placed in a trust fund to be used by IBE, when matched two to one from other sources, for carrying out the feasibility study.

With regard to the financing of the centre, it was made clear that the Government of Austria and UNIDO could not individually or together assume responsibility for this. Participants at the Meeting expressed their belief that if full information on an action programme for assisting countries in promoting and developing industrial administration could be circulated, financial support could be enlisted.

III. RELATED UNIDO ACTIVITIES IN INDUSTRIAL ADMINISTRATION

The International Symposium on Industrial Development held in 1967 at Athens, Greece, emphasized the need for effective machinery for industrial development and gave UNIDO a specific mandate to assist developing countries in this regard. UNIDO's programme in industrial administration was established in the Industrial Services and Institutions Division. In addition to industrial administration, it is concerned with industrial legislation, patents and licensing. The activities include studies, consultation and training. The training activity has been the vehicle for identifying, defining and developing industrial administration as a field of specialization.

Administrative machinery for industrialization

There is a special need for centrally organized industrial services in developing countries. The creation of such services cannot be left to chance. On the contrary, a comprehensive and co-ordinated programme to establish and strengthen industrial services should be an integral part of a country's industrial development plan. However, a country rarely has the opportunity to create a complex of services all at once; generally the problem is to organize existing services into a more efficient system.

In organizing the system - or machinery - for industrialization, a key question is whether the services should be grouped to the extent possible in a central agency; and if so, whether that agency should be autonomous or within the government. Many variables enter into the right solution for each country. It is the position of this monograph that the type of structure is less important than the creation of a viable system, one with the following features: (a) the parts (organizations/institutions) and their roles are defined, and interrelationships among

11/ This subject is dealt with extensively in Administrative Machinery in the series Monographs on Industrial Development (United Nations publication, Sales No. 69.II.B.39, Vol. 15).

them made clear; (b) the process by which goals will be achieved is elaborated and includes a feedback mechanism for reporting the results achieved.

In setting up and managing industrial services, the end user - industry - should be treated like a valued client, that is, **like a partner**. This means industry should be consulted on major planning and policy decisions. It means that the agency providing services should reach out to establish and maintain contact with clients during operations.

The internal structure of industrial administrative services will vary with the work performed, but the following guidelines are generally applicable:

- (a) Establish a simple, flexible structure, not one with high-level, unfilled posts;
- (b) Recognize that the informal cultural and social relationships in an organization may have as much bearing on operations as the formal ones of position and rank.
- (c) Keep the number of staff positions reporting to the head of the organization low, in order to have delegation of responsibility clear and effective.

Meetings in industrial administration at
Tashkent and in Kuwait

Seminar at Tashkent

The Seminar on the Organization and Administration of Industrial Services for Asia and the Middle East, held at Tashkent, USSR, in October 1970, concerned itself primarily with four industrial services: industrial research; standardization and quality control; industrial information; and industrial consulting services.^{12/} A very few salient points of the discussion of the four services are presented below.

^{12/} Organization and Administration of Industrial Services for Asia and the Middle East (United Nations publication, Sales No. 71.II.B.20).

Industrial research

The Workshop devoted considerable effort to the promise and problems of industrial research institutes. Autonomy of operations was stressed, both for the institute vis-à-vis the government and the director of the institute vis-à-vis his board (as far as operating matters were concerned). Direct government support of processes and projects developed by institutes was recommended.

Standardization, quality control and metrology

It was pointed out that standardization, quality control and metrology were interrelated, and all had a direct bearing on the production of goods of the high quality necessary for exports. The government had the dual role of seeing that standards were established, preferably through a single institute, and of seeing that they were enforced.

Industrial Information

The Workshop found that the amount and complexity of new techno-economic data had made it incumbent on all governments to concern themselves with continuous and systematic access to industrial information. In the case of developing countries, the services provided by international agencies and foreign countries should be incorporated into their own national information systems. The agency responsible for selecting and disseminating information had to be acutely aware of the particular country's information needs. Dissemination alone might not be adequate; an information extension service might be necessary.

Industrial consulting services

The Workshop discussed means of strengthening local consulting skills. It was suggested that contracts to outside consultants should provide that local firms be associated in the work, and that Governments should give preference to local consultants. It was stressed that local consultants made valuable contributions through their knowledge of prevailing economic, social and technological conditions.

Regional Workshop in Kuwait

The Training Workshop for Public Industrial Administrators of the Arab Countries of the Middle East and North Africa, held at Kuwait, March - April 1972, was sponsored jointly by the Industrial Development Centre for Arab States (IDCAS), the Kuwait Institute of Economic and Social Planning in the Middle East and UNIDO. The Workshop analysed fundamental definitions and concepts necessary to an understanding of industrial administration and then applied them to the problems presented by the participants. Some of the fundamentals examined were the industrialization process; the principles of organization and administration; and organizational roles and relationships in industrial development. The separate organizations were viewed as sub-systems within a system.

Regional Workshop at Addis Ababa

The Regional Training Workshop for Industrial Administrators in English-speaking African Countries, held at Addis Ababa, 9 - 23 October 1972, was organized by UNIDO in co-operation with the Economic Commission for Africa (ECA). The tasks of the Workshop were:

- (a) To advance the understanding of industrial administration by defining it more precisely;
- (b) To find elements common to the work of all industrial administrators;
- (c) To illustrate how modern administrative techniques may be used to improve performance of industrial administrators and accordingly to upgrade the field itself.

The field of industrial administration

The Workshop viewed industrial administration from three angles - the vertical, horizontal and structural. These are described below and illustrated in figures II, III and IV.

Figure II shows the hierarchy of administrative positions. The top position is Principal or Permanent Secretary of a Ministry of Industry or Head of an Industrial Development Authority. Ministers are a part of the national system for industrial development, but are policy makers, not administrators. Not every bureaucrat in a ministry or industry or development authority is an industrial administrator - only those who perform the functions of industrial administrators as described in the next section.

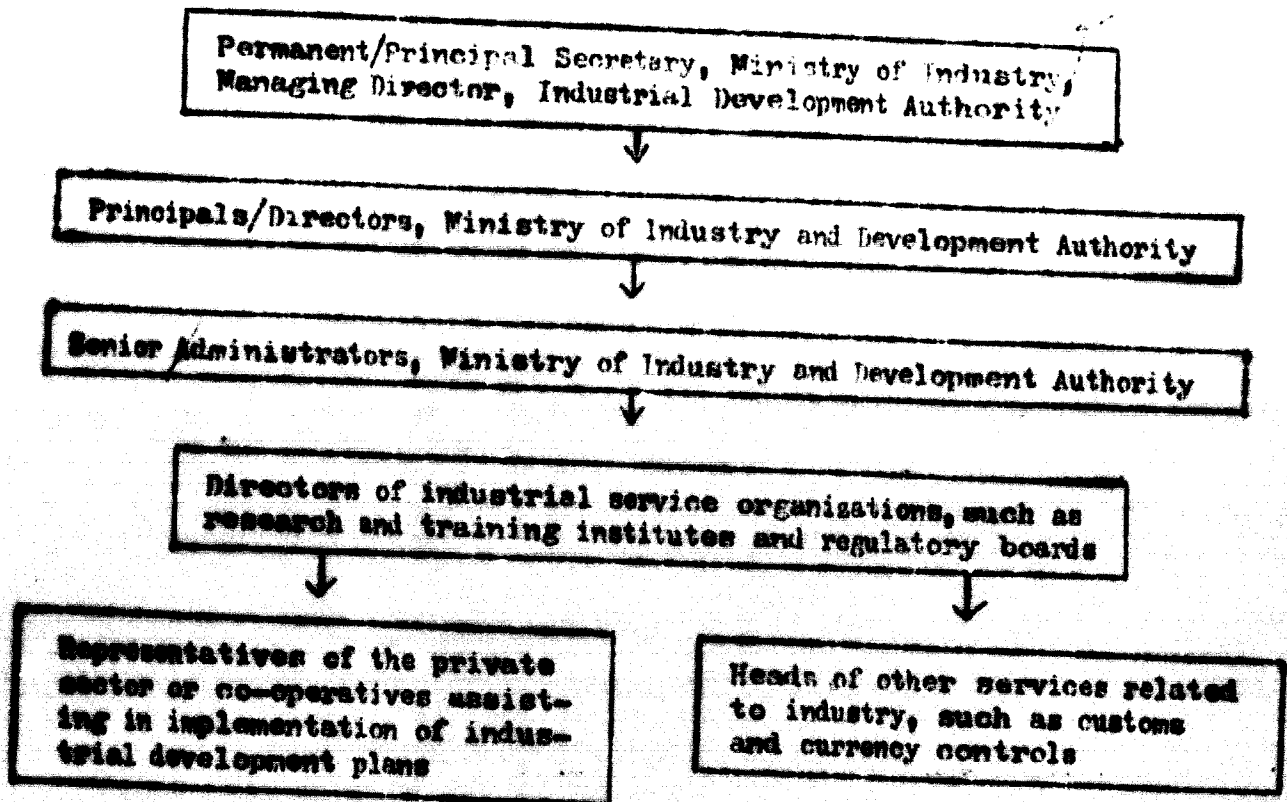


Figure II. Hierarchy of industrial administration

Figure III shows that the industrial administrator occupies a central position between the planners of industrial economic policy and the industrial managers who operate individual public and private enterprises. He serves as a bridge between government policy makers and industry, bringing about understanding and acceptance of government measures to assist and regulate industry and feeding back industry's needs and problems.

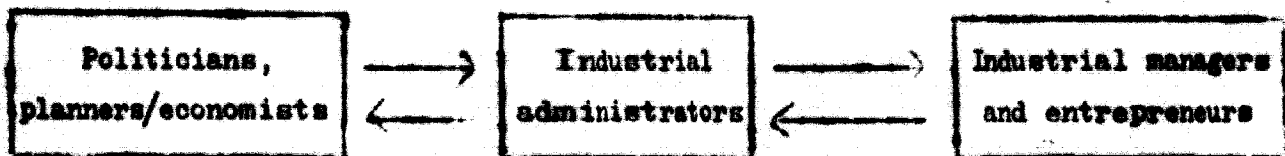


Figure III. Industrial administration viewed horizontally

Figure IV views industrial administration from a structural angle. There is no single right way to organize the industrial administrative services for a country. In general, industrial administrators work in ministries of industry, development authorities, development banks, and various industrial service organizations and institutions. They call on national and external entities to assist them. The central column of figure IV gives examples of organizations in which industrial administrators work, and the side columns some of the entities they call on for assistance.

Elements common to the work of industrial administrators

The elements common to the work of industrial administrators adopted by the Addis Ababa Workshop were subsequently reviewed in Vienna and further clarified and consolidated. The five elements finally agreed on are described below.

