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INDUSTRIAL SERVICES IN PAKISTAN 1/

by

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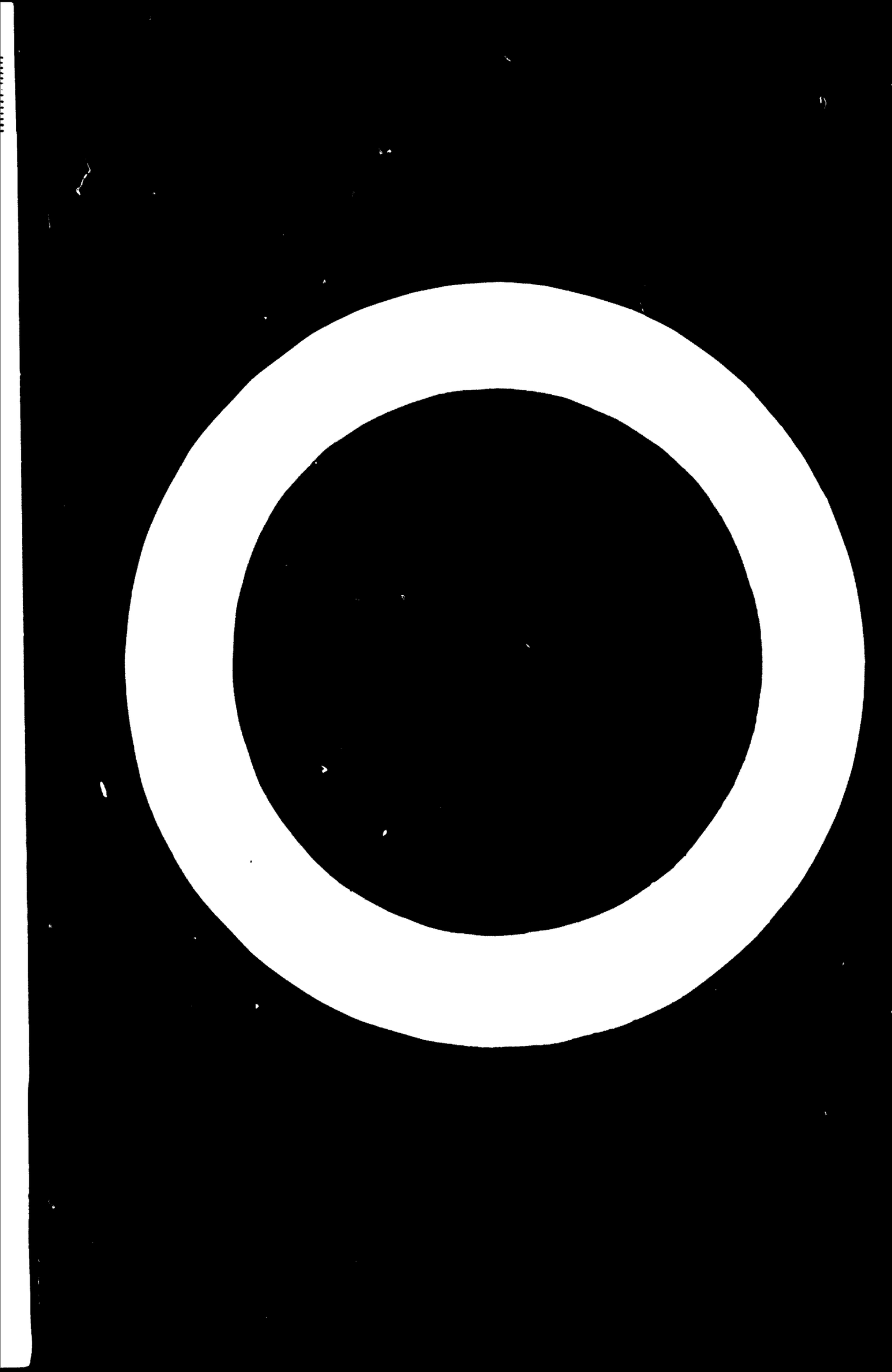


