



**TOGETHER**  
*for a sustainable future*

## OCCASION

This publication has been made available to the public on the occasion of the 50<sup>th</sup> anniversary of the United Nations Industrial Development Organisation.



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

## FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)



17  
D02887



United Nations Industrial Development Organization

Distr.  
LIMITED

ID/WO.101/9  
25 October 1971

ORIGINAL: ENGLISH

Seminar on the Organisation and Administration  
of Industrial Services in Latin America

Santiago (Chile), 23 November - 2 December 1971

ORGANISATIONAL AND ADMINISTRATIVE ASPECTS  
OF PROVIDING INDUSTRIAL SERVICES

by

Roland Julienne  
Office of Programming  
Secretary of State for Foreign Affairs  
Paris, France

1/ The views and opinions expressed in this paper are those of the author and do not necessarily reflect the views of the secretariat of UNIDO. This document has been reproduced without formal editing.

id.71-8295

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.

## TABLE OF CONTENTS

	<b>PAGE</b>
I.- INTRODUCTION (paras. 1-4)-----	3
II.- REVIEW OF INDUSTRIAL SERVICES REQUIRED TO SUPPORT AND PROMOTE THE DEVELOPMENT OF INDUSTRY (paras. 5-28)-----	4
III.- FORMULATION OF POLICY AND PLANS FOR THE PROVISION OF INDUSTRIAL SERVICES (paras.29-37)	10
IV.- MEASURES TO ENSURE FOR A CO-ORDINATED APPROACH TO THE PROVISION OF INDUSTRIAL SERVICES (paras. 38-48)-----	12
V.- MEASURES TO ENSURE FOR APPROPRIATE INTERNAL ORGANIZATION, WORK PROGRAMMES, FINANCE AND STAFFING OF INSTITUTIONS PROVIDING INDUSTRIAL SERVICES (paras. 49-68)-----	16
VI.- PROBLEMS OF MEASUREMENT AND EVALUATION OF PERFORMANCE OF INSTITUTIONS PROVIDING INDUSTRIAL SERVICES (paras. 69-76)-----	22
VII.- SUMMARY AND CONCLUSIONS (paras. 77-80)-----	24

## I.- INTRODUCTION

- 1.- Generally the developing countries lack the spirit of enterprise, fruit of initiative, dynamism, ambition and cleverness of gestion. Traditional attitudes of mind prevent the progress of the better endowed ; behaviour and motivations of the old kind forbid the birth of auspicious surroundings for industrialisation. Under such conditions, the task of developing the industrial sector, which will carry a transformation of attitudes and motivations, are of the most complex : creation of job and profit opportunities on one side, on the other side provision of industrial services able to sustain the motivations of those who are already in the industrial circuit, or who, owing to their background or their training, are a potential source of enterprise managers.
- 2.- The creation and growth of an enterprise depend upon several factors : basic resources, capital, market, labour force, technology, management, legislation, etc... The main characteristic of the industrial services must be their ability to work in all these different fields, in order to sustain and intensify the development of the industrial sector. The services to be taken into account will therefore include : industrial research, laboratory testing, standardisation and quality control, extension services, industrial information, feasibility studies, industrial promotion, consultancy on technology and management, training, financing, industrial estates, fairs and exhibitions, industrial property, industrial legislation.
- 3.- In the developing countries, there can be found some big scale enterprises able to satisfy with their own resources some of their vital needs in this field, but none of them can expect to solve by itself all its problems. The other enterprises, chiefly those of medium and small scale that play an essential role in the development, are in need of a total support from the outside. Thus, one of the fundamental elements for the industrialisation of the developing countries is the setting up of an infrastructure of institutes to provide efficient services to enterprises. Because of their nature, or for reasons of economy, these services may be carried out by industry itself, professional or trade associations and/or the Government.
- 4.- The organization and administration of the industrial services will raise problems of institutional arrangements to insure a maximum of efficiency and an economy of means. These problems concern each institution individually : systems and procedures, financing, staffing, evaluation of performances ; they concern also the relations between institutions role of public and private sectors, co-ordination between the various agencies having joint or interlocking commitments in a certain field of activity.

II.- REVIEW OF INDUSTRIAL SERVICES REQUIRED TO SUPPORT  
AND PROMOTE THE DEVELOPMENT OF INDUSTRY

5.- Industrial research is essential for the development of new products and processes and the improvement of existing ones. Developing countries must rely on science and technology in order to become valid associates to the industrialised countries, and to improve their whole economic status. Since their cultural, economic and social situation differs from the one of the developed countries, technology can be successfully transferred from the latter only if it is adapted to the local conditions. Research is not limited to the only problem of technology, it is also interested with the resources and their uses, the appropriate techniques, the quality problem, the reduction of manufacturing costs, the efficiency of labour, the analysis of economic problems. Before setting up a research institution, its functions must be determined with precision, as the relative importance of the various kinds of the necessary research activities (basic research, applied research, development research, modifications of imported techniques, adaptation of imported techniques) differs with the level of industrialisation reached by the country.

6.- Due to their possibilities and equipment, research institutions may provide a broad range of industrial services, out of research proper : information, analysis and laboratory testing, feasibility studies, consultancy and trouble-shooting, solution of specific technical problems, quality control, industrial design, marketing, etc... Industrial research can be conducted by governmental services or ministries, universities, by public or semi-private industrial development societies, by industrial research institutes either specialised or multi-functional. Industrial research institutes require several conditions for their successful operation : a good market for technical services, competent and qualified staff, freedom of action, sound in-house programme planning, adequate finance, business-like approach, active promotion of research results, favourable government policy within the framework of the national plan for industrialisation.

7.- Standardization and quality control insure a smooth and efficient flow of production and reduce costs ; they help foster better sales, and improve the satisfaction of the users and consumers ; when the activity of standardization has taken root a most useful tool has been forged for the transfer of technology. The control of weights and measures, applied metrology, standard specifications, codes of practice, quality control and certification markings form a continuum and it is necessary to achieve progress on all these fronts in a co-ordinated fashion ; the action differs with the size of the enterprises - large scale plants are usually established with technical assistance, including standards, from developed countries, and conflicting standards emanating from a number of countries may cause severe problems to the recipient country ; in medium sized and small enterprises the problem is basically one of education to promote the practice of standardization, even on the modest scale which is appropriate.