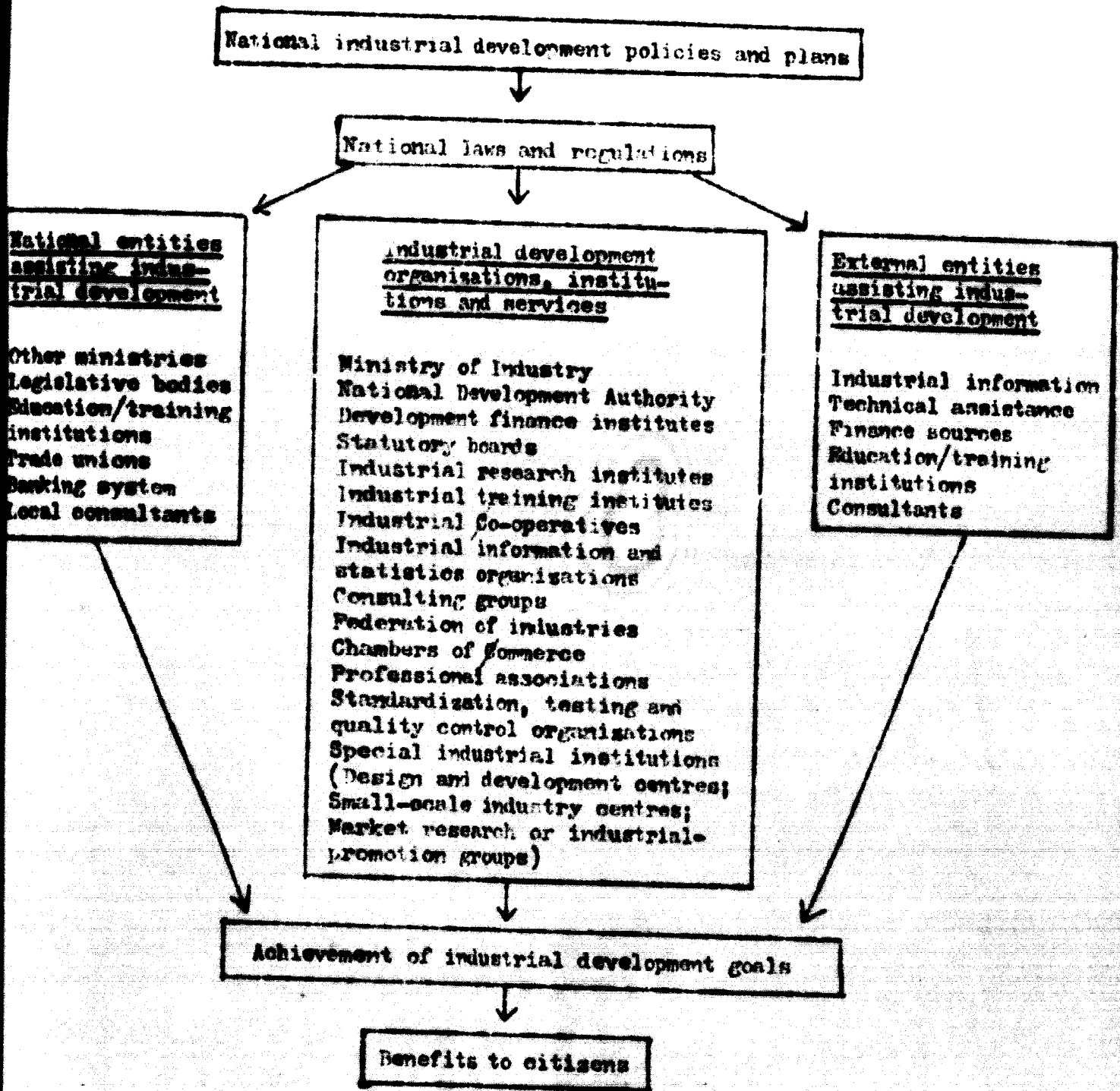


Figure IV. The structure of industrial administration.

Furthering national and regional (multi-country) goals

Industrial administration is concerned with the fulfillment of national industrial goals. Examples of such goals are decentralization of industry; linking of agriculture and industrial development so that demand in one sector will increase supply in another; encouraging small industry as a means of transition from traditional to modern life; and encouraging many small improvements in existing technology rather than jumps in technology through large production units.

The industrial administrator must know the objectives, the strategies and the content of the programmes and projects of the national industrial plan. He should be aware of plan priorities and of resources and fiscal limitations. He should know the factors that go into the social benefit-cost estimates.

The industrial administrator can further national and regional goals in three principal ways:

(a) By providing feedback to the national policy and planning bodies. This can be through formal and informal reports on which programmes are, or are not, functioning effectively. It can be through innovative ideas for improvement and redirection. The industrial administrator should also be the feedback channel for the public and private enterprises he serves. Generally, feedback to the national policy and planning bodies is made by senior industrial administrators, but communication channels should be open for inputs from all industrial administrators;

(b) By evaluating his own activities in implementing industrial development and taking corrective action where results are deviating from the requirements or the intent of the plan goals. For a senior administrator this evaluation can mean dropping some projects and reorienting others. For all administrators, it can mean dropping some activities and assigning new priorities to others;

(c) By monitoring activities of others in implementing development and taking corrective action where plan goals are not being fulfilled. This can occur, for example, in monitoring the work of consultants or of contractors.

Fostering co-operation among industrial development organizations, institutions and enterprises

The industrial administrator needs special skills as a co-ordinator. For example, he may need to co-ordinate the diverse activities of governmental organizations for research, promotion and regulation. In addition, his responsibilities may extend beyond governmental organizations to include organizations of investors and entrepreneurs.

A viable administrative system has the means of co-operation built into its design. When the scope and function of each organization or institution in the system are determined, the relationship of the organization to others in the system should be made clear. This relationship may be specified in terms of the services offered to and received from the other organizations. It may be in terms of joint efforts to carry out one or more of the national industrial development programmes. It may be in terms of mutual representation on boards or on interorganizational committees.

Senior industrial administrators assist in creating the original system, and they recommend revisions based on operating experience. A suggested technique is to make a work-flow diagram illustrating how one of the major national industrial goals is to be accomplished. The work flow shows the sequential and/or parallel steps to be taken and each participating organization or institution. Study of the diagram will generally indicate whether the selected means of co-ordination is adequate. It may suggest, for example, that better means of interministerial co-operation in the field will be required during implementation or that technical training is not in phase with project needs.

Senior industrial administrators who direct individual industrial services need strong indirect leadership skills to make their services effective. These are the skills that enable a leader to obtain results from others without exercising direct authority.

The goals of the industrial development plan provide the indirect leader with the basis for solving interorganizational problems; from his position within the national administrative machinery he derives the authority to communicate his proposals and to see the issues through to a resolution that can then be documented and acted upon. There is no formula for the solutions. The answer to a particular interorganizational problem depends on the traditions of the organizations involved, on the degree of formality or informality of their relationships, on the frequency of contacts, on the nature and duration of the work and probably on the personalities of the individuals involved.

The indirect leader is characteristically self-starting, articulate, diplomatic and persistent. These are the same qualities that individual industrial administrators need in their efforts to foster co-operation between enterprises or between investors and the government.

Planning and programming the work of industrial
development organizations and institutions

A systematic approach to industrial administration involves viewing the traditional elements of administration - planning, organizing, co-ordinating, guiding and controlling - as an integrated whole. This perspective enables the administrator to think through each of his major work responsibilities in advance. For each, he considers the objectives, the work programme, the planned use of resources, the measures by which he will evaluate results and the corrective action he will take.

This approach is called "administration-by-objectives" (ABO). Individual parts of industrial organizations have always had objectives: finance has budgets; sales has targets; and production has quotas. ABO provides the objectives for senior management, incorporating what the other parts of the organization are doing in a logical and effective pattern.

A more specific application of ABO methodology is shown in figure V. The administrator analyses the work assignments of his organizations to determine the inputs (resources to be applied), the outputs (specific tasks to be accomplished) and the objectives (what conditions are to be attained as result of the effort). In addition, the administrator establishes, as specifically as possible, how the outputs and objectives are to be measured. For example, the outputs can be measured by the number of licence agreements negotiated, research projects completed and technicians trained. The objectives can be measured in terms of an increase in manufactured exports resulting from export promotion or of the effects of investment promotion on employment. The Workshop felt this methodology could be usefully followed in planning and organizing the work of an industrial administration agency and in carrying out other work elements.

The Workshop observed that the ABO methodology had two major advantages over traditional administration. The traditional administration had a strong tendency to emphasize procedures; the ABO methodology emphasized results (inputs leading to outputs etc.). The traditional bureaucracy spent more time on detailed supervision and in solving specific problems; the ABO methodology devoted more time to selecting, defining and communicating objectives and in evaluating alternative means of achieving them.

Defining the work of an organization in ABO terms greatly facilitates the steps of the administrative process:

(a) It facilitates planning by establishing a planning framework - the objectives of the organization itself or of a part of its work; the means selected

Objectives

What is expected to be achieved by the organization (contributions to national goals; statement of organizational goals).



Outputs

Specific organizational tasks to be accomplished (projects to be implemented; services to be established or improved; products to be produced).



Inputs

Resources to be applied (men, money, materials).

Figure V. Progression of administration-by-objectives.

to obtain the objectives (the inputs and the outputs ; and the method by which results are to be measured. The administrator has to identify all the major tasks to be accomplished (outputs) and the major resources (inputs) that the organization will need to accomplish them. This exercise prepares the way for the **programming** stage of the work;

(b) It facilitates organizing, since the structure of the organization should correlate closely with the objectives and the tasks to be accomplished. Delegation of responsibility is also aided for the same reason;

(c) It facilitates co-ordination, since the identification of tasks takes into account the relationships with other organizations and entities; and the identification of resources involves sources outside the organization;

(d) It facilitates guiding, since the objectives are communicated to the staff, who then understand the organization's direction and the criteria by which their work will be judged. This improves motivation and morale. If the members of the staff participate in the ABO process, the benefits are even greater;

(e) It facilitates controlling, since the guidelines for control - the criteria for measuring results - are built into the ABO system.

Programming is a weak link in present industrial administration practices. Programming translates plans and major tasks into the detailed operational information needed for implementation. The Workshop examined the 'decision-tree' method of breaking tasks down, level by level, and systematically examining alternative courses of action for each work level and choosing the most appropriate course.

Other aspects of programming are establishing priorities among tasks; scheduling; and reconciling the resources of men, money and materials needed with the resources available. Practices and techniques from industrial management are useful in all these aspects and should be included in training programmes for industrial administrators.

When the detailed operational programmes are ready, they can be carried out as projects or as industrial services. The Workshop agreed that much of the industrial administrator's work could be organized on a project basis. The advantages were that objectives were set over a fixed period and that results were therefore more controllable and measurable. Projects carried more sense of urgency, which was relevant in development work. There was more reliance on individuals or on a team to solve problems and thus less red tape.

The Workshop studied the use in industry of a new type of organizational structure, the matrix organization.

The matrix organization is designed for the project approach. Project managers are directly responsible to general management. As implementation progresses, the project manager sees that a viable and visible plan is maintained for the immediate period, that consistent progress is made towards project objectives and that the integrity of relationships is maintained. The project manager is supported by a team made up of individuals drawn from other parts of the organization, e.g. finance, marketing, or engineering. They remain as a team as long as needed and then return to their original positions.

The Workshop examined other project management techniques that appeared applicable to industrial administration, in particular, the contribution of network analysis to project planning and to improving the allocation of resources during implementation. Modern project-control documents and reports were reviewed and found useful; it was noted that numerous changes were to be expected during project implementation and that the proper response was quickly to establish and maintain new control points.

The Workshop studied means of improving the administration of industrial services. The following points were stressed:

(a) Improving delegation through clear statements of responsibilities, authorities and relationships. The authority for spending funds should be commensurate with the responsibility. The senior industrial administrator had to find the right limit to delegation; it should not go beyond the point where he was no longer personally identified with the operation;

(b) Improving leadership practices. The modern work environment called for team effort among specialists, and the modern manager had to acquire skills in organizing teams. The Workshop expressed interest in new training techniques enabling groups to analyse their problems and to work together better to achieve group objectives;

(c) Improving the cost-effectiveness of the service. Modern benefit-cost techniques were found applicable to industrial services. Recent developments permitted social as well as economic benefits and costs to be considered. Management accounting and the management audit had made rapid progress in industry, and the Workshop felt that their application to industrial administration should be encouraged. The same view was held with regard to modern purchasing (supply management) techniques such as value analysis.

