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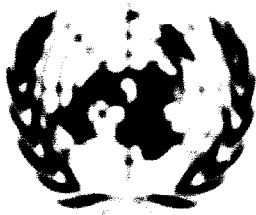
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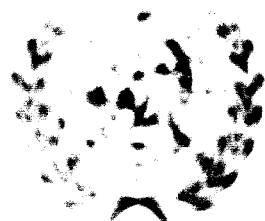
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SMALL-SCALE INDUSTRIES

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**SERVICES AND FACILITIES
FOR SMALL-SCALE INDUSTRIES IN INDUSTRIAL COUNTRIES**

by Professor A. S. DARS

Sponsored by the Small-scale Industry Section
United Nations Industrial Development Organization

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TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
I. NEED FOR AND SCOPE OF SERVICES.	2
II. TYPES OF SERVICES AND FACILITIES	5
1. Extension services.	5
2. Financial services.	9
3. Common technical services	10
4. Other services	11
III. ORGANIZATION OF SERVICES.	12
IV. PARTICIPATION OF ENTREPRENEURS IN THE DEVELOPMENT OF SERVICES AND FACILITIES	16
V. REGIONAL AND INTERNATIONAL CO-OPERATION IN THE DEVELOP- MENT AND ORGANIZATION OF SERVICES AND FACILITIES.	17



SERVICES AND FACILITIES

FOR SMALL-SCALE INDUSTRIES IN INDUSTRIAL ESTATES

INTRODUCTION

In most countries, industrial estates set up either as a device for planned location of industries or as an instrument of rapid industrial development, offer, besides other amenities, a variety of common facilities and services. In some countries, industrial areas are being developed that offer only improved sites without any common technical services. While in an advanced country the various services required by an industrial unit can easily be mobilized either through its own resources or provided by service agencies on a commercial basis, this is seldom possible in countries or regions in the process of development. In the latter, the nature and size of the demand for such services are often so limited that independent and self-sustained growth of these facilities is usually precluded, at least in the early stages of industrial development. Yet it is at this stage that they are required the most; they should therefore be set up by an agency responsible for the growth of industry in general and more particularly of small-scale industry.

Industrial estate and other promotion and assistance programmes are intended to enable small industries to become a self-reliant sector of industrial activity. When integrated with an industrial estate, the common facilities and services can be provided with maximum economy and effectiveness. The units outside the estates also require these services and probably more so. It should, however, be emphasized from the outset that industrial estates and services would not normally suffice to ensure maximum utilization of limited resources in an under-developed economy. In developing countries, industrial clustering and common servicing would be of maximum advantage only if integrated in a comprehensive programme of promotion and assistance of small-scale industries.

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I. NEED FOR AND SCOPE OF SERVICES

The services and facilities of an industrial estate are mainly aimed at improving the productivity of the units served and reducing their production costs. General facilities such as power, water, gas and communications are required for the very existence of the occupants. Other services like canteen, dispensary, police and fire protection contribute considerably to the welfare and efficiency of the industrial establishments. Especially for small-scale industries, another category of external assistance is needed, namely, technical facilities intended to enable them to overcome their limited resources, financial and human, and other characteristic disadvantages associated with the smallness of their size.

There are a number of processes in industrial production and management where economies of scale play a significant part in the cost structure of the product. These processes can with great advantage be handled jointly for a group of units in a common facility centre, leaving only such processes to the individual entrepreneurs as can be performed efficiently in their respective units.

By their very nature, some of the services and facilities mentioned above fall within the purview of local, municipal or other public authorities; they need to be provided by them timely and in adequate measure to ensure a smooth development of the industrial estate. On the other hand, the technical facilities for small undertakings should be organized by the agency responsible for the development and growth of the small industry sector in the larger interests of the national economy.

While large units often know their problems and are capable of obtaining external assistance on their own, small units need help first in recognizing their own problems and then getting the necessary assistance to solve them. In some cases they may not be in a position to pay fully or even partly for these services, particularly in the early stages of their development. The agency establishing the common technical facilities in the estates should provide financial wherewithal for this purpose.