- 8.- Efforts towards standardization and quality control should be started at an early stage of industrial development of a country. But stringent international standards should be adhered to only after quality control and metrology system have been sufficiently developed, beginning with export goods which must compete in the world market, and with certain manufactured domestic products where non-conformity to standards could be dangerous (as in pharmaceutical products).
- 9.- Industrial extension services play a role in the transfer of technical knowledge, new industrial techniques, research findings and other similar developments to the people involved or interested by industrial activities. They encompass all the actions carried internally for the benefit of an enterprise in order to encourage and facilitate the building up of new branches of industrial production and to help the exploitation and management of the existing units. They are also interested in various kinds of activities external to the enterprise but with an impact on its modernization, improvement and growth (technical research, technical teaching, creation of pilot plants, setting up of other kinds of demonstration equipments, etc...).
- 10.- Industrial extension services provide a two-way communication channel : they keep industry aware of business and technological developments and possibilities as well as acquaint the agencies providing the services with the reactions and problems of the industrial community. Thus extension is one of the essential components in the promotion of industrialization in developing countries.
- 11.- Industrial information is one of the main prerequisites for preparing and implementing industrialization plans ; such information is also essential for the successful operation of individual industrial enterprises. While the needs of the developing countries cover a very large area, such as production techniques and industrial design, management practices, statistics on production and consumption, prices of raw materials and manufactured goods, etc... their practical requirements call for industrial information which is carefully selected and processed, through, maybe, the setting up of a quick question and answer system. Although the structure of the service entrusted with this task differs widely with the conditions of industrial climate and stage of development in the developing countries, making it impossible to give general recommendations, there seems to be an advantage whenever possible to draw a link between this service and the ones carrying research.
- 12.- Feasibility studies are needed to insure that industrial development programmes will lead in fact to the building and operation of industrial enterprises in the developing countries, since they aim at checking before

any decision is taken, the technical and economic soundness of the proposed projects. Starting from there, their existence makes easier the promotion of individual projects through potential entrepreneurs, banks and other financing bodies. The growing need of feasibility studies in the developing countries gives rise to the question : which institutions should take care of them ? If a number of institutes are originally set up with the specific aim of conducting such studies, one can think that, in many cases, this work should constitute a normal component, and an extremely important one, of the industrial research organisation.

13.- Industrial promotion is a broad concept including all the measures taken to draw the attention of the potential investor on the existence of sound specific industrial projects in the field of their activity, and to aid these investors in the realisation of the operations for which they have taken a positive decision. Once the feasibility studies allow to think that there is no strong obstacle against the implementation of a project, the preoccupation should be to look for one investor, or even several investors between whom the Government will choose. The successive steps of the promotion are : search of investors, and their reception in the country, scrutiny, discussion and evaluation of the projects - control of the engagements taken by the investor. This action towards new enterprises should not forget the necessity of relentless improvements in the enterprises already in place though an aid for a better productivity and a reduction of costs.

14.- For the benefit of nations in which the local resources in capital are scarce, industrial promotion leads to ~~gearing~~ an increasing proportion of external financing and technical assistance towards the specific industrial needs of the developing countries. The success depends to a certain extent on the soundness and strength of the ties between the promotion services and the external services representative of the investors.

15.- Industrial promotion services can be of great usefulness for medium and small-scale enterprises, enabling them to contact qualified sources of services such as enterprise organization, technical assistance and technology, financial aid, information and documentation, etc... ; as the recommended ameliorations should have a permanent effect, it will often be necessary to give the managers of small scale enterprises some kind of training (discussion groups, seminars, etc...). In many cases, this promotion of medium and small scale enterprises means the furnishing of services before they are asked for by managers who don't know their existence and their usefulness.

.../...



16.- Consulting services on technology and management cater to both the needs at the macro-economic (industrial programming) and micro-economic (projects) levels, giving practical guidance to industrial managers, government officials, and others faced with industrial development problems which require experience and specialised knowledge. Such services are provided by either a person or an organization qualified to undertake an independent and unbiased study of a given problem and reach a rational solution. One side advantage of the consultative services lies in the fact that they spare the time of the enterprises and reduce their requirements in qualified staff.

17.- Industrial consultancy spreads on a great variety of factors : the chief ones can be grouped in six main types : economic analysis, pre-investment and project planning, engineering and plant design, processes and technology, management, training. It can be conducted by industrial research institutes, universities and institutes of higher education, public sector and governmental agencies concerned with industrial growth, international consultants provided by governments of industrialized countries, private consultants firms (local and foreign), equipment manufacturers and suppliers. In many instances, it is an advantage for the country to expand the possibility of using local consultants.

18.- Consulting services are related either with improvements and alterations to introduce in enterprises or processes already in use (the necessary "trouble shooting" services fall in this category), or with the setting up of new plants, technical processes, markets, systems or organizations), or with the specific problems of medium and small scale enterprises.

19.- Training of technical personnel is highly essential for the efficient and accelerated industrial progress ; unfortunately most of the developing nations suffer from a shortage of skilled specialists and the training facilities are inadequate. The policies and efforts to secure adequately trained personnel should be considered as an integral element of the industrial development planning and, as such, should be co-ordinated and integrated with the requirements of industrialization so that unemployment and frustration could be decreased or avoided. This would entail the necessity of an accurate assessment of the technical skills required for the implementation of industrial development, proper professional orientation of students, as well as the re-organizing of educational institutions to ensure efficient utilization of the available facilities. The training of an academic character is often irrelevant to the industrialization requirements of developing countries, and the importance of providing specialised secondary education training for technicians should be emphasized, while the orientation towards employment and in-plant training must be stressed in industrial training programmes.

20.- The shortage in skilled manpower is aggravated by the migration of trained personnel from less developed to more developed countries. The "brain drain" results from social, economic, political and external factors, as well as the lack of proper planning of the educational and training systems. In order to minimize this loss, it can be considered necessary to strengthen and re-organize these systems linking them more closely with the industrialization requirements, so that most of the training could be provided within the country.

21.- It is necessary that the training of management and administration personnel goes hand in hand with the training of technical personnel, as a shortage of competent people in the field of management can be found in many enterprises, and this lack very often creates a serious obstacle for the creation of new ventures. In the same way, the urgency of improved training of personnel for all kinds of industrial services (management, information, consultancy, etc...) should be recognized. The future expansion of industrialization demands that a stress be placed upon the training of trainers in complement to manpower training.

22.- Many forms of industrial financing are used in developing countries, because most of the enterprises cannot produce sufficient self-financing and suffer also from the lack or inadequacy of a financial market. Government-sponsored financing often includes medium and long term capital loans as well as short term loans for working capital; these are generally extended on liberal or sub-commercial terms. Other forms of financial assistance to industry include tax exemptions on corporate profits, and sometimes on dividends also, as well as relief from duties on imports of certain industrial machinery, equipment or supply; hire-purchase arrangements for machinery and equipment, government purchases of locally manufactured goods, the development of a local capital market, can also be listed under this heading.