APPLIED INDUSTRIAL RESEARCH

During the last 25 years there is not a single sector of human activity which, on a global scale, has developed with such remarkable speed as that of science and technology. New thoughts and new theories, new products and new processes have totally revolutionized the thinking of man so much so that nothing appears to be out of reach or beyond his grasp. The release of enormous quantities of energy from the annihilation of a tiny mass of atom, the conquest of space demonstrated by the landing of the man on the moon, the split-second solution of problems by the electronic computers, are all manifestations of the master of the laws of nature by the scientists and technologists of the twentieth century. Although the impact of this scientific explosion on the socio-economic development is a phenomenon which has been experienced by all countries without exception, its origin and, therefore, its contribution to the increase of wealth and prosperity has been confined to those countries of the West and the East which have consciously and deliberately nourished scientific education and research as a part of their national policy. In fact the percentage share of the Gross National Product (GNP) of a country, allocated to science and technology is an index or measure of the prosperity and advancement of that country. Table below shows the names of some selected countries, the percentage share of their GNP spent on scientific research and development (R and D) and the national income of those countries:

TABLE	Name of the Country	% Share of GNP for Scientific Research and Development	National Income ($ Millions)
	USA	3.4%	620,968
	UK	2.3%	83,064
	Netherlands	2.0%	16,961
	France	1.5%	76,153
	Germany	1.5%	90,610
	Japan	1.5%	78,222
	Sweden	1.5%	12,333
	Canada	1.0%	39,691
	Belgium	1.0%	14,310

TABLE (continued)

Name of the Country	% Share of GNP for Scientific Research and Development	National Income ($ Millions)
Norway	1.0%	5,834
Italy	0.6%	49,066
India	0.45%	39,401
Pakistan	0.13%	11,800
Other countries	0.5% or less.	

It will be seen from this Table that the direct relationship between the percentage expenditure on scientific R and D and the national income is clearly established. It can also be seen that countries which spend less than 1 per cent of their GNP on scientific R and D are generally under-developed and poor. In the strategy of all future economic planning in Pakistan, therefore, it is proposed to give scientific research and development its rightful place and to deal with it under a separate chapter. In the Fourth Plan period attempt will be made to prepare the infrastructure for the implementation of a sound Science Policy and to extend the results of research already done to the field and factories wherever possible, with co-ordinated direction.

The main responsibility for scientific research in Pakistan is at present concentrated in six autonomous research councils:

1. The Agricultural Research Council;
2. The Medical Research Council;
3. The Council of Scientific and Industrial Research;
4. The Atomic Energy Research Council;
5. The Council for Engineering and Works;
6. The Council for Irrigation and Flood Control.

Plan for industrial development and research

In Pakistan, the production activity of industries, both private and public, was greatly hampered by the lack of facilities for research relating to industrial materials and processes at the time Pakistan launched its first five-year plan (1955-1960). The plan therefore provided for the further development of the laboratories of the Pakistan Council of Scientific and Industrial Research (PCSIR), with emphasis on applied research, in order that, for the most part, the work of these laboratories

should consist of obtaining the results of local conditions. The laboratories engaged on industrial research are to be regarded as productive, functional parts of the country's industrial development facilities; and their results are to be measured by their direct effect in improving efficiency and increasing industrial output. However, investment in industrial research is not to be considered as solely the Government's responsibility; associations of manufacturers, co-operative societies and individual industrial firms are urged to make a beginning in conducting research in matters of special concern to them.

A study of the industrial research organizations in Pakistan reveals that, as in most countries of Asia and the Far East, industrial research activities have been sponsored more by the Government than by private industry, in spite of the fact that industrial development has taken place to a very considerable extent as a result of the successive five-year plans.

PAKISTAN COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH (PCSIR)

Recognizing that scientific and technological research is a vital instrument in developing the human and material resources of a country, and that industrial research is of basic significance in establishing the foundation of a sound industrial base, and in accelerating the economic growth of the developing countries, the Governmet of Pakistan constituted the Pakistan Council of Scientific and Industrial Research as an autonomous body in 1953, with the broad object to initiate, promote and guide researches in pure and applied fields relating to the industrial utilisation of the raw material resources of the country.