The aim being to help small industrial units to become a self-reliant sector of the national economy by overcoming the disadvantages of smallness, only such services need be provided from outside which a unit may not be capable of organizing on its own because of one or several of the following reasons:

(i) Inadequate demand for equipment or personnel

For example, a unit employing a couple of power presses needs occasionally to have its press tools ground. Yet its work load may not be sufficient to keep a grinding machine occupied for a reasonable period of time just for this type of work. Similarly, a unit may need only once in a while some equipment for installation of machinery, for instance a crane, or technical personnel for maintenance of tools or installation of machinery.

(ii) Lack of resources, both financial and human

Though there may be sufficient work load to justify the purchase of a machine, it may not be within the reach of a small unit either due to want of capital resources and/or foreign exchange, as is usually the case in under-developed countries. A case in point is, say, a jig borer. In the absence of this equipment or persons to handle it, costlier and not so accurate traditional methods have to be resorted to for producing manufacturing aids.

(iii) Lack of technical or managerial skills

This is often the case in small units for operations involving high skills and controls, such as heat treatment and other finishing operations in the manufacture of metal products, testing of raw materials, semi-finished or finished products, and so on. The conduct of a survey or market research or even of an advertising campaign are other instance of operations which cannot be undertaken in small units because of lack of managerial skills.

In a cluster of industrial units, there are a number of activities which lend themselves to a common approach and to unified control irrespective of the products made by individual units. The equipment required and the process involved in electroplating, for instance, whether it relates to electroplating a bolt, a wheel of a sewing machine or an automobile bumper, are just the same.

Where the joint demand of several small units for a given operation like electroplating approximates that of an economically viable process-oriented single unit, this operation can be better performed at lower cost in a common place than if it were attempted individually.

In order to generate or keep alive the spirit of self-help, the common services should be provided only to the extent that the requirements fall short of the beneficiaries' resources and only after such resources have been actually mobilized.

Wherever it is felt, on careful consideration, that the common service facilities can be provided on a commercial basis, efforts should be made to encourage setting up a private enterprise for this purpose - say, a unit for making tools, for heat treating or electroplating. These could also with advantage be organized by the joint efforts of the beneficiary units. Private consultant firms may also be interested in providing some of the services.

Often, however, and particularly in developing countries, it is not possible to operate these services at a profit. In the first instance, the work load may not be sufficient, yet the facility has to be established. In the early stages of growth of an estate, it is least paying when it is required the most. In other cases, the units may be reluctant to avail themselves of some facilities, say, testing of foundry sands or electrolytes, due to lack of appreciation of their importance. The very idea of benefits to be derived by availing of the facility may then need to be explained and instilled into the industrialists.

As far as possible, government-provided services should not compete with free enterprise or with the joint efforts of the tenants unless the situation so demands on the grounds of social justice and in the larger interest of the community in cases which cannot be handled through administrative or regulatory measures.

As a rule, once the development stage is over, most of the services start giving an economic return. At this point it is worthwhile for the Government to pass over their management including ownership to private enterprise or to a joint body of the tenants of the industrial estate.

Co-operative action by the tenants in organising services cannot be over-emphasized. Apart from operating a common facility centre, they could equip their individual workshops on the basis of bi-lateral or multi-lateral assistance programmes. Each unit co-operating in this programme could with advantage undertake to carry out certain selected operations for all the units in the group.

II. TYPES OF SERVICES AND FACILITIES

Manufacturing units in the industrial estates, particularly the smaller ones, require one or several of the services and facilities detailed below. These are broadly divided under three main categories - extension services, financial services, and common technical services.

1. Extension services

Small firms cannot afford - as the large ones can - to employ specialists on their staff to handle all their production and management problems. Such persons, if employed, cannot be kept fully busy. Extension services are organized in order to enable small units to obtain the services of specialists as and when they need them. The main extension services are advisory or consultancy services, training, information and research services.

Advisory or consultancy services

This is by far the most important service required by small units in their day-to-day problems and in introducing improved tools and techniques of production and management. The service can be organized either for individual units or for a group of firms depending on the nature of the problems to be solved. The service should include a sufficient number of specialists to provide technical counselling and guidance and management consultancy services including productivity improvement. The problems involved may relate to selection of proper equipment, layout, production planning and control, design and construction of manufacturing aids, maintenance of equipment, organization, personnel management, costing, purchase of raw materials, marketing, and so on.

Another area of assistance is great need, particularly where "industrial areas" have been planned, is the provision of architectural and construction services. There are also needs in making alterations and additions to the standard buildings provided to industrial estates. While helping the industrial firms, this service ensures an orderly physical development of the estates.