23.- The creation of an industrial development bank responsible for making loans and of an investment company which participates in the capital of enterprises can be at the same time an aid to finance capital needs of new or expanding enterprises, a way to collect local savings, and a government tool to control industrial development. As the lack of capital is not the only obstacle against industrialization, these institutions have felt the necessity to take over some additional responsibilities such as feasibility studies, industrial promotion, management, in the ventures they have put finance into, but such activities should not be unduly expanded.

24.- Industrial estates are among the most effective means to plan industrial location and to support an accelerated industrial growth; they should be restricted mainly to medium and small-scale enterprises, due account being taken of the future expansion of the units. They offer generally a suitable plot of land and factory buildings with a variety of

services (power, gas, water, transport, sewage, etc...), on a rent basis, or on hire purchase terms or for outright sale ; sometimes they also offer additional facilities to increase the productivity of the units of estate and to reduce their production costs : advisers and consultants, training of managers, information, technical (products, suitable methods, testings) and economic research (investments, markets, location, management and organization, costs, productivity), financial services (complementary credit facilities, insurances, common services for retirement and welfare schemes, bookkeeping, etc...), common service facilities (repair shop, testing laboratory, plants for specialized treatments, maintenance of plants and equipment), economic services (for better commercial transactions), social services.

25.- As promotional tools, industrial fairs and exhibitions are an effective means of making the buying public aware of the latest in goods and services being produced in a country and thereby stimulating the demand ; it also stimulates competition among the producers leading to improvements in service, product quality and price.

26.- Industrial property, in its generally accepted meaning, comprises patents, certificate of authorship, trademarks, designs and know-how. Its protection through the enactment and proper administration of a suitable legislation is a basic necessity for industrial progress especially in economies where private enterprise is involved. An additional fact is that sound legislation plays an essential part in the transfer of industrial technology from the more to the less developed countries ; without it, the potential licensor, often a private entrepreneur, may feel that his industrial property rights will not be fully protected in the less developed countries. This legislation should be completed by a system of relationship between patent holders and industrialists and the establishment of new local industries through patents and enterprise-to-enterprise arrangements.

27.- Industrial legislation for the promotion and protection of local industry has three aims : firstly, legislation is needed to open new means to the various services required by industry, such as incentive legislation covering tax and duty concessions, patents, trade marks, designs and industrial standards, etc... Secondly, legislation must be enacted to give a framework into which industry shall operate, such as building codes for factories, prevention of adulteration of products, labour regulation, etc... Thirdly, legislation is related directly with industrial policy as such, for instance sectors reserved for the operation of state owned enterprises and those open to private investments, protection of infant domestic industry from undue foreign competition, etc...

28.- Although the spread and general orientation of industrial legislation are under the influence of the nation's political and administrative systems, this legislation should always be precise, stable enough, and as general as possible in its application, because particular measures create disparities and open facilities to escape the law. Legislation should also be known, whence the necessity of a diffusion (bulletins, booklets, reports, etc...) as large as possible for the benefit of all concerned. The best solution to define the Ministry entrusted with industrial legislation is a choice open to each country according to its internal requirements.

### III.- FORMULATION OF POLICY AND PLANS FOR THE PROVISION OF INDUSTRIAL SERVICES.

29.- The availability of a comprehensive set of industrial services is a basic necessity to create new enterprises, and to increase the efficiency of the existing ones. Their setting up cannot be the result of chance opportunities, therefore a complete and co-ordinated programme for their creation and strengthening should appear in the industrial development plan which defines the aims of industrialization programming and underlines the industrial policy to be followed and the measures to be taken to foster, to guide and to control industrialization. Aims, policies and measures vary with the countries, owing to local circumstances and conditions.

30.- At the starting point of development, the role of industry being not consequent, the various organizations in charge of planning, financing, training, research, have a field covering the whole economy, and not industry only. When development takes momentum, the industrial component increases eventually to a size sufficient to justify the creation of specialized institutions. Thus, very often, the location of industrial services in the administrative structures may result more of historical contingencies than of rational decisions.

31.- The successful operation of an industrial service is vastly affected by three decisions : whether it should be a public or a private body ? which location it should occupy either in the administrative structure of the State (division of a Ministry, autonomous body, part of an autonomous body) or of the private sector (independent, or Government subsidized) ? whether all the services should be grouped in one important institution, or scattered between several ministries or autonomous bodies. Gains derived from a real unity of action are certainly important, but unfortunately experience shows that such unity is difficult to get at ; the opportunity of opening at once a great number of industrial services is nearly never offered to a country, services are in most cases developed on an individual basis ; therefore the problem is how to group some of the existing services into a bigger and more efficient institution, while maintaining a necessary flexibility allowing for the particular

characteristics of each service and the requirements of decentralization.

32.- When defining a policy of industrial services, the range of activities to be carried out and the basic goals should be clearly stated. The goals must be realistic ; obviously, in a developing country the needs for new and improved services may seem infinite ; on the other hand, the resources which can be made available to provide the services are usually limited. The goals should be set after a careful balancing between needs and resources. Realism dictates also that outside assistance, frequently available, should be concentrated on capital plant or initial development, and that local public resources be capable of supporting later continued operations and efforts towards long-term goals.

33.- As the reason for the existence of industrial services is to meet industrial needs, manufacturers associations, chambers of industry, professional organizations, workers syndicates should actively participate in the setting up of the policies to be followed in this field, and be represented in the governing or consultative bodies ; this representation can be regulated by law, or take an informal turn in the form of periodical meetings between administrative officials and industry representatives.

34.- When dealing with industrial services, success in operation is a necessity, and to gain it one should take the responsibility of acting, those who are in charge of directing development do not come abreast of their task if they are happy with cautious conduct and the avoidance of mistakes ; in fact they have to fulfil an active mission : to foresee, build, encourage. This obligation takes a special aspect in the developing countries, where the administrative structures are still flexible and where the selection of agents may be of great importance ; in these countries, one will find useful to define the jobs, study the groups of people working together, and appoint the individuals who will be in charge of an active industrial promotion, outside all standard regulations and hierarchy.