The aims and objects of the PCSIR are as under:

(a) Initiation, promotion and guidance of scientific and industrial research having a bearing on problems connected with establishment and development of industries or with any other allied matter referred to the Council by the Central Government;

(b) Establishment or development of National Institutions for research, testing and standardization, with the over-all object of utilizing the economic resources of the country in the best possible manner;

(c) making grants-in-aid for specific schemes at universities and other research;

(d) undertaking and fostering developmental research for the utilization of discoveries and inventions resulting from researches of the Council:

(e) establishment and award of research fellowships in subjects within the sphere of the work of the Council;

(f) collection and dissemination of information on scientific and industrial matters and the publication of scientific papers, reports and periodicals relating to the activities of the Council;

(g) encouraging the establishment of industrial research associations by various industries;

(h) maintaining contacts with scientific and industrial research organizations in other countries;

(i) make purchases of scientific stores including technical books and journals;

(j) accepting fees, donations, endowments and gifts for furthering the objects of the Council;

(k) taking out patents, and arranging industrial utilization of research processes developed in the institutes and laboratories;

(l) establishment of libraries, museums, experimental plantations and scientific herbaria in respect of scientific subjects concerning the activities of the Council; and

(m) any further activities to promote generally the objects of the Council.

In pursuance of one of the recommendations of the Scientific Commission, the policies of the PCSIR have weighed quite heavily in the direction of applied research. This is reflected in the over-all organizational pattern of the four multi-functional laboratories of the PCSIR, located at Karachi, Dacca, Lahore and Peshawar, which together comprise 21 research divisions in the following broad fields:

1. Karachi Laboratories.

    1. Physical Research and Testing Division.
    2. Chemical Research Division, including paints and plastics.
    3. Biochemical Research Division.
    4. Drugs and Pharmaceutical Research Division.
    5. Building Materials Research Division.
    6. Fuel Research Division.
    7. Engineering Division with workshop and Pilot Plant Section.

2. Dacca Laboratories.

    1. Natural Products Research Division.
    2. Fuel Research Division.
    3. Food and Fruit Technology Division.
    4. Leather Research Division.
    5. Glass and Ceramics Division.

3. Lahore Laboratories

    1. Metallurgical Research Division, including ore dressing and testing of minerals.
    2. Industrial Fermentation and Biological Evaluation Research Division.
    3. Oils, Fats and Waxes Research Division.
    4. Glass and Ceramics Division.
    5. Food Technology Division.

4. Peshawar Laboratories

    1. Indigenous Drugs Research Division.
    2. Fruit Technology Research Division.
    3. Mineralogical Research Division.
    4. Wool Research Division.

Besides these well-established four centres of scientific and industrial research, the PCSIR has also set up nuclei of the Natural Drugs Research and Development Institute at Chittagong and the Rajshahi Laboratories in East Pakistan which will be specifically devoted to fibre research, lac research and research development relating to fats, oils

and waves of East wing of Pakistan. A Precision Mechanics and Instrumentation Centre with the collaboration of the Swiss Foundation has also started functioning in Karachi from September, 1965.

PANSDOC

The Pakistan National Scientific and Technical Documentation Centre in short PANSDOC was established in 1957 with the assistance of UNESCO and was placed under the aegis of the PCSIR by the Ministry of Education. The technical services of PANSDOC are provided through four units, viz (1) Document Procurement (2) Bibliography, (3) Translation and (4) Document Reproduction. These sections have specific responsibilities of carrying out the jobs in co-ordination and co-operation with each other. It has been catering the needs of the Scientific Departments, Universities, Laboratories, Scientific Organisations and private parties in the fields of the above sections.

PANSDOC has also established its two sub-offices at Lahore and Dacca for providing and rendering the services to those regions.

The PCSIR representing the major industrial research potential of the country can only meet its responsibilities towards the nation by drawing up programmes of research which are realistic and which truly reflect, and are oriented towards the genuine needs of the end users, besides becoming fully associated with the following objectives of industrial research:

1. To develop new materials, processes or devices for existing or new industries.
2. To improve the quality of products.
3. To develop new uses for existing materials, processes or devices.
4. To effect savings in cost.
5. To prevent and rectify troubles of production or use.
6. To assist in standardisation.

A number of additional functions and achievements of the PCSIR can be dealt with here to indicate in some measure its significant contributions in promoting the overall scientific potential of the country, and in providing a direction in undertaking of researches and investigations relating to the economic utilisation of the raw material resources of the country. Some of these contributions may be seen as follows:

(a) Permanent buildings of the Central Laboratories, Karachi, and the three Regional Laboratories at Dacca, Lahore and Peshawar, have been constructed. Nuclei Laboratories have been set up at Chittagong and Rajshahi.

(b) Starting from a nil base, a total of 2,500 scientists and the supporting staff are now working in the various laboratories of the Counoil.