The Workshop found it useful to classify the work of industrial administrators into four main functions. For each function the Workshop listed the principal services offered:

(1) Assisting existing industry by:

- (a) Providing consulting (extension) services. The Workshop noted that industrial administrators performed advisory services themselves and also called on outside experts for advice;
- (b) Fostering linkages and service industries;
- (c) Providing industrial information;
- (d) Carrying on industrial research. It was noted that some institutes engaged in research on marketing and management as well as on technical aspects;
- (e) Providing training facilities. The importance of specifying training programmes concerned with formulating and negotiating investment proposals was noted;
- (f) Improving the investment environment. This covered such varied services as standardisation and testing programmes, promotion and protection of individual property rights and licensing arrangements;
- (g) Initiating appropriate legislation and controls.

(2) Attracting private investment (mixed economies) by:

- (a) Promoting opportunities for investment (assuming prefeasibility studies have been made). The potential saving in cost and time by shifting detailed project development to the interested participants was noted;
- (b) Offering adequate financial incentives, including direct and indirect assistance to domestic investors and incentives to attract foreign investment;
- (c) Making suitable plant sites available at reasonable cost;
- (d) Providing full information on the investment environment and data for investors' feasibility studies.

(3) Assisting implementation of new ventures (mixed economies) by:

- (a) Conducting negotiations with domestic and foreign partners;
- (b) Assisting in arranging finance;
- (c) Co-ordinating and expediting government approvals. It was noted that ease of doing business with the government was one of the most important aspects of the investment environment.

(4) Generating and managing public investment projects from the initial pre-investment feasibility study through implementation.

Promoting personal growth

The modern administrator works to create an environment in which personal growth can take place. He pays more attention than earlier administrators to how individuals in his organisation relate to each other. Efforts spent in improving relationships benefit the organization just as much as the individual. Objectives become more widely shared, and there is more emphasis on getting the job done.

The Workshop felt that the field of industrial administration offered great promise for personal growth. It was at a critical stage, and opportunities to contribute to its development were great. It required the type of skills and knowledge that could lead to its becoming a profession. Most important, the field was being formed primarily in developing countries.

The Workshop felt it would be useful for industrial administrators to obtain operating experience in industry through secondment, employee exchange programmes, or training-in-action in the industrial setting.

The Workshop emphasized the importance of identifying entrepreneurs and of encouraging them to participate in the industrialization effort. This was one of the tasks of the industrial administrator. He should be able to recognize entrepreneurial traits and to develop them himself.

Testing techniques now exist for identifying the individual who has the temperament of the entrepreneur. The entrepreneur likes to take personal responsibility for his actions and decisions. He aggressively seeks information on the results of his decisions and uses the information obtained to modify his behaviour and to revise his goals. He sets goals that are challenging yet realistic.

The Workshop recognized that industrial administrators lived in an environment of change, since change was inherent in development. The Workshop took note of the application of behavioural science techniques within the general field of organisation development (OD), which was primarily concerned with the effective and efficient introduction of change, i.e. the transfer of technology.

OD may help administrators to bring about desired changes and to learn to manage the process of change. It is beginning to be used in developing countries. The Workshop felt that the field of industrial administration could benefit from a pilot OD programme in an industrial service organization that wanted to improve drastically its work environment and performance.

Mastering the selective use of national and international
resources for industrialization

An industrial administrator can serve in one of 20 or more industrial development organizations, institutions and services (see figure IV). He calls on national and external entities for assistance. The Addis Ababa Workshop saw the industrial administrator as an agent that could bring about a more selective and effective use of these entities as resources to be used in the national interest.

An industrial administrator working in one industrial service organization may feel himself isolated from the total industrialization effort. But if he is to contribute to the functioning of the national industrial administrative system, he must keep informed of the activities and plans of other national organizations, and look for possibilities of collaboration and opportunities to build up the national institutions before calling on outside resources.

When the industrial administrator does look abroad for assistance, he is faced with the monumental task of evaluating the technical capability, motivation, and ability to produce of the large number of sources of assistance such as consulting firms or training institutes. The Workshop defined some interim guidelines for this task, but felt that the developing countries themselves should give more attention to establishing criteria for evaluating foreign sources of assistance. The interim guidelines included:

- (a) Foreign entities should provide documentation on actual results accomplished in developing countries;
- (b) It should be determined that foreign consulting firms or training institutes or other sources of assistance had studied the national industrial development plan and were ready to adapt their programmes accordingly. Tests could be devised to determine whether they understood the problems of developing countries and regions and had basic sympathy for the people;
- (c) High priority should always be given to local manpower training and development by foreign personnel providing assistance. The most certain means would be for the developing country to provide its own training criteria and to have foreign trainers work to these local plans. This meant assigning professionally educated and experienced local officials to carry out the training. The Workshop examined one country's training criteria, which included: emphasis on relevance of content to local conditions; emphasis on on-the-job training supplemented by training of local personnel in foreign plants; and emphasis on training of trainers and the release of foreign experts according to a schedule.

The Workshop recognized that many of the difficulties in industrializing the developing countries had arisen from lack of skilled negotiators in these countries who could deal effectively with entities providing assistance and with foreign investors. The Workshop felt that although UNIDO offered assistance in specific areas, such as industrial legislation, patents and licensing, attention should be directed to the negotiating process itself. The Workshop did not offer a prescription for developing skilled negotiators, but in discussing training methods and programmes the following ideas were suggested:

(a) International and national industrial information services should put more emphasis on marketing data, which could then be reflected in training programmes. The developing country negotiator needed to know how to evaluate product markets to determine his bargaining strength when dealing with investors;

(b) UNIDO should undertake a major comparative study of negotiating practices in developing countries which would provide the basis for a series of case studies to be used in training programmes. The cases would illustrate the strengths and weaknesses in present negotiating practices and suggest improved practices. The cases should cover dealings with Governments of industrialized countries, international institutions, multinational corporations and other private firms, including suppliers of capital equipment, where weakness in bargaining was particularly damaging;

(c) Check lists to be used in negotiating agreements with assistance agencies and with investors should be prepared, similar to the check list of contract provisions contained in the Manual on the Use of Consultants in Developing Countries.^{13/}

Although the Workshop only touched on the subject of application of technology, it clearly belongs on the list of work elements of industrial administrators, and under this last item, the selective use of national and international resources for industrialization. Part of the transfer of technology takes place through licensing.

A more complex aspect is the development of technologies appropriate to the conditions of the developing countries. The evaluation and selection of imported technologies, and in due course the development of required technologies locally, is more the province of the scientists and technicians in industrial research institutes than of industrial administrators in general. However, a number of points of broad interest to industrial administrators may be mentioned.^{14/}

^{13/} United Nations publication, Sales No. 72.II.B.10, pp. 25-27.

^{14/} This subject has been discussed extensively in Appropriate Technology and Research for Industrial Development (United Nations publication, Sales No. 72.II.A.3).

A choice of technologies, such as labour-intensive technology to promote employment, is not always possible. There is a spectrum of possible industries, ranging from those for which there is no practical or expedient alternative to capital-intensive technology, to those where capital-saving (and thus labour-intensive) technologies are in use. Industries falling between the extremes offer possibilities for choosing technologies. The industrial administrator should try to achieve a balance between types, but with a greater emphasis on capital-saving industries than is usual in developed countries.

The industrial administrator who seeks to develop low-cost, competitive technology suitable to local conditions should be aware of the many constraints in his path:

- (a) The inflexibility of most foreign investors concerning the type of technology to be used;
- (b) The fact that bilateral financing frequently requires purchase of existing equipment;
- (c) The tendency of technical advisers to favour the technology they are trained in;
- (d) The persistence of equipment salesmen who push their products;
- (e) The attitude of plant managers who are trained in labour-saving management methods, backed by their foreign owners.

Despite his limited ability to influence the selection of technology, the industrial administrator should not forget that as various institutions expand or come into being in developing countries, information on technologies, designs and practical experience from other developing countries will become available. This technology will be free of some of the present constraints.