35.- Assistance programmes suited to small scale industry is an essential requisite in the developing countries ; it presents specific aspects which should be taken into consideration by the industrial services policy. Because of its inherent economic weakness, small-scale industry suffers from additional handicaps : difficulty to provide for itself at least some of the infrastructure required, such as electric power, less opportunity to persuade foreign firms to make licensing arrangements or to provide technical assistance or capital. They may suffer from the diseconomies of small scale operations and may be wasteful of capital, they require a larger number of capable entrepreneurs and managers to achieve a given amount of production and employment and they are less able to attract or to train the skilled workmen required. Therefore Governments can adopt an industrial policy

to encourage the healthy development of enterprises of all sizes and not only big-scale manufactures ; they can also look for opportunities and provide for preinvestment studies and surveys in order to help prospective investors ; Governments should also co-ordinate and integrate the different services and facilities provided for small scale industry.

36.- A special programme of industrial services suitable for small-scale industries can be efficient only if it is an integral part of a comprehensive programme for small-scale industry development, this latter programme being itself related with the general industrial policy. Development programme for small-scale industry may cover four essential areas : economic and financial aid, technical assistance, improvement of managerial methods, improvement of products, and has to keep in mind the necessity of stimulating entrepreneurship (advices and guidance for the creation of small-scale enterprises) ; it should include the means of providing the consulting services needed, training facilities for entrepreneurs and staff, a system of loans on an appropriate basis, industrial buildings ready for use with all the necessary ancillary services.

37.- Institutions in a position to provide useful services to small enterprise are numerous : extension services for small-scale industry, or for specific branches, centers for the delivery of collective utilities and services, extension services given by big-scale enterprises to subcontracting firms, itinerant extension teams, productivity or training centers, prototype running and testing, research institutes, industrial estates, credit facilities, etc... As several of these institutions provide also the same services to other types of industrial enterprises, this fact calls for co-ordinating measures to be included in the industrial services planning ; such measures should aim both at the internal cohesion of each institution, and at a co-ordinated action toward small-scale industry.

#### IV.- MEASURES TO ENSURE FOR A CO-ORDINATED APPROACH TO THE PROVISION OF INDUSTRIAL SERVICES

38.- The State must play a double role in the process of industrializing a country : a) organizing and supervising the framework for development, b) promoting and stimulating development. These two objectives call for different aptitudes and methods, and this is the explanation of the uncertainty which is to be observed more or less everywhere regarding the way in which that part of the administration concerned with industrialization should be organized. Sometimes, the Minister of industry takes on this double responsibility himself, although this case is not very frequent, as industrial promotion - particularly when it concerns the private sector- raises special problems which call for quick

decisions freed from all routine features and from all types of excessive political interference. Whence it seems therefore advantageous to leave a certain degree of independence.

39.- Other States, in greater number, have set up institutions specially to take care of industrial promotion, leaving organizational functions to the Ministry of industry. Depending on the particular cases, these institutions may be public institutions attached to the said Ministry, or autonomous institutions. Many arguments can be put forward in favour of the establishment of a highly specialized autonomous body grouping together the various industrial services : this institution will win the confidence of industrialists and entrepreneurs, its head becomes an important personage placed directly under the authority of the Chief of Government, in some cases a board at the head of such a body strengthens the cohesion of those responsible and fosters co-ordination. Despite these advantages, several objections have been raised against the idea of an autonomous institution : the Ministry of industry should remain responsible for industrial development, an additional body introduces a factor of confusion and of duplication of efforts, it may encourage the setting up of similar bodies in other sectors resulting in the duplication of the entire administrative structure and the fragmentation of responsibilities.

40.- Whatever the system adopted by the public authorities for defining, orienting, promoting and supervising industrial development, industrial services are provided primarily by a number of more or less independent individual units. Depending on the economic system, these institutions are generally public, private, or mixed, but certain services can only be provided by the State, while others can only be provided by the private sector. If there is no sufficient collaboration between these various institutions themselves and between the institutions and the users, it is by no means rare to see the same problem tackled in several different places and sometimes even opposing ways, resulting in reduced effectiveness and waste of efforts and resources. Thus, there are problems of liaison and co-ordination :

- inside the governmental and administrative structure, between the various Ministries and departments dealing with industrialization ;
- between the State or its industrial promotion body and the various other bodies which provide industrial services ;
- between these bodies providing industrial services themselves ;
- between these bodies providing services and the public and private industrial sectors using the services.

41.- At the head of industrial development stands the State, which fixes the framework and rules for such development and decides on priorities, incentives and measures of compulsion. The State is not a single entity, however, being made up of Ministries and departments which pursue diverging objectives, often in the most serene ignorance of each other's activities. The first co-ordination measure must be applied to the public authorities themselves, so that a single industrial policy may be put into effect at all levels. This may involve far-reaching action, as it is not sufficient simply to decide on the content of the industrial policy ; it is also necessary to :

- make sure that this policy effectively guides the practical day-to-day executive decisions ;
- remember that in its day-to-day operation the State introduces disturbing elements the importance of which is not appreciated until later (delays in the granting of import licenses, for instance).

42.- The establishment of an inter-ministerial industrialization committee, the placing of restrictions on the proliferation of the activities of departments in the field of industry, the designation of a Minister entrusted with overall responsibility for industrialization matters, the definition of areas of competence in matters of technical supervision, the recognizance of an inter-ministerial field of competence for the independent promotion bodies, are solutions which have already been tried in many States. Identical functions can be duplicated between the various Ministries dealing with industrial development and with external institutions (particularly in the field of research, laboratory testing, standardization, etc...), it can be felt useful then to revise the task of everyone, and to single some specialized activities maybe more efficiently carried out through specific technical organizations.

43.- Increase in the number of bodies providing industrial services undoubtedly increases the risk of overlapping of competence and duplication of efforts. There is therefore much to be said for grouping together, as far as possible, these services which can be placed under common direction, without, however, preventing each service from retaining its own individuality within a single general framework. If such grouping is properly carried out, the services will all be impelled by the same basic objectives, exchanges of views and information will be facilitated, and economies in overall costs and in the use of scarce qualified personnel will result.

44.- In the case of many services which can only be provided by the State, unified supervision by a single Ministry, or by the industrial promotion body, will facilitate co-ordination, particularly if the supervising Ministry or body places within each service a superintendent, inspector, or commissioner who will thus have a complete view from within of the functioning and orientation of the service



and can provide the supervising body with a complete and continuous picture of the situation, enabling it to correct faulty trends and possible overlapping.