(c) About 300 scholars have returned from abroad mostly with their doctorate degrees in various fields and over 150 scholars are still pursuing their studies abroad.

(d) The Pakistan National Scientific and Technical Documentation Centre (PANSDOC) which was established in 1956 with UNESCO aid is now internationally recognized as a regional centre. The PANSDOC has further establish two sub-offices at the West Regional Laboratories, Lahore and the East Regional Laboratories, Dacca. The PANSDOC is closely associated with the planning of the National Science Library with its centres at Islamabad and Dacca.

(e) There is dearth of skilled technicians to meet the growing demands of the industry and the research organizations in Pakistan. In order to fill this lacuna, the Council has established with the assistance of the Swiss Foundation the Pak-Swiss Precision Mechanics and Instrumentation Centre. The main function of this Centre is to train talented young men with High School certificates for a period of three years in precision mechanics under the supervision of Swiss Instructors. It is expected that Pakistani Instructors will gradually become available to take over from their Swiss counterparts. The first batch of 24 trainees came out in August, 1968. Hostel facilities, and a stipend of Rs.75/- per month for a trainee, are provided by the PCSIR.

(f) The PCSIR has been financing specific research projects at the Universities and other research centres.

RESEARCH AND INVESTIGATIONS

As a result of researches carried out in the various laboratories of the PCSIR in the fields of Natural Products Building Materials, Drugs, Pesticides, Food and Nutrition, Glass and Ceramics, Paints and Plastics, Fuels, Ore-dressing and Metallurgy etc., well over 800 research papers have been published. In addition, patent coverage has been obtained for about 125 processes, more than 40 of which have been leased out for commercial utilization. Over 70 industries based on the Council's processes have been established, resulting in a production of over 12 million rupees. It would be pertinent to make special mention of some of the projects which are of long-range character, and are under investigation in the various laboratories of the Council.

1. Chlorinated and Phosphatic Pesticides:

A process developed in the laboratories of the Council deals with the production of chlorinated pesticides (Petkolin and Makrolin) entirely from indigenous raw materials. The actual position in this regard is that large-scale field trials on them carried out in association with the Department of Agriculture in both the wings of the country have given positive results, and the laboratory findings have been fully corroborated by the world-famous pesticides firms abroad. The most outstanding feature of these pesticides is their extremely low fish and mammalian toxicity (LD_{50} subcutaneous 10,000 mg/kg as against 20 mg/kg in the case of Endrin), combined with highly effectively pesticidal activity of a broad spectrum. A pilot plant of ½ ton/day capacity for the production of Petkolin has already been set up and arrangements are now underway to establish a production unit in West Pakistan to manufacture 20 tons a day of these pesticides.

Investigations on Phosphatic and thiophosphatic insecticides which have little residual effects have also been undertaken.

2. Utilization of Agricultural and Industrial Wastes.

The Council has also concentrated its attention on more effective utilization of the agricultural and industrial wastes of the country. While an outstanding example belonging to the former category is that of Jute sticks, a few processes and projects of economic importance which have been successfully completed are listed below:-

(i) Jute Sticks:

A process developed at the East Regional Laboratories, Dacca, relates to the production of pulp of various grades from waste jute sticks for the manufacture of high quality paper rayon. For a fuller understanding of the economics and operational feasibility of this process, a pilot plant costing around one million rupees has been set up.

ii) Production of Dyes and Pharmaceutical Products from Industrial Wastes

Considerable success has been achieved in the conversion of certain industrial wastes into a series of dyes and pharmaceutical products. Arrangements are underway to establish full scale production based on these investigations.

3. Utilisation of Mineral Resources

An important activity of the Council pertains to the maximum utilization of the mineral resources of the country. This has been achieved in a number of ways involving materials, which are good substitutes for their imported counterparts, conversions of minerals into fine chemicals which would initiate pioneering efforts in this field in the country. Particular mention may here be made of the remarkable work done by the Council in upgrading of low grade materials which have led to considerable increase in the use of indigenous raw materials by the Glass and Ceramics Industry.

4. Utilisation of Protein Resources

The Council has not been oblivious to problems of long-range importance which would ultimately have an impact on the national economy. Mention may be made of investigations for a more effective utilization of protein resources of the country in the form of fish protein concentrates and deodorised and detoxicated guar meal. Considerable work has already been done on these projects and it is expected that these two projects will prove to be a fillip in the actue protein deficiency in the national diet.