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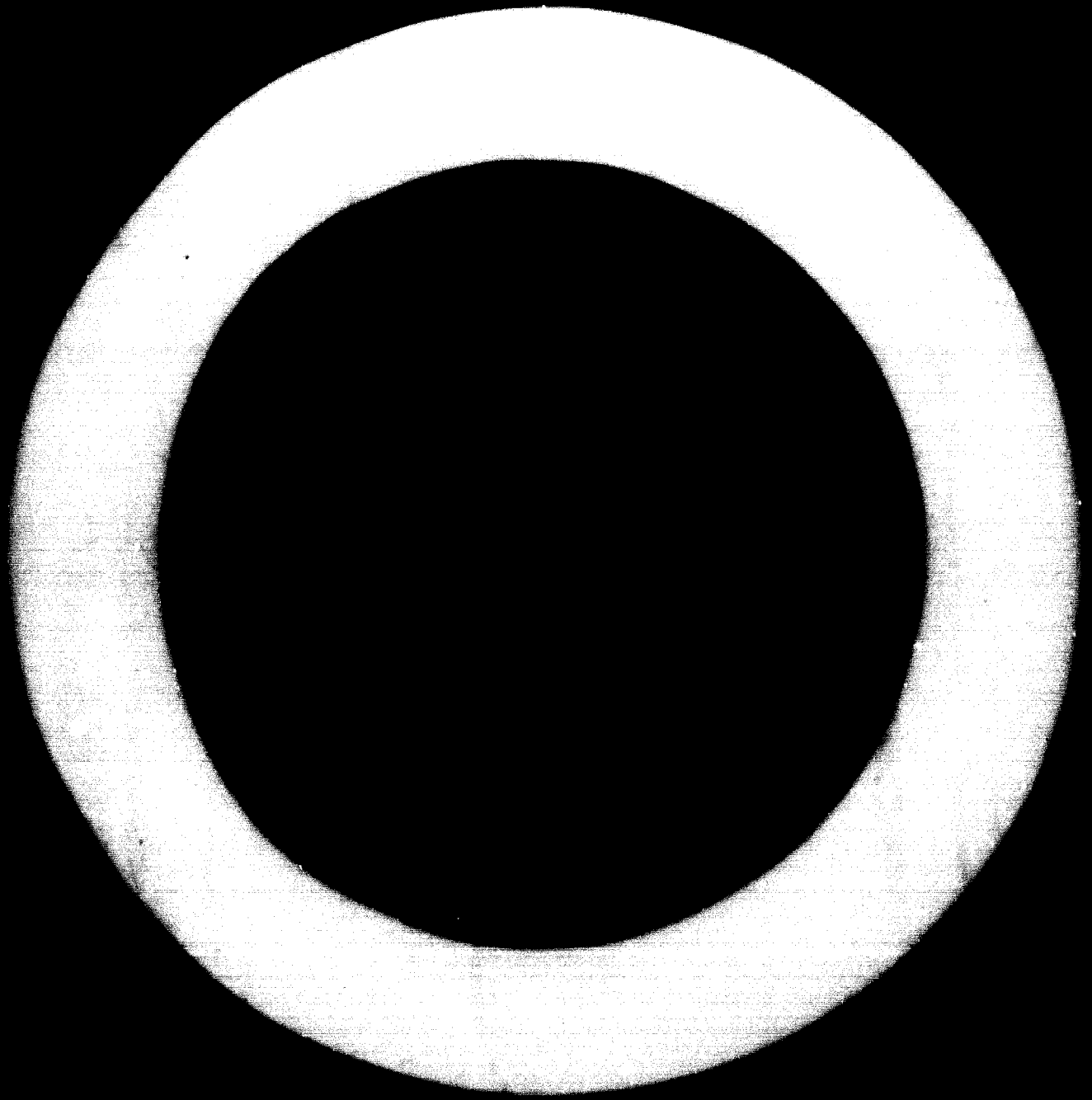
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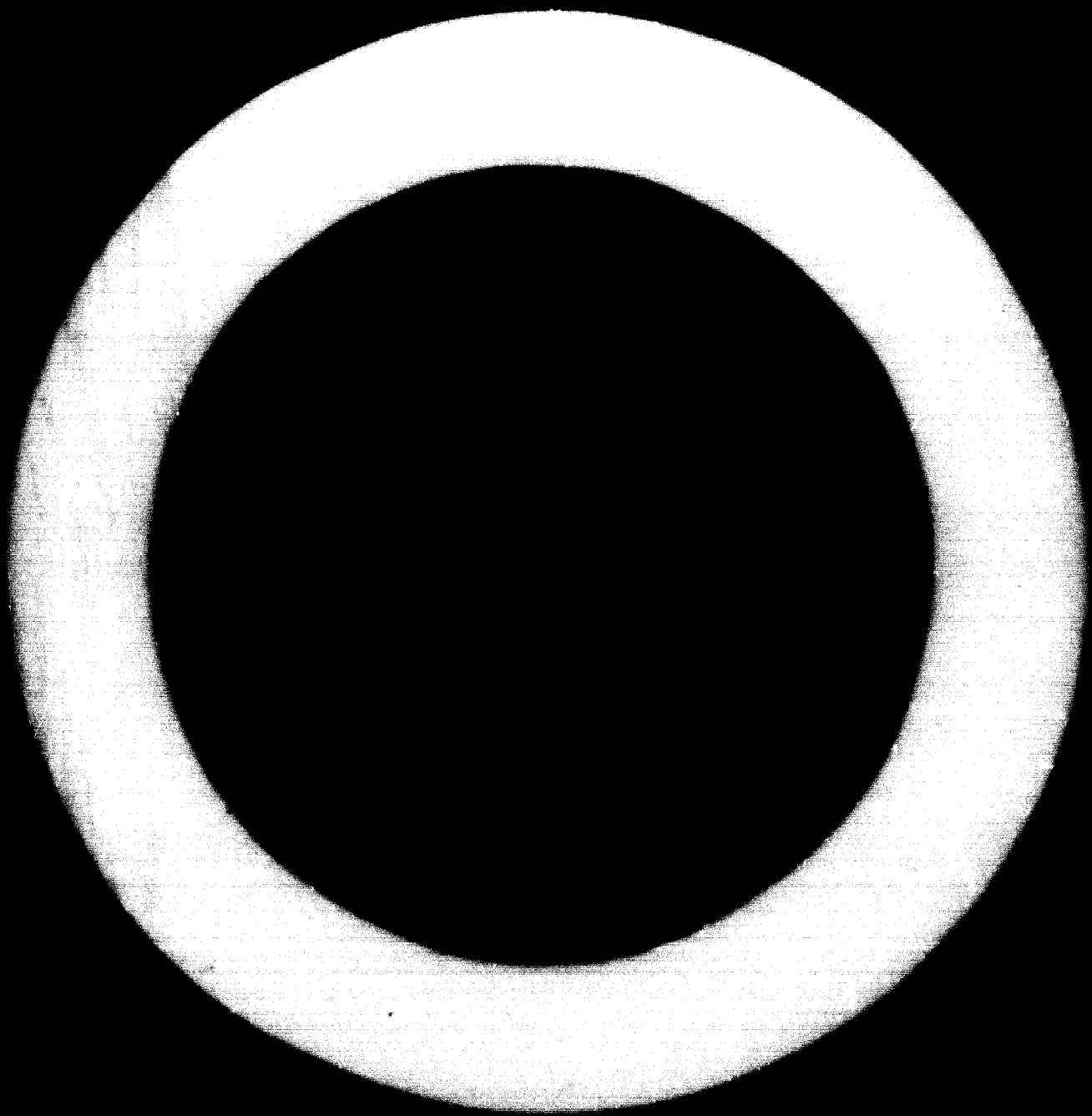
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Annex I

LIST OF MEETINGS
ON INDUSTRIAL ADMINISTRATION

<u>Location:</u>	<u>Description</u>	<u>Date</u>
Paris	Interregional Working Party on the Training of Economic Administrators in Industrial Development	September 1965
Athens	International Symposium on Industrial Development	November - December 1967
Tashkent	Seminar on the Organisation and Administration of Industrial Services for Asia and the Middle East	October 1970
Vienna	Joint Meeting of the Government of Austria and UNIDO to Consider More Effective Training in Industrial Administration	November 1971
Kuwait	Training Workshop for Public Industrial Administrators of the Arab Countries of the Middle East and North Africa	March - April 1972
Krass	Meeting for the Improvement of Industrial Administration	June 1972
Ad/112 Akah ₂	Regional Training Workshop for Industrial Administrators in English-speaking African Countries	October 1972



Annex II^{*}

**A PROPOSAL FOR THE ESTABLISHMENT OF THE
INTERNATIONAL CENTRE FOR INDUSTRIAL ADMINISTRATION**

**Institute of Research in Education and Development (IRE)
(Institut für Bildungs- und Entwicklungsforschung)**

and

United Nations Industrial Development Organisation (UNIDO)

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INTRODUCTION

1. A number of discussions were held in 1971 between the Government of Austria, the United Nations Industrial Development Organization (UNIDO) and the United Nations Institute for Training and Research (UNITAR) on the subject of more effective means of improving public administration. In a letter to UNIDO written by the Government of Austria in 1971, it was suggested that they continue these discussions "with the objective of exploring how Austrian organisations may best co-operate with UNIDO to undertake training in industrial administration." The hope was expressed that "these further discussions may lead to a plan for the establishment of an Industrial Administration Centre to be located in Vienna." It was suggested "that the Austrian Government, UNIDO and representatives of UNITAR hold a preparatory meeting for approximately three days later this year to analyse in some detail the practicality of such a Centre and, if found acceptable, to draft initial plans."

2. On 26-28 November 1971, a Joint Meeting was held in Vienna between the Government of Austria and UNIDO to give practical shape to the expressed desire of the Austrian Government to assist industrialization, and in particular the work of UNIDO at what appears to be a problem in establishing systems of administration fully adequate for the implementation of national programmes in the developing countries. The meeting proposed to discuss the feasibility of setting up a joint programme for industrial administration to include a centre for industrial administration, proposed for establishment in or near Vienna and for which the Austrian Government and UNIDO might jointly agree to either provide or to obtain the necessary facilities and financing in co-operation with the United Nations Institute for Training and Research (UNITAR). The planning and the administration for the proposed Centre as well as the design of activities were also points of discussion. 1/

3. The twenty-eight (28) participants at the Joint Meeting included representatives from the Austrian Foreign Ministry, from Austrian organisations, from organizations in the developing and industrialised countries, from UNITAR and from UNIDO. A Joint Committee was formed to carry on the deliberations, particularly with regard to the administrative design and financing of the proposed Centre.

1/ Draft Report, The Improvement of Industrial Administration,
UNIDO document ID/WG.114/3 Memo, 1972.

4. It was agreed that a follow-up to the Joint Meeting would be practical so as to allow discussions to take place among top-level administrators and other concerned parties on the results of the findings of the Joint Meeting and of the Joint Committee.

5. The Meeting for the Improvement of Industrial Administration will be held at Krems, Austria, 4-8 June 1972, organized by the Institute of Research in Education and Development (Institut für Bildungs- und Entwicklungsforschung (IBE) in co-operation with the Government of Austria and UNIDO. The Krems Meeting will be held immediately after the close of the Sixth Session of the United Nations Industrial Development Board in Vienna on 2 June 1972.

6. The purposes of the Krems Meeting are to discuss the provision of more effective industrial administration services to industry in the developing countries and to suggest practical measures for strengthening and improving these services. For example, the Meeting will endeavour to identify certain of the modern administrative techniques which government administrators should have at their command, including the new techniques now available to modern business executives.

7. The present report has been prepared jointly by IBE and UNIDO with the assistance of the Joint Committee. It is intended to serve as background for discussions at the Krems Meeting, and is concerned with the role that the proposed Centre might play in improving administration, a possible programme of action, available resources, suggested administrative as well as financial requirements of the proposed Centre.

CHAPTER 1 - THE CONCEPT OF INDUSTRIAL ADMINISTRATION

Definition of Terms

8. In this paper "industrial administration" has been defined as the planning, organization, guidance and control of all non-manufacturing activities having to do with the industrialization process. Such activities are carried out by government agencies, organizations and institutions. Also included are activities which may be non-governmental, such as associations and chambers of commerce. The related term "industrial management" describes similar functions in manufacturing enterprises - both public and private.

9. "Industrial administration" is a highly specialized function under "public administration" and differs from public administration in much the same way as industry differs from other sectors in the economy. Some of the distinguishing characteristics of industry in this respect are as follows:

Nature of decision-making

10. The manufacturing sector is generally required to operate on a much shorter operational cycle than do other sectors. The development of a new commercial forest can have a cycle of decades, of public health or of education programmes a cycle of years; but for industry to meet ever-changing domestic and foreign market requirements, the cycle may be a matter of months. Thus fewer delays in decision-making by industrial administrators can be tolerated for effective industrial development.

Technological diversity

11. The variety of products to be manufactured and processes to be established make the technologies to be considered for the industrial sector far more numerous than for other sectors. A high level of skill is required to transfer, adapt, or develop appropriate technologies for industry.

Complexity of industrial organisations

12. Industry varies not only in the types of technologies employed but in the variety of organization patterns found. Individual units may vary from those employing 10,000 or more down to ten or less workers. Organisations may include the spectrum from wholly public

enterprises to wholly owned foreign subsidiaries and every combination between the two extremes. The complexity of decision-making which must stimulate individual initiative as well as direct public initiative is increased.

13. Public industrial administrators are concerned with the techniques used in public administration plus those special techniques required to accelerate industrialization. This study is not particularly concerned with the techniques of public administration per se, for example, organization and management, on the assumption that such techniques are widely known or can be acquired through existing national, regional and international institutions. The concern at present is more with the special techniques which a public administrator requires if he is to properly function as a public industrial administrator. These special techniques are common to all types of organization just as industrial management is concerned with the problems common to all manufacturing enterprises irrespective of whether the product is steel, chemicals or textiles. In fact, public industrial administration has much in common with industrial management since many of the more advanced techniques found practical in the latter can be adapted to the needs of industrial administration.

Activities of the United Nations Family in this Field

14. The Public Administration Division of the United Nations has assisted in establishing and/or strengthening a number of national training institutes. Increasing need has been felt by these institutes for providing training programmes for officials holding posts at the senior levels. This was reinforced by the Report of the Expert Group Meeting on United Nations Programmes in Public Administration, convened in January 1967, which recommended, inter alia, that the United Nations assign high priority to initiating and supporting development programmes for senior administrators.

15. At the United Nations International Seminar on the Development of Senior Administrators in the Public Services of Developing Countries, held in Geneva in August 1968, a number of recommendations on this subject were made including the following:

- The role of the senior administrator in the government service - including public corporations - should be more precisely defined, clarified and strengthened in all developing countries;

- National policy makers should strive for a more profound appreciation of the principal motivation factors governing the work performance of senior administrators, and provide increased recognition of their contribution to national goals;
- A valid assessment must be made in each developing country of the precise range of development needs of the senior administrators; and
- Investment by developing countries in the dynamic growth of the capability of senior administrators should be considered as a major asset which in comparison to other development investments is, in financial terms, relatively small.