45.- However, some services provided by the State will escape this unified supervision, exercised in principle by the Ministry of Industry or the industrial promotion institution, either because their activities naturally cause them to be attached to another Ministry or because political influence and the wishes of powerful Ministers (especially the Minister of finances) bring about their attachment - various without full justification - to another Ministry. On the other hand, some industrial services are provided totally or partly by industrial branches, manufacturers associations, and enterprises. In this case, it is important to establish a means of co-ordination in order to prevent the scattering of activities and responsibilities, and the overlapping of respective fields of competence. Several systems may be envisaged, such as the appointment of an inter-institutional co-ordinator, the convening of an advisory committee, etc... Whatever the system adopted, mutual knowledge of requirements and activities will be an important factor in harmonization. Waste and overlapping is more often due to ignorance than to deliberate unwillingness, and even unwillingness becomes obvious and therefore hard to maintain when it is shown up by exchanges of views.

46.- Participation by representatives of the public and private industrial sectors in this co-ordination process will have the advantage of enabling them to state what they think their needs are, in nature and in quantity, thus saving the service institutions from having to define their tasks alone. This co-operation calls for a preliminary harmonization within the private sector because it is by no means certain that, without adequate organization, the enterprises in the private sector will adopt a common point of view, or will be able to set up some of the industrial services. This is why bodies such as manufacturers associations, chambers of industry, trade unions, industrial co-operatives, etc... are so important.

47.- As a general rule, the State must avoid the scattering of its efforts by trying to tackle too many fields; very often it is ill-equipped to provide services which could be entrusted to the public or private industrial sector, if necessary with the proper incentives. At no time, however, should the State abandon its duties of ensuring orientation and supervision.

48.- Some failures in co-ordination arise from natural causes or outside events of an unpredictable nature, but many others result from a faulty programming of the use of services. An industrial enterprise generally requires not only one type of service but several simultaneously; very often,

it feels the necessity of getting each particular service at a given moment. The use of services must therefore be co-ordinated according to a carefully balanced schedule. New management techniques, such as the critical path method, are increasingly utilized in industrialization, to ensure that the availability in resources and services is duly timed. A number of countries have also discovered the advantage derived from the employment of teams of experts to co-ordinate the implementation of projects requiring the use of several industrial services : one expert is entrusted with the aggregate progress of the project, some other experts, belonging to other industrial service institutions are assisting him to give a hand in the implementation as long as the participation of their service is deemed necessary.

V.- MEASURES TO ENSURE FOR APPROPRIATE INTERNAL ORGANIZATION, WORK PROGRAMMES, FINANCE AND STAFFING OF INSTITUTIONS PROVIDING INDUSTRIAL SERVICES.

49.- Any industrial service, wherever located and however sponsored, is a human activity and faces multiple organizational and administrative problems. These are especially acute in a developing country. Human, physical, and financial resources are generally insufficient ; manpower with adequate administrative and technical skill is often in short supply ; precedents and habits of efficient operation have not yet been established.

50.- The technical aspects and problems of an industrial service will usually be much the same whether it is a public service or a private one. On the other hand, the organization and administration of a public service or institution are usually considerably different from those which are privately operated. Created in most cases by a law or decree, the public service inherit rigid structures, budgetary patterns, personnel procedures. Even when the service enjoys a certain amount of autonomy and is freed from the normal ministerial, budgetary, and civil service restrictive patterns, it usually develops its own rigidities copied from those general patterns due to the continuing pressure for very intensive control because of its public nature. All of these controls tend to become restrictive, delaying and negative rather than beneficial. Owing to their greater necessity of justifying expenses or even showing a profit, the private services often stimulate more positive controls and more progressive administration, with common and effective use of project-cost budgeting, personnel evaluation and programme audits.

51.- In the frequent case of a public autonomous agency, the internal relationship between the board (and its chairman) and the chief executive (and staff) may cause a balanced struggle for power, each one trying to dominate the other.

.../...

One can suggest that it is not always vitally important who attains supremacy ; much more essential is that the allocation of power be clearly defined at any particular moment, so that all concerned know exactly where they stand. This is of special importance for the clear setting up of programmes and policies, and their translation into proper instructions and orders to the staff.

52.- Emphasis should be placed here on the very special circumstances of any public unit whether autonomous or not, providing services to industry. In the first place, although they are governmental, they inevitably have their interest outside, in the direction of industry ; thus their programming, attitudes and administrative structures cannot be purely governmental. Secondly, although industry-oriented, these services are nonetheless not industrial as such ; their internal management and the composition and attitude of their staff clearly are completely different from those common in industry. Thus, the ideal solution should represent an attempt to merge the breadth of responsibility and the stability of a public body with the dynamic controls of an industrial organization and the intellectual enthusiastic enquiry of an university ; needless to say, the attempt has rarely been completely successful.

53.- When setting up the organizational structure of an industrial service, the first step should be to define the functions it has to provide, then to draw up the system thought the better to fulfil them. No universal system can exist, because the working conditions are different from one service to another, in relation with the variety in the functions. But, conversely, a given type of service provided to industry is much the same in most countries, and one country can draw a good deal of information from the experience of others.

54.- When an industrial service has just come into existence, it may happen that its activities are rather limited ; in this case the number of the necessary staff and the complexity of the administrative structure can be defined only with difficulty. Although the director and those associated with the creation of this service should have a clear idea of its final structure, one may think that at the initial stage, organization should be very simple, and working as well as personnel links rather flexible and short.

55.- Although, at the launching of an industrial service, flexibility should be the motto for the employment of personnel - allowing the director to become more and more aware of the specific aptitudes and defects of members of his personnel - progressively each member will receive a precise job. In addition to the general organizational pattern, it should be necessary then to establish careful and detailed job descriptions, clearly showing the links between this job and the whole pattern, the more so that, in many developing countries, it may happen that staff members are not accustomed to work relations asking for supervision and co-operation.

Experience will show the director that this system of an official character will often be completed or opposed by a second system based on unofficial work relations based on culture, society, age, race, personality, capacity, etc...

56.- Work programming may appear tricky, owing to the difficulty of foreseeing -but of compulsory industrial services- the importance of the work to be done. For those services of an optional nature, either requirements may change abruptly (with legislation, economical conditions, natural causes, etc...), or the services offer an aid of a general nature to answer specific -but also erratic- needs from the enterprises and only a flexible organization can then adjust the supply and demand. This situation often faces many industrial services with a dilemma : whether they plan with precision their future activities with no possibilities to meet essential but unforeseen problems, whether they just wait for demand with the risk of receiving only an insignificant amount of demand, or all demands in a peak period, and a bad use of their personnel. Experience and an accurate knowledge of the industrial situation should allow the setting up of a programme precise enough but with a certain amount of flexibility to take care of changes in demand and errors in prevision.