A large number of problems to meet the deficiency of protein in the country are being tackled in the Council, such as protein from hydrocarbon, extraction of proteins from leaves, preparation of protein concentrates and amino acid preparation for treatment of protein deficiency diseases, protein hydrolysates mixtures, enriched starch and cereal foods from tubers, rhizomes seeds etc.

5. Building Materials

A number of processes developed by the PCSIR in this field have led to the commercial production of several low-cost building materials. A number of industries have been established on the basis of these processes and with the production of building materials there has been a considerable saving in foreign exchange.

6. Food and Fruit resources

Some useful work has been done in this field at a number of laboratories of Council, which could be a source of great saving in foreign exchange. Some of the processes which need mention here are torpeneless orange oil, lemon oil, canned foods and food products and their preservation in fresh and processed states, citric acid, lactic acid, baker's and edible yeast from molasses and vinegar from guars, caffein from tea waste, glucose from waste starch resources and invert sugar from sucrose etc.

7. Medicinal Plants

Pakistan is endowed with a rich variety of forest wealth, much of it remains yet to be exploited. The Council has made investigations on a number of locally available plants. 'Serpajmaline' which has been produced from the roots of Rauwolfia serpentina is an example of the kind. This drug has a very potent blood pressure-lowering agent.

Further, a systematic study of the indigenous medicinal plants has been undertaken. For the present, efforts are being concentrated on the isolation, and characterization of:

1. Hypotensive agents;
2. Anti-cancer agents;
3. Antidiabetic agents;
4. Blood-cholesterol-lowering agents.

8. Leather resources

The Council has been instrumental in the promotion of leather industry which is next to jute and cotton in foreign exchange earning. Besides evolving various processes to substitute imported raw materials or products used by the tanning and leather industries, the Council has been acting as a technical advisory arm of the

Export Promotion Bureau. It has also been offering advice and guidance to the leather industry in the solution of their operational problems, in order to improve the quality of their products and thus render them more acceptable in the international market.

In addition, the Council's activities have included short-term and long-term investigations of glass and ceramics, oils, fats and waxes, ore dressing and metallurgy, chemical engineering, wool industry etc. A number of the processes evolved as a result of these investigations have already gone into commercial production.

PROGRAMMES OF INDUSTRIAL DEVELOPMENT

An idea of the programmes of industrial development envisaged in the 3rd Five-Year Plan which ended on 30th June 1970 can be had from the Industrial Development Schedule as announced by the Government of Pakistan. This schedule covers 23 groups of industries, which have been sub-divided into 200 individual industries, reflecting a total investment of Rs.12,800 million. Investment targets for certain groups of industries for which the PCSIR already has a well-developed research potential, may be outlined here:

Group No.	Group of Industry	Investment Targets (Million of Rupees)
1.	Food Manufacturing Industries	744.5
2.	Beverage Industries	10.5
3.	Leather and Leather Products	63.5
4.	Chemicals and Fertilisers	1396.7
5.	Petroleum, coal and gas	200.0
6.	Petrochemicals	641.0
7.	Non-metallic Minerals	600.0
8.	Basic Metal Industries	311.4

Some of the newly listed industries, which were not specifically mentioned in the industrial investment schedules of the 2nd Five-Year Plan, are Insecticides, Pesticides, Fungicides, Fumigants, Petrochemicals, Drugs and Pharmaceuticals, Plastic products, and Building Industry.

From the aforesaid statement, the appropriateness of the organization and development facilities in the PCSIR for undertaking programmes of industrial research, which are directly in line with the programmes of industrial development of the country, becomes indisputable.

The broad fields of activity proposed to be covered in the programme of the PCSIR for the Fourth Plan period are natural products, leather, food, glass ceramics, mineral fuels, chemicals, drugs, engineering, cotton and jute textile. In formulating these proposals, the PCSIR has given due consideration to the availability of raw materials - indigenous ores particularly antimony and iron ore available as low grade ore yet remain to be beneficiated. Similarly, the glass and ceramic industry can receive a sizeable boost from improvement in the quality of raw materials and better techniques of manufacture. The utilization of indigenous low-grade coal to effective use, the utilisation of natural gas as a substitute for petrol and diesel oil in cars, the improvement in the quality of leather for increasing its export potential, the diversified use of jute because of its keen competition with synthetic and other natural fibres, the improvement in the quality of cotton textiles to compete in the highly competitive international market and the improvement in the woollen fibre are some of the objectives for which the PCSIR plans to work by building up sizeable research facilities in its institutes.