16. The importance of improved industrial administration has been the concern of UNIDO and its predecessor, Centre for Industrial Administration.^{2/} In 1965, the Centre for Industrial Development, in co-operation with the OECD, held a meeting in Paris on the Training of Economic Administrators for Industrial Development.^{3/}

17. Problems to be anticipated in launching an international programme in industrial administration were underlined in the opening statement of the Executive Director of UNIDO, Mr. I. H. Abdel-Rahman, then the United Nations Commissioner for Industrial Development:

"Your deliberations from my point of view will have a 'touch of originality' and a 'flavour of pioneering', and they will also involve a 'bit of burden' in formulating positive action.

When I say that your deliberations will have a touch of originality, I am fully aware that yours is, in many ways, the first meeting to tackle systematically the problems of training of public officials in industrial development.

^{2/} See Report of the Fifth Session of the Committee for Industrial Development, (11-25 May 1965), Document E/4065

Report on the Sixth Session of the Committee for Industrial Development, (26 April - 13 May 1966), Document E/4203.

^{3/} Training of Economic Administrators for Industrial Development, 1969, United Nations publication (Sales No.: 68.II.B.12).

Who would have thought of it in the later fifties and in the early sixties as something basic that requires systematic national and international action? It has now been realized that it is an acute problem and a matter of reality.

It is a fact that the State plays a basic role in promoting and accelerating industrial development. In this task, the Government and other public officials have to act as 'public-sector entrepreneurs'. The incentive of profit, at least for the formative period, is replaced by the incentive of responsibility. Government action or the concerted and co-ordinated action of government officials make all the difference between a stagnant and inefficient industry and a throbbing and smooth-running industry. In a positive sense, the Government becomes an entrepreneur in undertaking risks, investing and running industries. In another sense, it injects vitality through a series of policy measures. Thus the Government and public officials are called upon to shoulder important responsibilities.

From the quick observation of the material in front of you, I notice that suggestions are made for the training of different categories of persons, including politicians. I fully realize that government officials do not work separately from the political decision makers. The effectiveness of their work will depend on the understanding and support of the final decision makers. This means that there is a need for communication with the highest authorities and an appreciation of the political environment. To understand politicians and influence them is one question, and to recommend training for the highest decision makers is, to my mind, an entirely different question."

18. An important conclusion of the Paris meeting was that the functions of "economic administrators" were sufficiently different from those of traditional administrators to warrant specialized study and training.

19. The importance of improved industrial administration to the developing countries and the role that UNIDO could play in providing assistance in this field were discussed at the International Symposium on Industrial Development held in Athens in December 1967. The Report of the Symposium emphasized the need for effective administrative machinery for industrial development in accordance with political, social and economic conditions of the country. ✓

4/ Report of the International Symposium on Industrial Development, 1967, United Nations publication, (Sales No.: E.69.II.B.7).

"Developing countries should review the present administrative machinery for industrial development, its structure, functions and potentialities. UNIDO is requested to assist developing countries in this task. On the basis of this review, the countries would be in a position to modify their civil service systems to suit the requirements of industry and/or consider the establishment of autonomous industrial development agencies. UNIDO should assist Governments in this connexion if requested to do so.

"UNIDO in co-operation with other concerned organisations, should assist in the training of personnel needed for the administration of industrial services, including industrial property.

"UNIDO is also requested to respond favourably, as appropriate, to requests submitted to it by National Governments for assistance in improving the efficiency of these institutions."

20. Accordingly, UNIDO established a major activity group on industrial administration of public agencies dealing with the manufacturing sector. A draft programme of work for UNIDO in this field was presented to the Fifth Session of the United Nations Industrial Development Board.^{5/} The Board underscored the need for improving the efficiency of public agencies dealing with industrialisation in developing countries.

21. UNIDO has sponsored two seminars in this field: The first held in Ushak, USSR, in October 1970, concerned the Organisation and Administration of Industrial Services for Asia and the Middle East;^{6/} attended by twenty-one (21) administrators from sixteen (16) countries. The second seminar for Industrial Administrators from the Arab Countries of the Middle East and North Africa was held in Kuwait in 1972; twelve (12) administrators attended. A third seminar for English-speaking industrial administrators from African countries is scheduled in late 1972 in Addis Ababa. These seminars identify further the problems common to all administrators of industrial development organisations and determine ways and means of solving these.

^{5/} Report of the Industrial Development Board, Fifth Session, 1971, Document ID/YOI/IL.2.

^{6/} Organisation and Administration of Industrial Services for Asia and the Middle East, 1970, United Nations publication, (Sales No.

CHAPTER 2 - EFFECTIVE INDUSTRIAL ADMINISTRATION

22. In countries where the government is largely responsible for promoting industrialization, it is of great importance that modern administrative techniques be applied to public agencies concerned with industry and kept up to date. It is also important to upgrade the skills of their employees, as the lack of adequately trained administrators is a major obstacle to the achievement of the targets of industrial development programmes. In many of the developing countries, more attention has been given to the planning of development than to the implementation of the projects comprising the plan. Similarly, more attention has often been given to the acquisition, discovery or mobilization of physical resources than to the development and improvement of skills and motivation required of key individuals to invest effectively the available physical resources. The need for improving the decision-making process for industrial development is by no means limited to the industrializing countries.

23. In a recent speech, a minister of an industrializing African country considered weakness in his country's high-level manpower as one of its leading problems. They have become so used to thinking of themselves (with the encouragement of foreign admirers) as possessing a very capable ruling class. He felt it fortunate for his country, however, that foreign commentators add the rider "in comparison with other African countries". This, he felt, robs the compliment of most of its meaning.

24. He went on to say that his country must get rid of the comfortable national self-delusion that they are already a very competent and efficient people; they are not. He added that in watching the cruel ineffectiveness with which so much expensively acquired equipment is operated, in realizing the inability of most parts of the administrative and managerial machinery to deliver the high quality performance required for a more rapid pace of national progress, his countrymen would realize that while they may possess an articulated and polished elite in comparison with other African countries, they do not yet possess the managerial resources for running a fully modernized country. It was his expressed hope that his countrymen would still be humble and realistic enough to acknowledge these deficiencies, and that as they travelled around the world they would keep their eyes open to measure, learn, and adopt the standards of managerial and administrative performance, the skills and the application that go into sustaining a modern economy.

Factors Contributing to Ineffective Industrial Administration

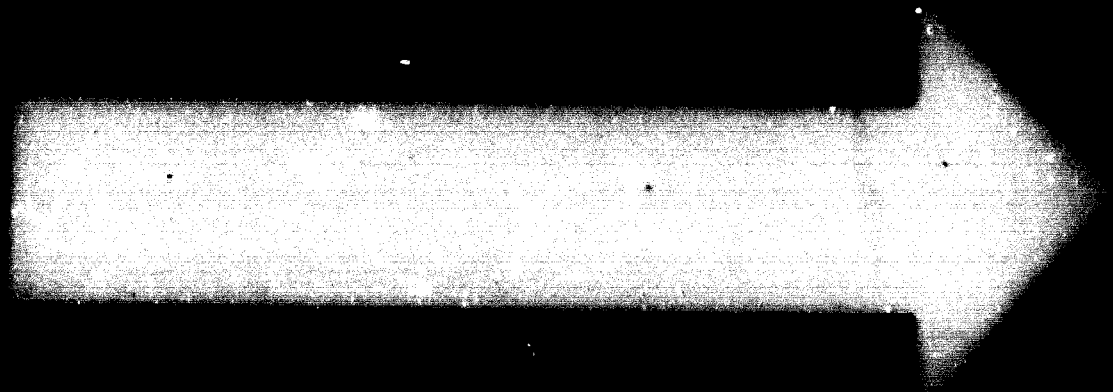
25. The actions of industrial administrators are restrained by a variety of organizational, political and social factors in addition to those generally restraining the effectiveness of industrial managers. Thus training programmes and the use of consultants can be frustrated by factors which cannot be effected by the normal techniques of administrative improvement. Some examples are:

- Inadequacies in the design of the administrative mechanism for the implementation of industrial plans and the provision of industrial services;
- Lack of understanding by high government officials, particularly politicians, of the gap between the plans they make and the end results actually obtained;
- Further lack of understanding by such individuals that some part of this gap could arise due to inadequate knowledge of modern administrative techniques and leadership skills.
- Lack of awareness that these deficiencies at least in part could be corrected by training.

26. From the above, one is forced to the conclusion that it is a gross over-simplification to state that the gaps or deficiencies between planning and implementation of industrial programmes result wholly from an absence of modern administrative techniques, leadership skills, or a not so efficient organisation. Thus one can anticipate a questioning attitude by governments when suggestions are made that a new proposed Centre for developing a higher level of administrative skills will benefit industrialization.

27. One further group of factors influencing industrial administration may be beyond the power of many governments, at least in the short term, to modify. For examples

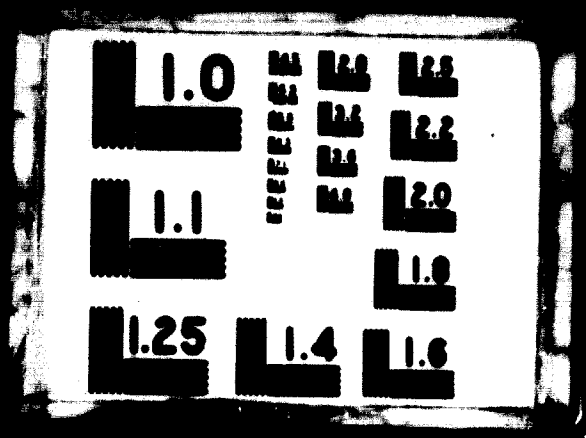
- social, economic and political problems which force decisions on administrators from which industrialisation may suffer.



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28. The difficulties and delays that are encountered when implementing industrialization programmes must be put in the context of the overwhelming and often really titanic scale of the tasks which administrators have to face. In many instances, to achieve civic order and legal government is in itself a formidable task and achievement. To administer in addition a dynamic economy planned for welfare and development implies a range of responsibilities of quite a taxing kind, especially when allowing for the much compressed time frame within which results are sought to be achieved.

Requisites for More Effective Industrial Administration

29. The provision of appropriate training and related supporting activities - such as counselling services for new administrative techniques - can make a vital contribution to improving the implementation process.

30. Training for industrial administration has to involve the concrete problem situation and must relate to the actual manner in which authority is exercised. Among the tasks of the industrial administration are the development of forms of openness and stimulation so that a real eagerness and co-operative spirit emerges for identifying and solving problems and for avoiding organizational lethargy.

31. Decision-making skills cannot be easily transferred from one country to another. Thus, it is essential that there be open channels of communication. A valid strategy should be devised for more constructive use of information systems.

32. It is important that training efforts be integrated with changes in administrative systems. This is difficult to improve from outside; the initiative should come from within. Thus, it is important to have a critical concentration of fuller understanding of modern management techniques and of enhanced motivation among a sizeable number of senior administrators, especially among those whose work interlocks or who form operating teams for industrial development programmes.

33. Training should also be carried out in close co-ordination with research findings. Studies must feed in constantly information on new and appropriate techniques that would have practical application.