TRAINING

Often the managers of small firms have had no formal training in management. Yet they feel that they know all that needs to be known and that what they do not know is not worth learning. It is up to the extension service personnel to make them realize the need for their own training and also for those working under them - supervisors and workers. Short-term "appreciation" courses prove to be very useful in creating the desired understanding among small industry managers, to the extent of inducing them to take up long-term "application" courses in various aspects of management.

With the introduction of new equipment and methods of production, there is always a need for upgrading the skills of supervisory and operative staff in an individual unit. Institutional training or on-the-job training programmes should be regularly organized by the extension service. In addition to this the supervisors need to be trained in techniques of supervision and personnel management.

Promotions to higher grades and positions of greater responsibility are often given as a reward for good performance at lower level. An excellent machine operator, when promoted as a charge-hand to look after a number of operations, does not automatically become a good supervisor or may not be able to control the operation of machines not handled by him so far. Programmes of retraining for such personnel including to some extent formation of new skills ensure continued satisfactory performance of the operative staff.

The introduction of new tools and techniques of production and management is easily effected if their performance can be demonstrated to the entrepreneurs. These demonstrations may be of short duration or spread over a number of days depending on their nature and whether they are "method" or "result" demonstrations and are often carried out for a group of firms having similar interest at a common facility centre.

Other training requirements arising from assistance from an extension service relate to repairs and preventive maintenance of machinery and equipment. Assistance is also often needed by small firms in hiring suitable personnel for different jobs.

Information facilities and services

Personal training programmes have limited applicability and are effective only to the extent where knowledge is to be extended to individuals or a relatively small group of persons. For mass instruction, the best media are printed material and audio-visual aids. A good library of books, films, filmstrips and the like is an absolute necessity in a well organized industrial estate for reference and study not only by the tenants but by extension service personnel as well.

Apart from published material there is a need for literature specially prepared by the extension service on problems of immediate interest to the tenants. This should form part of a documentation centre giving ready information on all available materials including annotated bibliographies of literature available in the market.

The need for a reading room alongside the library, well equipped with technical periodicals and magazines, cannot be over-emphasized.

The organization of study circles, meetings, workshops, extension lectures and exhibitions aimed at solving specific problems is an essential activity of an information service.

Research service

The fields in which small-scale industry needs research assistance may be divided in two main categories, namely, technology and economic and social aspects of small industry development.

Technological research programmes carried out in collaboration with other agencies involved in basic and applied research in the country need to concentrate only on problems of special significance to small industry in the area served by them. The problems include those of product design, appropriate technologies concerning suitable tools and techniques of production,

analysis and testing of materials and finished products, design of tools and other manufacturing aids, and so on.

In developing countries, problems of exploring new or substitute raw materials are becoming increasingly important and so are those relating to fuel and energy.

In introducing a new product it has been found extremely useful to have the initial development of the product and prototype production of "zero" series carried out in a common facility centre, which in effect acts as a development department for a large number of small units. The fully developed product with its manufacturing process can then be passed on to small firms as a "package deal" for commercial exploitation or, as a further step forward, the plant may be set up and handed over to the industrialist as a "turn-key" project. The concept of prototype-production and training centres in India is worth a mention in this regard.

In a developing country adopting foreign designs of new products for local manufacture and sometimes importing raw materials for that purpose, there is a significant problem of standardisation of components and raw materials to suit local conditions. This forms an important field for research.

Economic research may be directed towards problems of individual firms, a group of firms or an industry as a whole. It may also be of value to the government in formulating its policies and programmes of industrial development.

The problems of small firms requiring economic investigation include subjects like:

- investment decisions on what new line of manufacture to adopt or in what direction the existing work needs to be developed
- preparation of project reports
- market research
- distribution and surveys
- choice of location of plants
- choice of production methods
- problems of management and organisation

- cost studies
- productivity studies
- diagnostic studies of the entire plant

Inter-firm comparisons undertaken with the help of a central statistical agency serve a useful purpose in raising productivity and establishing performance norms.

2. Financial services

Apart from the general aid programmes of providing credit to small firms, the industrial estate should have a good banking service to handle financial transactions for the tenants. The bank should also explore other credit facilities by providing open lines or lines on the security of pledged materials.