57.- To ensure optimum employment of personnel, an appropriate mechanism should set priorities to the demands as they come in ; thus the most important or urgent activities would receive first the attention of the staff ; in this case, one unfortunate side effect is that, when requests are abundant, enterprises listed at the end of the priority will be unsatisfied if new top priority requests come in. When projects internal to an industrial service organization can be programmed (research projects, for instance), a part of the personnel will be attached to their pursuit, the other part dealing with the satisfaction of external projects ; the size of the respective parts can be then very flexible and altered according to the needs. Even in services where such internal projects are out of question, it would be useful to build a list of research work to which workers could be attached when not fully occupied with outside projects. Finally, a strong relationship between industrial services and enterprises allows for a more realistic approach to the planning of the services activities.

58.- Thus, in many cases the setting up of an annual work programme is possible, which shows the type and volume of work anticipated in each activity of the service ; such an annual programme would usefully be included in a five-year forecast, to have an idea of the future trend and be in a position to make in due time the necessary demands for additional personnel and financing. This annual programme seldom shows the schedule of the works to be carried, whence useful corrections in the course of the year ; these corrections should also be an occasion to discuss eventually the

reasons why the initial objectives have not been reached. Unfortunately, in new services, or in developing countries, the adherence to a work programme, even annual, is sometimes difficult owing to a lack of experience or an erratic tendency in the industrial development ; when this fact occurs, many services strengthen the sketchy annual programme with more detailed programmes on a shorter time basis.

59.- The use of systematic procedures may lead to an easier and more efficient programming of the work ; industrial services have much to learn from the programming procedures used by industry itself. Many tasks are the same in many projects, and their systematisation and rationalisation should lead to a better implementation of the operations (systematic procedure for clerical work, or for lending operations, for instance). Each service can also set up a careful programme for its main studies and consultative services, so that their implementation will take place smoothly and in due time.

60.- As with nearly every other aspect of administration, the financial situation and problems of an industrial service will depend greatly on whether it is a regular unit of a Ministry or an autonomous agency, public or private. The former is likely to be bound by a rather rigorous and complex set of financial laws and regulations ; the latter will usually be free from them, although ordinarily it will have its own financial rules which in time may grow to become nearly as complex as those of the general government, the more so that it falls in most cases under financial scrutiny from other bodies.

61.- A public industrial service, regardless of whether it is within a Ministry or autonomous, can look to three different sources for its revenues:

- . it may count on a relatively steady income from a regular public budget ;
- . it may secure special grants, or loans, for particular purposes ;
- . it may receive income from the sale of its services to industry.

Public budget funds may come either as part of an autonomous budget controlled by the service's own regulations, or from the general state budget, or from a special development budget often set for a longer planning and development period than the customary one-year period. Grants for current operations are most likely provided in developing countries as an aid in getting new services started ; grants are also extended to services outside administration and even privately owned, but eligible to a certain amount of public aid because of its useful contribution to general industrial development ; other grants are restricted to a part of the service programme. Difficulties may arise about the stringency of the control applied by the donor to the grantee ;

the first wants careful and detailed estimates and a strict accounting, the second wishes to retain the most freedom of action possible ; only a clear agreement before the extension of the grant can prevent any ulterior misunderstanding. Loans are supposed to be refunded with the future receipts expected from the service, and this may not be true ; therefore it should be recommended that the opportunity of providing loans be carefully checked, and, if a doubt arises, the usefulness of a grant instead of a loan. Revenues from sales of services<sup>arcs</sup> of various kinds (interests on loans, rental, profits, fees, etc...) ; in many countries they must be credited to the Treasury which will eventually earmark them for particular uses ; industrial services should make sure that their budgeted income includes the amount from these sources and that the expenditure side of the budget properly reflects the sums to be spent from such revenues. The costs of a contract job must be carefully and accurately calculated in advance, so that they carry any of the general cost of the service not legitimately due to the specific contract, directly or as a portion of the overhead for general supervision.

62.- In most respects the budgeting process itself is little different for industrial services than for any other public activities. However, the service's officials must ensure that their budget proposals are sufficiently intelligent and intelligible to avoid arbitrary alteration or reduction which would affect the policy pursued. In a developing country the action of industrial services may appear new and even uncouth to many people ; the results are only dimly reflected by the increased pace of industrial development ; therefore industrial enterprises are expected to bring support to these services struggling to obtain the necessary budget allocations.

63.- Industrial services are more sensitive than other, more traditional, administrations to the restrictions and delays entailed by controls of budgeted funds, because their own purpose obliges to deal with urgent problems through flexible actions. Practically the very complexity of red tape diverts and diffuses financial responsibility, and the officers who are actually doing the spending, and the supervisors of the services' operating activities have little power over the budget planning. Autonomous, and even private, services that could escape this inconvenience, frequently set rules or habits leading to intricacies and delays in their financial affairs. The basic aim should be to combine the necessity of controls from which any public service can be totally freed, with the need for a flexible action ; it could be partly reached by leaving the service free to detail its expenses and to set its accounting procedure, and by putting its global financial policy to outside scrutiny. Considering services ruled by traditional financial methods, modern planning, programming and budgeting systems, founded on unit costs and outputs, may be valuable.

64.- When decision has been taken to create an industrial service organization, it is important to secure a sound financial support for a sufficient period, until the new service can get established and grow to a point where it can later survive by itself. The tendency toward a financing through yearly grants and allocations hampers considerably the service's capacity for planning its activity on a longer than one-year period. In a general way, a distinction should be drawn between services dealing mainly with requirements for the collectivity and development, and services possibly paid by enterprises using them and making thus a profit. The possibility of enterprises participating in the financing of general programmes, and not only of services directly used by them, should not be discarded.

65.- Personnel is the main stay of an industrial service of any kind ; but the staffing policy has to take into account the difficulty of securing the right people in a developing country, where scarce are those with the necessary training and experience, and where industrial services compete with industry itself which can afford higher salaries ; and with administrative services which can offer higher jobs and possible promotions.

66.- Qualified staff members should therefore receive salaries on a competitive level with those they could obtain from industrial enterprises ; the enforcement of manpower allocation controls has appeared desirable to many developing States in order to prevent a power struggle for priority in securing scarce specialists, but the fact is that such measures have nearly always been ineffective with autonomous bodies ; bodies bound by governmental standards will seek to find special allowances and other fringe benefits to make their services more attractive and will reconcile themselves to the probability that they will eventually lose their better staff members as they gain experience and are attracted to better-paying jobs elsewhere. But there is no reason for it to pay more than the current rates for over-abundant unskilled or semi-skilled personnel.