34. Without a major change in orientation - the creation of an atmosphere in which quick and decisive action can replace the present bureaucratic place of implementation - little improvement can be expected regardless of the resources poured into teaching modern techniques.
35. One of the pressing needs for the public and private administrative sector is the development of creative judgement on the part of key officials. In the past, mistakes have been made which were costly in human and financial terms. Major companies have been ruined; ineffective strategies have been used by governments with catastrophic results. Some of the mistaken judgements are due both to the lack of quantitative models and to a lack of understanding of the broader political, economic and psychological factors involved in decision-making.
36. The task of the decision maker in industrial administration is not only to display his own capacities but to create opportunities for staff development so that combined talents can be used in a problem-solving situation. In this sense, the decision maker has an educational function. His style involves co-operative effort and application to improve both the speed and quality of decision implementation.
37. Among the industrializing countries the need to improve the decision-implementation process is especially great. This demands the development of an entrepreneurial personality, the moving away from a static concept of administration to integrated schemes of implementation. Moreover, the problem of motivation and service combining theory and practice has to be clarified.
38. The decision maker is frequently in a lonely position. His training may be inadequate both in technical and psychological terms. Often he is involved in so many details and has to cope with so many crises that he cannot reflect about principles and he has little time to consider innovations. He needs continuous education and expansion of perspective and dialogues to provoke new ideas. Yet there exists no adequate institution which brings together thinkers and decision makers in a problem-solving setting and which combines theory and practice for the consideration of strategies involved in the industrialization process.

39. Because of this gap, a programme uniting the resources of public and private organizations through the proposed Centre, can have an impact which may affect industrial development on a broad scale. A limited, experimental pilot programme could be flexible and be more dynamic than one which is held back by conventional training and static patterns of performance.
40. The programme may clarify such broad questions as: How can new perspectives in the implementation of industrialization be identified? How can the relationship between the industrialized nations and the industrializing nations become more constructive? How can human and technological resources be used in the most effective manner? How can the behavioral sciences be best applied in the process of industrial growth? How can additional international linkages at multiple levels be created? How can decision-making be decentralized and how can bottom-up planning be effected?
41. The problems of implementing industrialization are so complex that they should be addressed by inter-disciplinary teams. In the field of administration, however, decisions must be made by individuals not teams. Thus the conclusion that industrial administration requires an "inter-disciplinary man" whose development should be the objective of any organization, public or private, concerned with accelerating industrial growth.
42. The practicality of preparing your administrators for positions of leadership should be further tested along the lines used in public and private business concerns for developing top managers out of the middle management group.
43. Questions of a political nature constantly intrude on the decision-making process. Effectiveness of the work of industrial leaders will depend on the understanding and support of the final political decision makers. This means, that there is a need for communication with the political authorities and an appreciation of the political environment. However, to understand the political environment and to influence this environment is one question and to recommend training for the highest level of decision makers is an entirely different question.

CHAPTER 3 - ROLE OF THE PROPOSED INTERNATIONAL CENTRE
FOR INDUSTRIAL ADMINISTRATION

44. The Joint Meeting held in November 1971 to Consider More Effective Training in Industrial Administration devoted considerable attention to the contribution that the proposed International Centre for Industrial Administration could make in the field of industrial administration.

45. The Joint Meeting, taking into consideration the multifarious problems facing developing countries with regard to industrial administration, concluded that a new programme strategy was needed which could remove certain of the restraints mentioned previously.

46. The proposed Centre, it was stated, should not develop into a school with the organization of formal training courses. Its major contribution should be the provision of an environment where industrial administrators and other concerned parties from different countries and regions could exchange experiences, discuss mutual problems, and gain from each other's experiences. This learning environment, which might focus on the art of decision-making, could be reinforced through the introduction of special subject matter which might provide the substance on which decision-making could be tested. It is anticipated that the proposed Centre may want to give considerable attention to appropriate professional subject matter.

47. The view was expressed that the professional subject matter could possibly be introduced through case studies or syndicates. Case studies could be written relating the skill (or lack thereof) of industrial administrators to later evidence of accelerated or retarded industrial growth.

48. It was also felt that there may have to be planned research, field observations and discussions with senior administrators themselves together with other knowledgeable persons.

49. The assessment of development needs of senior administrators should not be left solely for decisions by the proposed Centre's training staff and related experts. The observation was made that training institutions often have an understandable inclination to offer and to promote what they can do best within the competence or expertise available.

50. A purposeful involvement of senior administrators themselves was viewed as helping considerably to define these needs and, at the same time, establish more support for the programme designed to meet these needs.
51. Further, many participants stated that there should be a clear acceptance by the training programme staff and the participants that the development of dynamic attitudes and realistic practice in the use of quantitative and non-quantitative administrative skills would not take place at the proposed Centre. The off-the-job training programme at the proposed Centre could only inform, indicate, demonstrate and start a process of development that must by necessity culminate in actual application by the trainee on the job.
52. The Meeting felt that in view of the varied requirements, no single programme could serve the needs of the developing countries. Tailor-made programmes varying in level as well as in scope should be undertaken. Special programmes should be designed on a country basis, or on the basis of small groups of countries having similar problems. Case studies relating to specific situations should be collected and elaborated. Other programmes would aim at establishing a dialogue among administrators from different countries who performed similar functions, in order to determine solutions to common problems.
53. Furthermore, the Meeting emphasized the need for an articulate and flexible approach to be followed in the design of the general programme of action and in the development of each individual programme. It was also considered essential that there be elasticity and openness of perspective within each programme.

54. The Meeting agreed that there were several echelons of administrators ranging from policy makers through planners to implementors who could benefit from the programme. It was also stated that the function of the person should determine the kind of training.

55. It was thought that the assistance required would have to be formulated in two ways. One approach would be to develop long-term programmes based on research. Also, it would be necessary to identify suitable approaches to retraining and up-grading existing administrative staff on a short-term basis. The long-term programme would involve a new approach for preparing the new type of administrator needed for industrial development.

56. It was felt that in the process of selecting individuals to participate in the short-term programmes, proper attention should be given to the actual needs of the country. A decision would have to be made whether the proposed Centre should deal with general problems related to industrialization or be more concerned with the development of a particular branch or sector of an industry. Another type of programme might deal with the planning and implementation of large-scale projects. A feature of the proposed Centre's activities might be a programme of interdisciplinary seminars, with participation by such individuals as directors and executives of public and private enterprises, and of financial institutions for industrial development.

57. It was recognized that at an appropriate stage and in close collaboration with the proposed United Nations Staff College and other interested international agencies, selected international civil servants and technical assistance experts might be included as participants in the programme. Furthermore, the view was expressed that participants of governmental, consulting and industrial organizations would also benefit from the programmes of the proposed Centre.

Possible Subject Matter for Consideration by the
Proposed Centre

58. The proposed Centre may wish to consider the following four topics:

- a. Environment for Leadership;
- b. Improvement of the Human Potential;
- c. Administration of Technological Innovation;
- d. The Decision-Making Process.

59. It is interesting to note, in this connexion, that the following subjects have been included in the 1972 administrative and management training programme to be offered by the United Nations Secretariat at New York headquarters: current concepts in authority; motivation and leadership; supervisory development programme; inter-personal factors in management; managerial introduction to electronic data processing; interviewing; job briefing and selling; design and use of management; information systems; PERT-CPM workshops and statistical science for management.

Environment for leadership

60. Industrial leaders are much more influenced by their respective economic-social environments than are the managers of the larger industrial enterprises. The latter through the wide-spread adaptation of modern management techniques and under the influence of international finance, are more likely to have an international understanding of the profession and to use common techniques. This increasingly is becoming true in spite of differences in economic or political systems or the geographic location of the country. The industrial manager has a higher sense of professionalism than the industrial administrator and is more likely to have been trained specifically for his new profession at least through short courses for seminars.

61. The influence of past colonial traditions on the environment of the industrial administration may be seen in many of the developing countries. Also, many of the governments of these countries are similarly influenced by these environmental factors and tend to be conservative, non-innovative and risk taking in their approaches. Until recently, most administrators in these countries were devoted to law and order and to maintaining the status quo with regard to socio-economic development. Thus, they were limited in their ability to provide the vitally needed administrative support for present socio-economic development goals now envisaged by the developing countries.

62. While it may not be possible to build up a scientific body of knowledge with regard to the appropriate environment for leadership, much can be learned from examination of studies in this area as well as from an examination of attitudes from the past in relation to those needed for the present.

63. Some of the factors that may be considered under this heading are as follows:

- a. Cultural and socio-economic factors - past and present - that have influenced the administrative patterns in various countries; positive and negative factors;
- b. Desirability for selective adaptation of existing industrial management techniques;
- c. Relationship to the work situation influenced by such factors as tradition, history, religion, cultural situation, and world environment;
- d. Pressing domestic economic and political problems;
- e. Influence of foreign factors;
- f. Scope for new initiatives in industrial administration.

Improvement of the human potential

64. The objective of the proposed Centre is not just to make known the potentialities of improved industrial administration but to do so in such a way that the individuals in contact with the Centre do indeed become better administrators.

65. There is an abundance of experience over the last few decades concerning the impact of the training of civil servants from the industrializing countries. The results tell us that it is possible for participants to go to courses, to take part in discussions, to obtain libraries of reading material, and to be given certificates that the course's requirements have been fulfilled. The evidence continues that often once the participants go back to their country and to their jobs in the Government, the additional skills or the additional experience gained during the course are not utilized.

Based on this, it may be possible that additional training alone at the proposed Centre in Vienna may not lead to the results desired, namely, the improvement of industrial administration with the resulting acceleration of industrial development.

66. From past experience, it may be seen that the random selection of participants from training courses taken from many organizations or industrial enterprises may bring about minimum change in the functioning of the organization or enterprise. It is clearly recognized that an individual cannot bring about the desired change if the senior administrator is left with a staff not ready for change; or if a junior administrator finds it impossible to prevail upon his superior to make the necessary changes.

67. The approach found effective is one of looking at the entire organizational unit and selectively improving the skills of key individuals within the organization. This approach, based upon modern behavioral science, is rapidly gaining acceptance in industrial enterprises under the term "organization development", the basic objectives of which are to:

- a. Increase the capability of an organization to initiate and manage change. This requires tackling its social, economic, technological and organizational systems in an integrated manner;
- b. Improve the performance and value of the organization's human resources.

Within "organization development" can be incorporated skills in achievement development which assist in understanding entrepreneurial behavior, that is, behavior which accepts innovation and is willing to make decisions involving a calculated risk.

68. Some of the issues that may be considered under this heading are as follows:

- a. Personal communications and relationships;
- b. Development of leadership; forms of authority and participation; types of administrative skills needed;
- c. Motivation and understanding of subordinate objectives, motivation and personal disposition towards work;

- d. Achievement motivation to enhance entrepreneurial personality characteristics.
- e. Goal formulation and systems for measurement of goal fulfillment and
- f. Organization development.

Administration of technological innovation

69. As previously stated, industrial administrators bound by traditional practices must learn innovative problem-solving approaches. In addition they must learn to manage innovation, particularly that resulting from new engineering technologies. The criteria used in the past for the administration of technological innovation in the industrialized countries have now been found to be most inadequate with the result that pollution of the air and the water has become a major problem. Thus the criteria of economic viability for the individual enterprise has to be modified to take into account the entire ecological system surrounding the enterprise.

70. Similarly, there is also a technology management problem in the industrializing countries. Decisions have been made to accept new technologies without regard to the effect on unemployment, the future balance of payment position of the country, and often with distorted factor costs for capital and labour inputs. Recently, however, considerable attention has been given in the developing countries to the utilization of more appropriate technologies - that is, technologies appropriate to the country of use (rather than the country of origin) with respect to the availability of capital and labour, the size of the market, problems of repair and maintenance, and the quality of raw materials and components demanded by the technology. This new approach to the selection and adaptation of industrial technologies requires a much more sophisticated industrial administrator.

71. The industrial administrator can acquire these new skills for decision-making without having to be skilled in the various technical fields related to the technologies in question.

72. Some of the issues that may be considered under this heading are as follows:

- a. Viability of the technology with respect to the availability of the factors of production,
- b. Viability of the technology with respect to the effect on the physical environment;
- c. Relationship of the technology to priority policy decisions of the Government or, for example, unemployment and geographical location;
- d. Relationship of the technology to the quality, as well as to the quantity, of economic growth.