Insurance services should be available in an estate to cover any loss of property due to fire and other hazards as well as risks of personal injury or loss of life of workers in accordance with the labour laws of the country.

In a country where old-age pensions or retiring benefits for employees are not administered by the state, it would be desirable to set up a common agency that could handle this service for all the units in the estate. This would ensure not only an economic operation but also give an added confidence to the employees regarding the security of their welfare.

Quite a number of small firms are weak in accounting, both as regards financial and cost accounting. They need advice not only in procedural matters but also in physical maintenance of accounts. In some of the smaller firms, the work load may not be enough to employ whole-time qualified accountants. An agency especially set up in the estate could with advantage undertake this work for a number of firms and also provide advice to the respective management. This however presupposes that the small units have confidence that the accounting firm will not disclose their financial affairs. Maintenance of other records and filing of various periodical returns to different government departments may also be undertaken by a common agency. Installation of computers in a central place to handle some of this work for a large number of firms is sometimes worth consideration.

Auditing of accounts, wherever necessary, may be entrusted to a common agency in the estate rather than to different auditors appointed by each individual firm.

3. General Technical Services

General facilities in an industrial estate are intended to help a person to do his job in a better, easier and cheaper way. On the physical side, the various units should be provided with an adequate supply of water, electricity, gas, compressed air, steam, waste disposal system, and so on, as may be required. There should also be a reasonably good system of transport and warehousing facilities. The other facilities to be provided are fire protection, post and telegraph and if possible a teletypewriter service. Amenities for the workers, like shopping centres, recreation facilities, canteens, schools for the children, and so on add considerably to the operational efficiency of the estate.

Technical service centres are by far the most important to meet the needs of small-scale industries in most developing countries. They include:

(a) Tool Room

One of the main problems facing small firms is to obtain thousands of tools and manufacturing aids like jigs and fixtures. Small firms cannot afford to employ machinists with a time room for this purpose. The need for a well-equipped tool room facility in an industrial estate cannot be over-emphasized, particularly if there are a number of units engaged in mechanical production, or in other fields like plastics, rubber goods or leather articles that require large quantities of tools and press tools.

(b) Testing Laboratory

A fully equipped laboratory for mechanical, chemical, paint, and testing, etc., at the cost of no less than a great deal is an industrial estate for ensuring quality production at lower cost. Small firms, though members of the cost for quality control, do not have facilities within their means to do so. They are also handicapped by lack of scientific knowledge about the properties and quality of raw materials received by them. A good laboratory can help them overcome these handicaps.

(c) Shop for specialized processes

A number of processes in an industrial undertaking require elaborate equipment and high technical skills to operate them, and always within the reach of small units. These may be undertaken in a common facility uniting.

Some of the processes in this category are welding, heat treatment, electroplating and other finishing operations, forging, die casting, packaging, and so on. While individual firms may not be able to carry out these processes, the equipment in a common workshop can be operated economically, being more fully employed by a number of units.

(d) Maintenance of equipment and buildings

If undertaken by qualified staff of the common facility centre, this service is particularly efficient and economical.

Other technical facilities that may be taken advantage of by the tenants of an industrial estate are

- (a) Machine tool shop. Firms requiring occasional use of a particular machine should be able to go to this shop and pay for its use.
- (b) Lending of tools and equipment. Some of the costly tools and inspection equipment occasionally required by a small firm should be made available in the estate on hire.
- (c) Installation and hauling equipment to be made available whenever required by a tenant, is a great help. It obviates the need for individual purchase with the risk of being kept idle, or for expensive hiring from outside when needed.

b. Other services

Another important service which may be provided in an industrial estate is in the field of publicity and advertising, including exhibition of products for sale and export promotion. For instance, space in newspapers, on boardings and time over radio, television and in cinemas may be hired jointly for a period of time at concessional rates to be utilized by individuals on a mutually agreed basis.

Services of legal advisers and practitioners are yet another area that may be entrusted to a common agency except where intra-estate disputes are involved.

With increased consciousness regarding the benefits of securing specialised assistance, many entrepreneurs are willing to farm out the entire work of setting up a new unit. Experience shows that the facility of "turn-key" projects is

especially appreciated in industrial areas.

Bulking of requirements of raw materials and joint procurement may be attempted more conveniently and economically.