67.- Industrial services may present other advantages than the importance of pay levels to attract qualified staff members : professional interest of the job, possibility of gaining valuable experience, appeal of travels to foreign countries (improvement, plant inspection, seminars). In most cases, the head of the service can notably contribute to the expansion of personal and group relations ; his decisions in the field of job appointments, personnel evaluation, discipline, transfers, vacations, may be of great importance for work efficiency and general atmosphere. The best candidates may accept to start in secondary jobs, if the service gives sure promotion opportunities. Sound management policy should give to responsible staff members an opportunity to have a say in the decisions, and thus everybody would gain advantage from their judgment about planning realism and implementation efficiency. It should be easier to retain qualified personnel, if a flexible exchange rotation system

offers possibilities for civil servants to find jobs in industrial services ; in the same way, advantages could be found in securing temporarily experienced industrial practitioners, which would be helpful not only to the services themselves but to industry also, which would receive service better adapted to its actual needs.

68.- Recruitment of staff also will be affected greatly by the extent to which the industrial service is required to follow normal civil service methods. Personnel should be recruited through examinations tailored to the background of appropriate candidates, and interviews allowing to ascertain that they are endowed with the specific qualities which the work of the service will require. Initial training is required to make members aware of industrial problems and methods which change rapidly; it is necessary too to re-train them from time to time ; such training should be more fruitful if locally conducted, so that personnel becomes familiar with local working conditions. Few industrial services have the range of training facilities to do so, but it could be imagined some kind of inter-services training programme, completed by regional and sub-regional programmes set through co-operation with neighbouring countries.

#### VI.- PROBLEMS OF MEASUREMENT AND EVALUATION OF PERFORMANCE OF INSTITUTIONS PROVIDING INDUSTRIAL SERVICES.

69.- With the establishment of various industrial services institutions to accelerate industrial development, the need exists for increased efficiency in their activities. Consequently Ministers and executives responsible for the operation and control of these bodies must seek more effective means of regulating the institutions activities, and, for that, of measuring performances. The measurement of performances pre-supposes a yardstick of desirable or planned results, with which actual results may be compared. In other words, it must be developed criteria :

- that may be based on a careful investigation or analysis of past performance, either of the industrial service institution itself, or similar institutions elsewhere, and the taking into consideration of expected future conditions ;
- that need to be reviewed, revised and modified from time to time, with the change in the conditions on which they were initially based.

Of course, some activities are more susceptible to measurements than others, but the application of some criteria is generally possible.

70.- Over the years two types of control have been commonly applied to public activities, including the operations of public services to industry. One has been budgetary and financial through spending control and final audit ; the other has been legal and administrative through a hierarchy of responsibilities from the director up to the  
.../...



legislator. Such controls must be emphasized, but they are insufficient, because if they ensure the propriety or correctness of action, they cannot measure its value and desirability. For a dynamic function such as development servicing of industry, evaluation and control should be active and stimulative to encourage ever-improving action. This is why the first concern in reviewing the activity of a service should be that it sets clear and desirable goals, and to verify the service's effectiveness in drawing up a proper programme and delineation of specific projects to be carried out within that programme.

71.- The importance of careful costing of each of the service's activities must be emphasized, and these costs related as much as possible to the volume of service provided, to obtain unit costs that could be compared between countries, between public and private services, between public services in a single country. Many of these comparisons will be improper or unfair, but they will entice the service to adjust its accounting and reporting to attempt to explain the comparison.

72.- If cost is an important criteria, the more so that an industrial service deals with industry, it is insufficient by itself to judge the efficiency of the service, for what is needed may be a provision of high quality, carefully studied, well adapted to the industrial requirements, even if more expensive. At the beginning of its existence, the running of a service can lead to costs that are rather on the high side, but temporarily justified as long as the service has not found a clientele, and has not lived long enough to give its personnel a sufficient amount of experience.

73.- Statistical data are often put forward to give more precision to the results obtained by a service, and in a more attractive way ; one should nevertheless note that it is sometimes difficult to translate into figures the quality of the job done, and that information may cover uncomparable situations : collected statistics should be valid and pertinent. Once defined the set of statistical criteria to be used, steps are to be taken to get the corresponding figures ; periodical activity reviews including information, data and in a standardized frame can be of great usefulness, as is the exact tally of demands received and fulfilled during a period. Two opposite systems exist for the collection of data ; in small scale enterprises the absence of a definite procedure may be noted, replaced by a recourse to more subjective impressions, without accurate measuring or valid documentation, that forbid any future comparison ; if this is the case, such a system should be rapidly superseded by an accurate and detailed collection of valid figures. Other services collect quite a quantity of sophisticated statistics, but they are not kept up to date, so that the quality of the work done by the service does not appear through them. The best way seems to lie between these two extremes, with the collection of a limited amount

of data pertinent for those of the criteria that are best suited to give an accurate and equitable account of the accomplishments.

74.- Evaluation is the comparison between the effective results and those which, according to the chosen criteria, should have been reached ; it is realized by a number of officials. It is a normal and necessary function of the service's management, enlightened by a self-evaluation of each agent and discussion at the personnel level. Bodies entrusted with supervision and control are eager to obtain information about this evaluation and even, in some cases, to have their own evaluation of the service, directly by themselves or through outside and independent people. Bodies concurring in the service's financing and auditing conduct also ~~an~~ external evaluation of a limited nature. Industry itself is probably the main factor of evaluation of an industrial service ; periodical meetings should allow industrial managers to give an opinion about the assistance already received, and on information about their requirements. Of course, evaluation must be honest, without charging the service with failures for which it is not responsible, without omitting or lessening cases where the service has failed or underscored.

75.- Evaluation must lead to improvement, though the exploitation of its findings; the drawing up of the necessary measures to be taken for a better functioning is the director's responsibility, eventually after a collective scrutiny with the staff. Supervision bodies and industry are, of course, also entitled to forward hints and suggestions. Improvement measures will give results only if they derive from helpful criticism of a constructive nature and not inquisitorial.

76.- To derive the greatest profit from the use of efficiency criteria and to emphasize the importance of objectives laid down, they must be "sold" to the people who use them; various types of incentives, including monetary awards, will have to be devised ; all those concerned should be given a clear picture of the criteria by which their efficiency will be judged and fairly regular information should be supplied to them as to their actual attainment.