The decision-making process

73. The outward manifestations of an organization include the quality of the decisions made in relation to time. Decision-making need not be a haphazard activity carried out only in response to external stimuli but can be an acquired art, if not a science. The techniques of effective decision-making widely in use in industrial enterprises can also be adapted to the needs of industrial administration.

74. A prerequisite for improved decision-making is an effective organization information system designed to give the user objective and reliable information acceptable to the user and of value to him in the achievement of his objectives. The system will generally include the retrieval of information previously generated by the organization plus the designed flow of the required information from sources outside the organization. For certain large-scale organizations, electronic data processing may be necessary but is generally not feasible for most organizations in the industrializing countries.

75. Once motivated to improve his level of decision-making, and having available improved information systems, the industrial administrator can utilize a number of techniques including the feed-back cycle to improve his performance. Then through the use of the techniques of

organization management, the senior administrator may be willing to share decision-making responsibilities with subordinates. Thus the organization's effect on industrial growth can be significantly improved.

76. Some of the issues that may be considered under this heading are as follows:

- a. Information systems;
- b. Factors that influence decisions and can be measured quantitatively;
- c. Socio-economic and related (qualitative) factors which have an influence on decisions;
- d. The quality of decisions in relation to time;
- e. The feed-back cycle and other techniques for improved decision-making; and
- f. Decentralization of decision-making.

The beginning of a new profession

77. A number of participants at the Joint Meeting spoke of the need for a new type of administrator, as contrasted to the traditional administrator, to assist the acceleration of industrialization. It has been suggested that this new type of administrator might be termed the "development engineer". The concept is that industrial administration requires leaders who can make quick and viable decisions on problems and can serve as a bridge between the planners on one side and the implementors of projects on the other. They are not necessarily engineers in the technical sense but have acquired the ability to "engineer development".

78. Because of his ability to communicate with industrial planners, the "development engineer" could improve the quality of planning. He might, in fact, help modify the situation described as follows by a recognised international consultant, Dudley Seers: 7/

"During the 1950s, there was a widespread belief that planning would play a big part in solving the problems of under-development; in the 1960s, there has been a

7/ Conference on the Crisis in Planning, Institute of Development Studies, Brighton, England, 1969.

good deal of disillusion. Results have often fallen far short of expectations. Many planners feel deeply disturbed about the nature of their work, and are searching for ways of making it more useful.'

79. The proposed Centre, as experience was gained, might want to consider a curriculum of courses that would prepare individuals as "development engineers" in anticipation of their taking on higher positions of industrial leadership. These individuals will have had significant experience in decision-making in enterprises or organizations, and will have had a demonstrated capability of acquiring the broader skills required of industrial administrators.

Industrial strategies

80. The proposed Centre may wish to consider the role it could play in improving industrial strategies. While the field of industrial strategies covers a broad area, it might be beneficial for the Centre to at least be aware of the basic responsibilities of the industrial administrators with whom the proposed Centre will be involved. For example, it may be found that an industrial administrator of a research institute may be more interested in improving the research strategies for accelerating industrial growth than in improving his skills as an industrial administrator; similarly for the administrators of licensing and patent offices, small-scale industry programmes, etc.

81. Thus a dilemma is posed for the proposed Centre to become too deeply engaged in the substance of each area of administration which would fragment its work and duplicate the work of other institutions. On the other hand, to completely disregard the substantive responsibilities of the individual administrators would be to lose rapport with them.

82. The proposed Centre may want to consider a number of approaches to this problem:

- a. To use case studies that apply the principles of industrial administration to the variety of practical situations in which industrial administrators find themselves;
- b. To give preparatory training to industrial administrators who later will have specialized training in the field of their particular interest in associated institutions;

- c. To undertake, at a later date and through the use of consultants, studies and training for certain broad strategic problems such as unemployment.

CHAPTER 4 - ILLUSTRATIVE PROGRAMME OF THE PROPOSED INTERNATIONAL
CENTRE FOR INDUSTRIAL ADMINISTRATION

23. The programme of the proposed Centre would be developed in line with client requests for services, which might cover the following types of activities:

- (a) Studies and consultations involving the proposed Centre's staff and interested parties with the view to identifying needs and determining the most effective ways and means of meeting these needs;
- (b) Training seminars and courses aimed at (1) establishing a dialogue among participants with similar problems associated with their enterprises, institutions or government agencies and (2) acquiring new or upgrading present skills needed for effective industrial administration;
- (c) Consulting services of a problem-solving nature;
- (d) Eventually in co-operation with international and national organisations or under direct contract with developing countries, the proposed Centre may be able to offer a "package" of activities drawing on all of the above plus other services which might be developed. The proposed Centre with rapid growth and good management might be able to undertake such activities in its third or fourth year.

24. Thus, it is envisaged that the programme of the proposed Centre would be entirely flexible and suited to the individual needs of its clients while at the same time building up a reservoir of practical knowledge and proven techniques for solving problems of varying nature in the field of industrial administration. Moreover, by serving a variety of clientele with a wide spectrum of industrial administration problems, the proposed Centre could offer high quality service, flexible delivery and innovative problem-solving approaches. The recipient of such services would benefit from the wide range of specialized activities.

25. The proposed Centre - as a private, non-profit organisation - could respond to requests from governments, organisations and agencies in both the developing and the developed countries. It is anticipated that the main focus of the proposed Centre's programme would be institutions and organizations in the developing world - the proposed

Centre's services being provided either through direct contact with clients in these countries or through international or bilateral agencies sponsoring the proposed Centre's service. While the proposed Centre's services may be contracted on short- as well as long-term bases, it is felt that the optimal benefits will be derived by clients from a comprehensive package of services provided over a long period. In this matter, new services could be undertaken that would reinforce those already carried out and over a period of time, improvements and adjustments could be made in the quality of the client's administrative operations.

86. The proposed Centre, at the initial stages of its operations, might consider establishing special co-operative relationships with certain organizations having similar interests. For example, the proposed Centre would be in a position to contribute significantly to the programme of UNIDO by undertaking, in a flexible manner, certain types of projects on a subcontract basis. Similarly, the proposed Centre might seek to co-operate with UNITAR in certain areas which might eventually involve the proposed Centre's being an affiliate in the complex activities leading to the establishment of the United Nations Staff College. The International Atomic Energy Agency (IAEA) and other concerned regional, national, and international organizations and agencies both within and outside the United Nations Family and in particular those located in Europe, might want to make use of the proposed Centre's services. In this connexion, it could lend assistance to the organizations'/agencies' programmes for the developing world, and at the same time engage in staff development activities for these bodies.

87. It is a recognized fact that the leadership of the proposed Centre must be dynamic and highly qualified, so that within a short period of operation it would have the same quality standards now found among a limited number of institutions concerned with the problems of industrial management.

88. The proposed Centre, lacking an initial endowment or an assured annual income of any significant proportions, would need to maintain top-level performance for all activities. There would be a built-in evaluation process through the decisions to finance activities made by sponsors of the proposed Centre. Thus, the proposed Centre would only advance through the provision of well-designed and effectively implemented services.

(c). The following should be considered as illustrative of the types of activities the proposed Centre might undertake. Additional activities could be added to the programme as required.

I. Studies and consultations

a. On the initiative of the proposed Centre and with the agreement of governments concerned, consultations of an exploratory nature could be undertaken in a selected number of countries for short periods during which the proposed Centre's representative would discuss with concerned national parties the needs of agencies, organizations and institutions in the country with respect to industrial administration development, and identify specific problem areas in which the proposed Centre could be of assistance. It is felt that these consultations would be undertaken by the director of the proposed Centre or by a top industrial administrator contracted for this purpose.

b. Vienna consultations - Increasingly, many top-level administrators from the developing countries are visiting the European headquarters of international organizations as well as national organizations providing financing and other development resources. They might be invited during their European stay to visit the proposed Centre for a few days each for consultation with the Centre's leaders and with other guest administrators during which time discussions could take place on industrial administration development problems in their respective countries.

c. Through a "Consultant-in-Residence Programme", distinguished administrators might be invited to the proposed Centre for periods of a few weeks or months, as appropriate, to undertake studies and/or to take part in the proposed Centre's activities as lecturers.

II. Training seminars, conferences and courses

a. Conferences of two to three weeks could be arranged by the Centre, upon request, in the countries requesting such. Modelled after the "management clinics" now being successfully carried out by UNIDO, the conferences would seek to involve the participation of top administrative personnel concerned with industrial administration, supported by

two or three senior industrial administration consultants. Discussion would take place on specific problem areas as well as on common problems with the view to finding new approaches and techniques for solving both types of problems. It could be envisaged that the proposed Centre could hold as many as two conferences each year.

b. National training seminars - While the above-mentioned conferences would seek to establish dialogues among top-level administrators, the training of middle echelon administrators could take place at national seminars held in requesting countries for three- or four-week periods. The emphasis here would be on training in new and improved management techniques that would have application to the particular country's situation. It would be necessary to use two or three consultants to assist in these training efforts. It could be envisaged that eventually the proposed Centre might hold two to three national training seminars each year.

c. Training sessions at the proposed Centre's Vienna headquarters - Eventually, the proposed Centre may want to hold training sessions in Vienna for period of three months to cater to the needs of middle-level administrators. These sessions would combine practical training in effective administrative practices with theoretical training obtained through lectures. It is envisaged that the proposed Centre would be able to build up a library of case studies and appropriate training material to undertake this type of activity in its third year of operation. At this time, it might also be prepared to offer even longer training programmes for the preparation of the new type of administrator, the "development engineer".

d. Seminars at the proposed Centre's headquarters - It might be feasible to hold a seminar annually after the meeting of the United Nations Industrial Development Board - similar to the present meeting in Krems in which government representatives would be further acquainted with the actual and planned programmes of the proposed Centre and also would be updated with regard to latest developments in the field of industrial administration.

III. Consulting services to international, national and regional organizations, agencies and institutions

The proposed Centre might assist the work of international, national and regional organizations, agencies and institutions in areas of their work relating to industrial administration. For example, it might be in a position to undertake subcontracting for the provision of consultants.

IV. Package programmes

Eventually in co-operation with international and national organizations or under direct contract with developing countries, the proposed Centre may be able to offer a "package" of activities drawing on all of the above plus other services which might be developed. The proposed Centre with rapid growth and good management might be able to undertake such activities in its third or fourth year.

CHAPTER 5 - RESOURCES AVAILABLE TO THE PROPOSED
INTERNATIONAL CENTRE FOR INDUSTRIAL ADMINISTRATION

90. While building up and strengthening its own resources, the proposed Centre would be able to draw upon those of other organizations with regard to consultants, training material, studies, etc. As a result, the proposed Centre would require only a small permanent full-time staff to provide a growing range of services. (See Chapter 4 for further details.) The proposed Centre would be particularly favoured by having within Austria a number of associated organizations. In addition, the potential exists for close working relationships with international, national and regional organizations and agencies concerned directly or indirectly with industrial administration.

Potential Resources Within Austria

The Diplomatic Academy
Favoritenstrasse 15
1040 Vienna

91. The Academy has over 40 professors carefully selected for depth, cultural background, and technical expertise. It has a library of over 5,000 books which relate to the wider applications of leadership. Its student body is cosmopolitan and includes participants from Austria, Federal Republic of Germany, Finland, Greece, India, Japan, Poland, Rumania, Sweden, and the United States.
92. The goal of the Academy is not only to advance the students in the art of statesmanship but also to give them a grasp of the relationship of foreign policy to the social and economic sciences. The head of the Academy is a noted author on Motternich, Ambassador Arthur Breycha-Vauthier, who represented Austria in Lebanon and was formerly director of the archives of the League of Nations. In international law Dr. Karl Zemanek is heading a distinguished faculty which is currently engaged in research to expand the legal bases of international industry.
93. The Diplomatic Academy sponsors numerous seminars during which noted alumni relate their experiences in various international organizations.