III. ORGANIZATION OF SERVICES

As stated earlier, certain services and facilities should, by their very nature, be provided by public or other statutory bodies. This is the case of infra-structural facilities, banking, insurance and other public services like post and telegraph.

When an industrial estate programme is integrated with regional development, it is easy to interest the organizations concerned to establish these facilities in the estate or to make them closely accessible as a part of their own regular development programme. In some cases, however, where the additional investments are out of proportion and not commensurate with immediate returns, the government or the development authority of the estate may have to underwrite the costs for an initial period. It may not always be possible to recover these costs from the beneficiaries.

As indicated earlier, the extension and technical services are provided where it is not possible for an entrepreneur to obtain them economically or efficiently for one or several of the following reasons:

- (i) inadequate appreciation of the service and its benefits
- (ii) lack of technical personnel on the employment market
- (iii) lack of capacity to hire technical expertise due to insufficient work for economic utilization of hired skills
- (iv) lack of proper equipment due to its non-availability or due to inadequate work for rational and economical utilization of the equipment.

As a rule, the extension services, at least in the beginning, should be provided by the development agency. In most cases, the agency would be a government or a government-sponsored organization. In the course of time, private consulting firms may come up when the entrepreneurs become sufficiently conscious of their requirements.

In most developing countries, a government organization for extension work has its limitations. This is due to various reasons, some of which are:

- (a) Proper personnel is not attracted by salaries offered for public service.
- (b) The extension or advisory service is often charged with the responsibility of regulatory work on behalf of the state. These two functions are not compatible.
- (c) There is inadequate incentive for a public servant for better performance particularly when the results cannot be assessed in quantitative terms.
- (d) Fear of an extension agent being called partial to certain beneficiaries. Extension work involves gaining confidence and working intimately with a few firms over long periods of time - a fact which may not always be appreciated by others demanding the agent's services.
- (e) Strict adherence to government rules and procedures is quite often inflexible and not conducive to the development of confidence and healthy personal relationships between the extension officers and the entrepreneurs - a most essential condition for the success of the programme.

In spite of these and many other limitations, governments have to step in to set up small industry extension services. Whenever possible, this should be entrusted to some organization other than a direct government department, which should have authority to modify or relax government rules to the extent considered desirable.

Small units are not always very enthusiastic to accept advice or to pay for it, particularly in under-developed areas. In such cases, the extension service should be provided free even though it may be fully realized that free service is not always appreciated and may sometimes be either neglected or abused. Whenever possible it is advisable to levy a charge for the service, an arrangement which, incidentally, might make the extension officers more careful in giving proper advice.

There are three parties involved in training programmes - the trainee, the entrepreneur for whom the trainee is working and the extension agency responsible for the training as a part of its over-all development programme. In order to secure best results each of the three parties must make, in the form of the other, some contribution towards the training costs. For instance, where no fees are to be charged for training, the entrepreneur may continue to pay regular wages to his personnel while under training and the contribution by the trainee may be in the form of any additional expenditure he may have to incur during the training period.

The type of extension services required is one of the important factors for consideration in planning an industrial estate. Some extension services depend upon the prospective industrial composition of the estate. Their provision may be facilitated if the units are not too diverse in their activities or are such that inter-unit services may be provided. In cases where the estimated demand justifies setting up an independent unit for any particular service, a private entrepreneur should be encouraged to do so as a business proposition right from the beginning. Where the demand is not adequate and yet the service is required, suitable arrangements may need to be set up by the development authority and operation may have to be subsidised for some time. As a result of the demonstration effect of the government subsidising and/or as pressure is brought on individuals or as co-operation of farmers may later come forward to take it over. This would be to be encouraged.

The charges for the services provided by common facility establishments should in general be less than what they would cost if attempted individually but the charges should not exceed the prevailing market rates in nearby industrial areas. A government service may be expected to charge not more than cost. But the standard costs have been to be established on the assumption that the equipment used and/or the personnel engaged are fully employed, although the estate may not be adequate for full utilisation of the resources of the establish-

It is often found necessary to provide subsidies on the standard estimated costs as an incentive for the utilisation of the services. This is necessary in two main situations, namely, (i) where the service is of a developmental nature or experimental in character, such as testing or use materials or of

products not hitherto attempted in the area, and may therefore not be fully appreciated; and (ii) where the area is industrially backward and encouragements for rapid growth should be given.