#### VII.- SUMMARY AND CONCLUSIONS

77.- Industrial development is by no means an easy task in a developing country. Any new undertaking springs from a combination of three factors : an idea for a possible and profitable production, a man -the promoter who will accept responsibility for setting up the undertaking and running it ; capital -needed to finance investments. On these three points, weaknesses are obvious in developing countries ; only a well conducted industrial policy, based on clearly defined aims, and executed through the provision of every kind of promotional and encouraging devices, may lead to good results. In

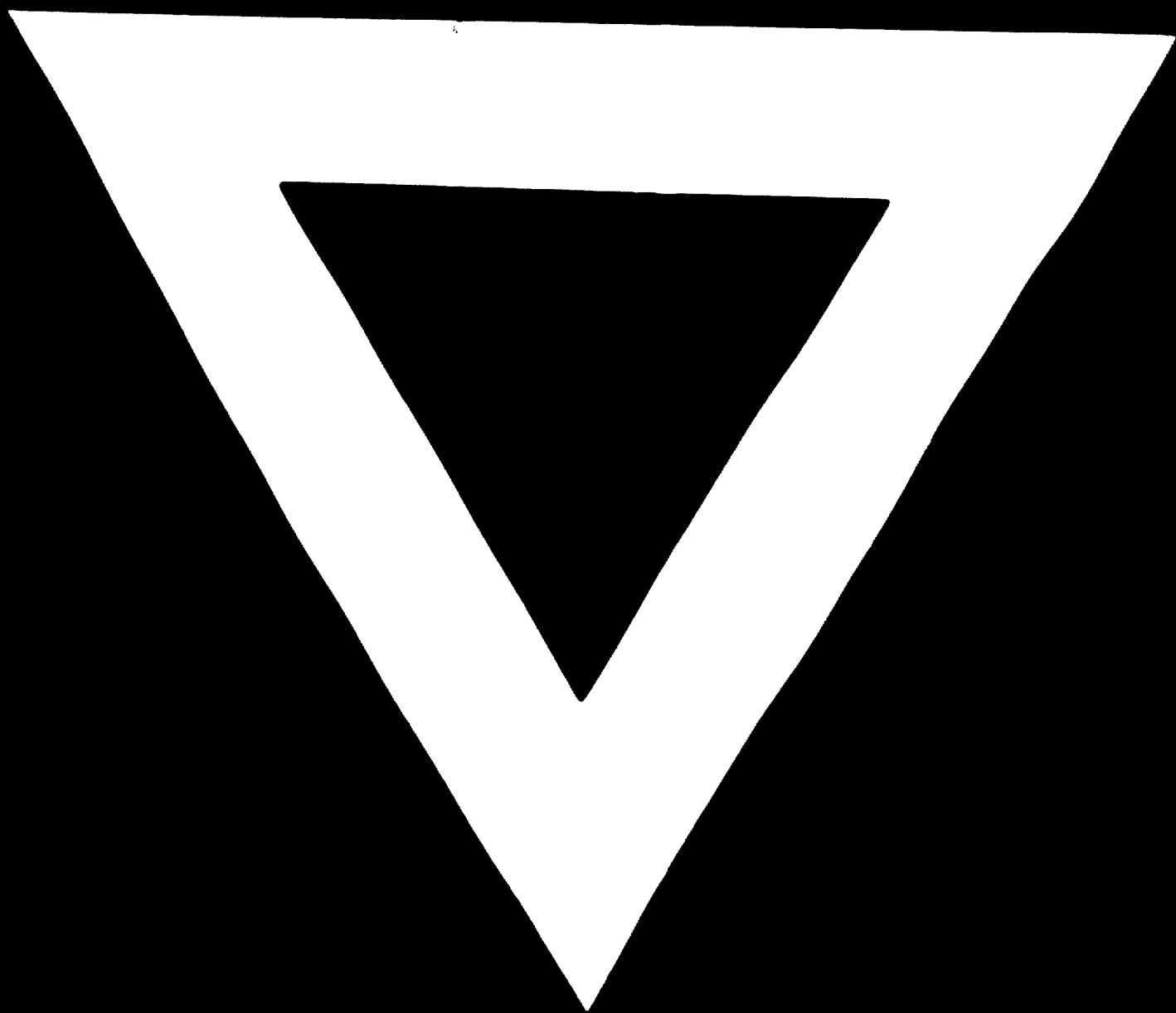
the forefront of these instruments of actions, industrial services help to discover ideas for profitable enterprises useful for the collectivity, make easier the detection of possible entrepreneurs, assist these entrepreneurs in the successive steps of their activity from the beginning of implementation until the current running, help the collection of the requisite capital. Assistance to small and medium scale enterprises is worth to receive particular attention.

76.- Therefore, industrial services should take quite a number of different aspects ; in most cases, the provision of several of them is needed at the same moment, or successively in a given order and at a precise time. It is then to be wished that the institutions providing these services are designed in such a way to facilitate their co-ordination. Many industrial services are provided by bodies depending on the public authorities, and these authorities should draw a clear line between their actions organizing and supervising activities and their actions promoting and stimulating activities ; this condition explains why quite a number of institutes providing industrial services adopt a more or less autonomous structure able to cater with most flexibility to industrial requirements. As several services can be provided both through normal administrative activity, and through several autonomous institutes, co-ordination should go down to this level. Every kind of efficient co-ordination should be based on agreement and dialogue, with the participation of the industrial users of the services ; through their manufacturers associations, managers may be enticed to set up some of the industrial services they need.

79.- Internal organization of an institution providing industrial services should be based on a precise definition of the goals aimed at, and of the means to reach them ; it should also retain enough flexibility to adapt to changing circumstances and needs of an expanding economy. If the State supervision is a necessity, it must not lead to a lessening of the institution's initiative and dynamism. Work programming, tricky but essential, may be facilitated if the institution retains a possibility of partitioning its activities between the immediate satisfaction of industrial needs, and more indirect development jobs. Financing the institution current operations, often derived from public sources with addition of revenues from sales of services, should escape the risks and slowness of normal budgetary procedure through the use of modern methods of programming and management, associated to a dynamic supervision. Qualified personnel for an industrial service is scarce, and attracted elsewhere by the prestige of traditional public services, or by the bidding from industrial enterprises ; competitive rates, certainty of grade promotion, participation in the decision making, may create attractive motivations. Every care should be given to selection, training and re-training of qualified personnel.

80.- Evaluation of an industrial service should not limit itself to a financial control over funds spending; through some carefully selected criteria indicative of the service activity, it has to compare the true situation at a given moment with the forecasts for the same time. Such evaluation will strengthen the institution dynamism, by a better implementation of the corrective and adaptive measures required.





**74.09.13**