Gewerbe-Verein
Eschenbachgasse 11
1010 Vienna

94. This organization was founded in 1859 and has over 4,500 members who are mainly engaged in small-scale industry. Its goal is to unite the various Austrian trades in the consideration of public issues and to stimulate the members to become more active in political organization. Its president is Dr. Erich Fritsch, a noted tax consultant. Its secretary is Dr. Joseph Bitner, whose background is in food processing and also in textiles; the associate secretary is Dr. R. Nieman, who was active in the construction industry.

95. Since 1921, the organization annually awards the Exner Medal which is one of the high honours awarded to outstanding individuals in fields of technology and industry. Several Nobel prize winners have also been recipients of this honour.

96. The Gewerbe-Verein has a carefully selected library with numerous books on national and international industry. It features prominent speakers - East and West - and currently is exploring closer contacts with Asian industrialists, especially with leaders of Japanese industry. It is exploring ways and means to bring about harmonious co-operation between Eastern and Western European economic systems.

Institute of Higher Studies
Stumpergasse 56
1060 Vienna

97. The Institute was originally founded by the Ford Foundation to accelerate graduate study in the social sciences in Austria, with particular attention to the application of quantitative techniques to sociology and economics. Its student body is world-wide with many coming from Eastern Europe. It has both a resident faculty and visiting foreign professors from such universities as Princeton, Berlin, Stockholm, Moscow, Leningrad, Sorbonne, and Oxford. Its current research emphasizes especially the application of spectral analysis on economic data, decisions under uncertainty, and the theory of optimal order.

98. The director of the Institute, Dr. Gerhart Bruckmann, is well known for his research in statistics and is associated both with the Institute and with the University of Vienna. He has headed many advisory commissions for the Austrian Government.

99. The Institute is expanding its lectures and seminars in an interdisciplinary way. Its library includes numerous journals of importance in the study of industrial administration and leadership.

Hochschule für Welthandel
Franz Klein Gasse 1
1019 Vienna

100. This is one of the two graduate business schools in Europe which has an internationally known faculty including Professor Heinrich, Professor Krasensky, and Professor Theuer. It emphasizes both theoretical foundations of industry and current problems of large-scale economic enterprises. It specializes in management training based upon interdisciplinary studies. Research is conducted on selected problems of technology which affect economic growth. Its student body includes many nationals from the developing countries.

Junior Chamber of Commerce of Austria
Eschenbachgasse 11
1010 Vienna

101. The Junior Chamber of Commerce of Austria is one of the most active chapters of this international organization which has a membership of several hundred thousands. Its leadership includes Dr. Heinz Holzer, managing director of one of the branches of the Creditanstalt, who is also an expert in international finance, and Miss Habsburg-Lethringen, who has specialized in agricultural economics.

102. The aim of the Austrian chapter is to develop leadership capacity among its constituents. At the same time, it has close ties with chapters in the developing countries, and its members frequently serve as advisors to the African and Asian countries.

103. The organization is developing systematic courses for leadership training.

Institute of European Studies
Freyung 4
1010 Vienna

104. This is an organization which combines the resources of over 50 American universities. It is headed by Professor Edward Mqwatt, who has studied at Oxford University and whose interests include

contemporary philosophy and contemporary social issues. It has both a resident and a visiting faculty, including some of the prominent professors of the University of Vienna. It is especially outstanding in the field of economics and industrial administration, with the noted Professor Adolf Nussbaumer as lecturer.

105. The extension division of the Institute conducts seminars for industrial leaders of Western Europe and the United States, and it features trips to Eastern Europe to explore closer cultural and economic ties.

Institute for Modern Industrial Leadership
Schwarzenbergplatz 4
1010 Vienna

106. The Institute is part of the Austrian Federation of Industries which is the dominant organization for large-scale business in Austria. The president-elect is Dr. Hans Iglar, director of the Schoeller Bank and former director of all state industries of Austria. The director of the leadership training program is Hkfm. Karl Leitner, who has extensive experience in industry and graduate study at Harvard Business School. The Institute's programme emphasizes techniques of management development, modern leadership techniques and concepts, problem analysis, and decision-making. It relies upon small group work and uses the Harvard-case method. The courses are given at Gösing and at Hernstein. The faculty includes not only Austrian specialists but also experts from other European countries and from the United States.

Institut für Unternehmensführung - Schloss Hernstein
Währinger Gürtel 97-99
1180 Vienna

107. The Institute's programme emphasizes marketing, product and personnel management, long-term planning, rhetoric, the use of computers in business leadership, and group dynamics. Currently it is conducting research both on theoretical and operational levels regarding the advancement of creativity in industrial organizations.

108. The Institute is headed by Dr. Max Fink, who has a wide international background in management, especially in Brussels and the United States. The Institute conducts joint operations with

Eastern European industrialists and features study trips to Asia, especially to Japan. It sponsors public forums during which participants relate their experiences to a wide industrial audience.

ÖPZ (Österreichisches Produktivitätszentrum)
Renngasse 5
1010 Wien

109. This Institute was founded in 1950 and includes representatives of industry, labour, as well as government. It is headed by Dr. Hermann Reischitz who has been active both in industry and in public service. It sponsors seminars, formal courses, as well as large conventions which attract leaders of international industry. The programme features the latest methods of organizational leadership, personnel development, industrial administration, production, investment and marketing, new methods of automation, as well as extensive preparation in human relations. Its programmes are of a shorter duration and have appeal to leaders in government service. Research projects deal with pragmatic ways in which new concepts of leadership can be applied to the conduct of industrial enterprises.

Bundesinstitut des WIFI (Wirtschaftsförderungsinstitut)
Hoher Markt 3
1010 Vienna

110. The Institute is headed by Dr. Herbert Salzbrunn.

Berufsförderungsinstitut
Wipplingerstrasse 33
1010 Vienna

111. The Institute was founded by the Arbeiterkammer and Gewerkschaftsbund (trade union) and is headed by Landtagsabgeordneter Adalbert Basts.

Österreichische Akademie für Führungskräfte
Schloss Eggenberg
A-6020 Graz

Austrian Universities

112. The members of the proposed Centre can work together with the outstanding Austrian universities, such as the University of Vienna, Lins, Innsbruck, Graz, and the new University for Educational Sciences

at Klagenfurt. It can avail itself of: the institutes of Professor Clement at Innsbruck, who has made fundamental contributions to educational economics Prof. Walter Schöler at Klagenfurt, who has studied the management of technology both for industry and education; Prof. Ernest Kulhavi at Linz, who is internationally known for his research regarding marketing motivation and industrial growth; Prof. Clemens A. André at Innsbruck, who is an advisor to foremost European industrial leaders; and Prof. Adolf Mussbauer, whose work in economics and industrial administration is internationally recognized.

Potential Resources Outside of Austria

113. Discussions with UNITAR on possible co-operative activities are taking place. In addition, contact has already been or will be established with the following institutions undertaking programmes related to the suggested activities of the proposed Centre.

- African Institute for Economic Development and Planning, Dakar;
- Asian Institute for Economic Planning and Development, Bangkok;
- Economic Development Institute, IBRD, Washington, D. C.;
- Academy of Foreign Trade, Moscow;
- Institut Européen d'Administration des Affaires (INSEAD), Fontainebleau;
- Institute of Social Studies, The Hague;
- Instituto Latino-Americano de Planificación Económica y Social, Santiago;
- International Center for Advanced Technical and Vocational Training (ILO), Turin;
- International Institute for the Management of Technology, Milan;
- International Institute of Management Sciences Center, Berlin;
- Research Institute for Management Science, Delft.

CHAPTER 6 - SUGGESTED ADMINISTRATION AND ILLUSTRATIVE BUDGET FOR THE
PROPOSED INTERNATIONAL CENTRE FOR INDUSTRIAL ADMINISTRATION

114. The system of administration and the caliber of administrators under which the proposed Centre is to operate is the critical factor leading to its success or failure.

115. To obtain flexibility and to remain innovative, the proposed Centre should be established as a non-profit private organization under the laws of Austria. Initially, the Institute of Research in Education and Development might operate the proposed Centre as an autonomous division, under its present charter. The Institute has an administrative office, a library, and a seminar room which could be shared with the proposed Centre. Additional seminar rooms are available from associated organizations also located in Vienna. Later, following at least three years of operation, the proposed Centre would probably require larger and separate facilities including residential accommodation for the participants and staff.

116. The proposed Centre would require a Board of Trustees composed, for example, of representatives of co-operating organizations that are receiving services from and/or are providing resources to the proposed Centre. The Board might meet annually - perhaps at about the same time as the United Nations Industrial Development Board. A smaller management committee might be appointed by the Trustees, which by meeting quarterly could assist policy implementation.

117. Most important will be the qualifications of the director to be recruited for the Centre. This individual should have had considerable experience in administration in the developing world (or be a citizen of a developing country), be fluent in English and either in French or in Spanish. His educational background should be in administration, management or related subject area. An entrepreneurial personality plus the qualities of leadership are considered essential.

118. Since the director will make a substantive contribution to the proposed Centre as well as provide the administration, it is not envisaged that during the initial period, it will be necessary to have additional full-time professional staff members.

119. Additional professional staff skills could be made available by the use of consultants from associated institutions.
120. The supporting staff will be obtained by augmenting those already at the Institute.
121. The proposed Centre's budget would be broken down into: fixed administrative costs, and project costs. The administrative costs would have to be obtained through contributions direct to the proposed Centre; project costs would be obtained through contracts entered into with sponsoring organizations for the provision of services. In time, the overhead charges for projects (40 per cent assumed to be reasonable) would meet an increasing portion of the administrative costs.
122. The minimum administrative costs can be estimated with some degree of accuracy. They would have to cover those activities necessary to demonstrate that the proposed Centre is a practical institution, and to ensure that the services provided are of high professional standards.
123. Any estimate of the project costs is far less accurate since they depend upon the demand for services and the willingness of sponsoring organizations to finance such services. A low estimate has been made of what the proposed Centre might expect during its first five years of operation.
124. The following estimates cover the two cost categories over the initial five-year period of operation.

ADMINISTRATIVE COSTS (US\$ thousands)

	Year				
	1	2	3	4	5
Director plus associated expenses	20	20	20	25	25
Professional Staff (starting in fourth year could be supported by direct project expenditures)	-	-	-	-	-
Consultants to undertake studies, preparation of course materials, consultations leading to the expansion of quality projects, lectures, problem-solving missions, etc.	10	15	15	20	20
Rent of administrative offices and seminar rooms plus utilities	10	10	10	20	20
Supporting Staff	5	10	10	15	15
Travel	5	5	5	5	5
Materials, supplies, equipment	5	5	5	10	10
Contingencies	15	15	15	15	15
<u>TOTAL</u>	70	80	80	110	110


PROJECT COSTS (US\$ thousands)

	Year				
	1	2	3	4	5
Direct project expenditures	25	40	80	150	250
Project overhead (40 per cent)	10	15	30	60	100

NET OPERATING COST (US\$ thousands)

	Year				
	1	2	3	4	5
Administrative costs	70	80	80	110	110
Project overhead income	10	15	30	60	100
Net operating loss	60	65	50	50	10
Cumulative operating loss	60	125	175	225	235

125. So many uncertainties exist in preparing such financial projections that it would be unwise to launch the proposed Centre until some assurance was available that total non-project resources, to the extent of approximately US \$300,000, were to be available in cash or in kind over the five-year period.





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