In any of these or other situations, the extent of subsidy, if and when provided, should be clearly communicated to the beneficiary so as to enable him to formulate correct estimates of his true costs. This would also facilitate the revision of cost estimates from time to time.

A proper system of allocating the resources and facilities of the common workshops among various applicants needs to be worked out carefully and priorities should be set up. Once the demand from any individual party increases to an extent that equipment or a worker could be utilized at full capacity, the unit concerned should be advised, and if necessary assisted, to acquire similar facility for its own use.

It is quite appropriate to levy full charges for legal assistance, accounting and auditing, advertising, and the like, without any element of state assistance or subsidy. Such services should normally be provided on a commercial or business basis and it is preferable to have them organised through an association of the firms in the industrial estate with or without partnership with outside units, as may be considered economical and feasible.

It is most desirable that some institutional arrangements be made for providing various services and facilities to different industrial units. For this purpose the development authority responsible for industrial growth would be well advised to establish in or for the industrial estate a service institute along with one or more extension centres to co-ordinate all assistance and aid programmes especially for small-scale units, with suitable marketing and research facilities. Parallel to this an association or a co-operative society of the tenants should be organised to handle such activities as need to be undertaken jointly. The ultimate aim should be to make this body a strong institution for organising all the services required for the constituent units in the estate with only such assistance from the development authority as may be considered absolutely essential.

IV. PARTICIPATION OF ENTREPRENEURS IN THE DEVELOPMENT OF SERVICES AND FACILITIES

Well conceived and properly organized as it may be, a service or a facility may not always be appreciated and therefore may not be fully utilized unless it is designed to satisfy an expressed need of the beneficiaries. It is not enough to impress upon them the benefits of utilizing the established services but efforts should also be made to involve them in the very process of organizing such services. This calls for preliminary extension work among the prospective tenants to promote the idea and, to the extent possible, to arrive at joint decisions in regard to the nature and extent to which different services need to be established, and also to secure their active participation, as distinct from passive consent, in the very setting up of the various services and facilities. What cannot be undertaken within the resources of the individual firms concerned, needs to be attempted jointly by pooling their resources. If even this is not enough or feasible, then only the help of external agencies should be invoked. This too should be obtained in such a manner that the need for external assistance is gradually reduced as development takes place.

Inter-unit trading and services and inter-firm comparisons are two of the many ways in which the tenants of the industrial estate can participate for mutual benefit. However, particularly in under-developed countries, this requires a climate of confidence among the participating firms. The extension organization can play an important role in helping the units to get over the narrow barrier and misconceived notion of immediate personal gain which may hamper their sustained and rapid development as members of an integrated industrial community, in which they would achieve greater bargaining strength, both technical and economical. Through a bold programme of inter-trading and inter-service, the small entrepreneurs can take advantage of well-known economies of scale and of specialization.

The programmes of planned industrial communities adopted in most developing countries are a potent tool for raising living standards and putting the national economy into a highly geared pace of accelerated industrial growth.

They are an instrument of integrated development embracing all aspects of industrial economy, technology and management. It should be the duty of the beneficiary units to be so efficient as individuals and so effective as an industrial team, both as regards technical performance and business and labour-management relationships, as to earn them the name of an enlightened model community. Only thus can they discharge their obligations to society at large in return for the more than normal share of national resources employed on them. The units concerned would do well to set for themselves a suitable code of technical performance and social conduct.

V. REGIONAL AND INTERNATIONAL CO-OPERATION IN THE DEVELOPMENT AND ORGANIZATION OF SERVICES AND FACILITIES

Regional and international organizations can render considerable help in the development and organization of technical services for small-scale industries. Their action may include:

- (i) Pooling the experience of various countries and making information available to developing countries to help plan, organize and manage technical services and facilities under different types of institutional arrangements.
- (ii) Providing advisory services on the planning of industrial estates and common service facilities, and, in particular, helping in carrying out techno-economic surveys of the type and size of industries which might be set up in the estates, so as to ensure maximum utilization and economic operation of the technical and other common services.
- (iii) Supplementing the resources of the state for a limited period by providing expert advice, equipment and technical information for setting up service institutes, extension centres, prototype production and training centres and other research development and service institutions.
- (iv) Assisting in the training of extension personnel through fellowships for training overseas, including in-plant training, and in organising programmes for the firms in the estates.





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