The Planning Commission has earmarked Rs.150 million during the Fourth Five-Year Plan (1970-75) for the establishment of institutes in the following industrial fields:

1. Cotton Textile Research
2. Jute Textile Research
3. Wool Textile Research
4. Food Technology, Preservation, Protein, New Food and Packaging
5. Fuel Technology
6. Glass, Ceramics and Cement
7. Leather Research
8. Minerals Research
9. Drugs, Pharmaceuticals and Tropical Products Research
10. Agro-Chemical Research
11. Research Production and Development
12. Biochemical Research

13. National Research

(a) Mechanical Engineering
(b) Electrical Engineering
(c) Chemical Engineering
(d) Machine Tools Engineering
(e) Scientific Instruments Engineering
(f) Agricultural Engineering

INDUSTRIAL LIAISON AND EXTENSION

In the initial stages of the development of the PCSIR considerable stress was laid on evolving new processes and products based on the raw material resources of the country, and comparatively little attention was paid to the resolution of many operational problems faced by the industry. This was to some extent due to the fact that, in the advanced countries, this responsibility is handled by Research Associations of which there are about 50 in the United Kingdom and to quite a large extent also to Research Sectors of industrial complexes like the I.C.I. and the Glaxo. It was later on realized, however, that under the conditions prevailing in Pakistan, where both these facilities are absent, the PCSIR would also have to shoulder this responsibility in an increasingly larger measure through industrial liaison and extension. The PCSIR has already made a beginning in this direction, and established Industrial Liaison Cells for this purpose in its four major laboratories to cope with the demands of the industry in the country.

INDUSTRIAL ECONOMIC CELL

This cell has already started functioning in the Secretariat of the PCSIR. It is responsible for assessing the economics and marketability of the Council's processes. It is proposed to establish similar cells at the Dacca and Lahore Laboratories.

It has been realized that effective utilization of the results of research involves close co-operation between scientists, technologists, engineers and industrial economists, on the one hand and Government and semi-Government organisations like the Planning Commission, Pakistan Industrial Development Corporation, the Investment Production Bureau, the Pakistan Industrial Credit and Investment Corporation, the Industrial Development Bank of Pakistan, and the various Ministries concerned, on the other.

In a sense the problem of Industrial Research and research utilization has the following three aspects:

(i) Keeping the scientists and technologists of the research organizations by and large on their creative jobs, away from the managerial worries relating to the commercial development of the results of their work.

(ii) Integration of pilot plant and engineering sectors of activities with the Industrial Liaison and industrial economics sections of the PCSIR.

(iii) The closest possible association of the human resources involved in the activities under (i) and (ii).

INDUSTRIAL INVESTMENT PROGRAMME IN PAKISTAN

The State Policy in the private sector of industrial development is based on the industrial policy announced by the Government of Pakistan on February 20, 1959 which, inter alia, makes the following commitments.

(a) The basic factor of industrial growth will be achieved through the encouragement of private enterprise.

(b) Repatriation of capital and profits is assured in respect of repatriable equity foreign investment.

(c) Government's own role in the sphere of industrial development is to provide overhead and infrastructure facilities, as well as, facilities in the form of industrial estates, water and power connections, etc., to the private investor both foreign and local.

(d) In the event of nationalization full compensation will be provided.

2. Standardization and quality control

Standardization as a regulatory instrument for the proper development of industry with the minimum waste of resources - both materials and manpower - is most effective in developing countries which are aiming to achieve rapid development within the framework of national plans. As a matter of fact, the establishment of national standards bodies in these countries should take place simultaneously with, if not prior to, the formation of the national plans.

The advantages of standardization may be described in the following terms.

To the producer:

(i) Longer runs with fewer changes on the production line;

(ii) Reduced tooling and set-up time;

(iii) Possibilities of increased mechanization and special-purpose plant;

(iv) Easier training of operatives;

(v) Simpler and cheaper inspection;

(vi) Less capital invested in idle plant, tools and space;

(vii) Reduction of stocks of materials, components and end-products;

(viii) Reduced call on drawing office and design staff for special orders, leaving them free for work on new designs or improvements;

(ix) Simpler clerical and administrative work;

(x) Easier service and maintenance;

(xi) Concentration of sales and advertising effort on a narrower range;

(xii) Greater market stability; and hence,

(xiii) Increased productivity, leading to reduction in cost and prices and to increased sales.

To the user:

(i) Lower prices for a given quality or performance;

(ii) Reduced variety and level of stocks at all distribution points;

(iii) Readier availability; and

(iv) Improved service and maintenance facilities.

Thus standards lead to the optimum utilization of resources - human and material. For a country attempting large-scale development to catch up with the rest of the world, such utilization of resources and the achievement of higher productions are of very obvious importance. Further, there is the need for ever-increasing export trade to provide foreign exchange for the growing industry which will need capital equipment for further development. The increase of foreign trade is very much stimulated by improving the quality of exportable products and adherence to high standards of quality.

A developing country has to depend on outside assistance in the form of technical personnel, industrial know-how, capital equipment, and the like, for its rapid and planned development. The sources from which such assistance will be derived will naturally vary. They may come from the different sectors of the same overseas country or even from different overseas collaborators. The import of collaboration from different parts of the world will naturally bring in different patterns of standardization depending upon the nationality of the collaborating organization. For the same type of material, there might be different varieties based on the different standards of the collaborating nations. This is perhaps the time when national standards are most needed to co-ordinate and simplify the standards and norms of production, but all too often they are conspicuous by their absence. It is thus clear that the developing countries need to establish their national standards to help their industries from the very earliest stage of planning and design, through erection, production, and distribution. It is through this approach that the limited resources of man, materials and technical know-how can be most effectively put to work to achieve massive industrial and economic growth within a relatively short period.

Pakistan Standards Institution (PSI)

Origin - The Pakistan Industrial Conference held in December 1947 recommended the establishment of a Central Standards Organization in Pakistan. The scheme prepared by the Government met with the general approval of the provincial and state Governments, chambers of commerce and industry.

Creation - In 1951, PSI, attached to the Department in the Ministry of Industries, was established. The Institution was first registered as an autonomous body by resolution of the Government in 1958. The first meeting of the General Council of the Institution was held on 21 November 1959.

Members: nature and number - The constitution provides for three classes of membership:

(1) Sustaining members are the various ministries and divisions of the Government, Governments of provinces and other territories in Pakistan, the governments of participating countries and organizations, companies, firms, commercial bodies, professional, scientific, educational and other institutions.

The sustaining membership has two categories:

(1) sustaining members with annual turnovers of more than Rs.200,000. and (2) firms and companies and commercial bodies with annual turnovers of less than Rs.200,000. In the second category could be included professional, scientific, technological and other institutional bodies which specifically apply for membership in this sub-class. In 1964, there were 33 sustaining members of PSI of which two were associates.

(2) Ordinary members are individuals interested in the objects and the work of this Institution. As of 1964, there was only one ordinary member.

(3) Committee members - Any person serving on the general Council, or on a division council or any committee of the Institution, who does not represent a sustaining member or is not himself an ordinary member, is a Committee member during the period of his service. There are more than 1,500 Committee members working in 90 sectional committees under 6 divisional councils.

Finances - The income is derived from the following sources:

governments grants,
philanthropic contributions,
membership fees,
sales of publications,
certification marks licence fee, marking fee etc.

Staff - The headquarters of the Institution is manned by 81 employees of which 20 are technical hands; the rest are the secretariat staff and certain other categories of service personnel. In their branch office at Dacca in East Pakistan, there is staff of seventeen members four of whom are technical.

Organizational structure - The General Council is the supreme body for policy making and the managing institution; it is composed of 69 members representing industry, the Central Government and provincial governments, chambers of commerce, scientific, engineering, testing and research organisations and the chairmen of the divisional councils. The Minister of Industry is ex-office President. There are two vice-presidents of the General Council, one of them is elected from the members GC. The other is a Joint Secretary of the Ministry of Industry.

The actual management of the Institution is delegated to the Executive Committee chosen from the members of the GC. There is also an advisory Finance Committee to advise the Executive Committee and the Council on financial matters. There is also a Standing Committee for Certification Marks and Exports to consider and advise the Executive Committee on all matters relating to Certification Marking, particularly for export goods.

The Director of the Institution, who is appointed by the Government, is the head of the Office and is also ex-officio secretary of the General Council and all the Committees set up by PSI. The supporting staff are deputy directors, assistant directors, administrative officers and other ministerial staff at the headquarters and at branch offices.

Functions - For the preparation of Pakistan Standards, six Divisional Councils have been appointed: agricultural and food products, building and building materials, chemical, electrotechnical, mechanical engineering, and textiles. Each is composed of representatives of the interests of users, manufacturers and other persons or bodies concerned in or associated with the industries included in the division; government ministries and departments interested in such industries are also included.

The Divisional Councils set up Sectional Committees competent to deal with various subjects coming under each division for the technical work on preparation of standards. Recommendations of the sectional Committee on standards are submitted to the appropriate divisional councils for approval as PSI standards.

Methods used for drafting standards - A Divisional Council takes up the work of standardisation on a subject after it has been satisfied that the necessity for a standard has been established. The subject is then allotted to a Sectional Committee, which puts up the draft after due consultation among its members and others competent to take part. This draft is circulated for comments widely in the country and to the members of the Commonwealth Standards Organization and the ISO.

The comments are duly considered and a final draft emerges to be approved by the Divisional Council concerned and then it goes to the Executive Committee, which authorizes its publication as a Pakistan standard.

The staff of the Institution assists the different councils and committees in all technical matters including the preparation, editing, and publishing of the standards.

Nature of standards - The Pakistan standards are printed documents intended to serve as guides to manufacturers, technologists, designers and constructors on such matters as quality, dimensions, performances, methods of testing, general conditions, operation, and so on.

Number of standards published - The total number of standards established as of 1970 was 786.

Other publications - PSI Standards Bulletin (quarterly), Annual Report on the activities of the Institution.

Other forms of propaganda -

(1) Lectures - Lectures and symposia are occasionally arranged to disseminate the concept of standardization, quality control, productivity, industrial management, metric practice, and the like.

(2) Films - No films on the activities of the Institution have so far been produced, but films occasionally borrowed from foreign embassies have been shown to the staff and industrialists.

(3) Broadcast talks - Talks on standardisation, metric practice, and so on are occasionally broadcast from Radio Pakistan.

Training courses of standards engineers - PSI has sent some of its staff members under the Colombo Plan for training abroad, but as of 1964 there was as yet no programme of standards engineers.

Marks indicating conformity with standards -

Origin - The adoption of the mark is voluntary, but there is in the ordinance a provision for compulsory enforcement by the Government, in case it so desires, PSI is the authority to grant this licence.

Procedure - On receipt of an application from the factory for certification marking, an inspector is deputized to gather first-hand information about the manufacturing equipment and process and determines whether adequate facilities including testing are available in the factory to check the raw materials used and the finished product. It should also have sufficient facilities to carry out the testing at different levels of control during production to ensure compliance with the relevant standard specification. Samples are drawn from the production line for testing in the approved laboratories.

When the PSI is satisfied with this examination, it grants a licence to the party to apply the standards mark on the understanding that the entrepreneur follows a general scheme of quality control laid down by the Institution. The licensee has also to maintain an adequate record of testing and production process on prescribed forms.

In addition to checks maintained by the licensees themselves, PSI will carry out surprise inspection of the licensee's factories and production records to ensure that the production is up to the mark of the standard. Samples are bought from the open market by the Institution and tested to see whether the quality is being maintained. Thus PSI will maintain a constant watch over the quality of the marked product.

3. <u>The Department of Investment Promotion and Supplies</u>

The official organization entrusted with the implementation of Government's investment policies is the Department of Investment Promotion and Supplies with headquarters at Karachi and a regional office at Dacca.

The broad functions of the Department of Investment Promotion and Supplies are:

(a) Formulation of industrial policies.

(b) Assistance and facilities to foreign and local investors.

(c) Planning for industries in the private sector within the targets laid down in the National Development Plans and preparation and implementation of Industrial Investment Schedules.

In a developing country like Pakistan the capital growth and investment are important factors for establishing new industries and accelerating the rate of economic growth in the country. In our Five-Year Development Plans emphasis is laid on sound economic development through expansion of new industries as well as efficient utilisation of available resources.

4. Investment Advisory Centre

The Government of Pakistan established the Investment Advisory Centre of Pakistan (IACP) in 1963 to assist the investors in preparation of feasibility reports and evaluation of investment proposals relating to various industries. The Minister of Finance, Government of Pakistan, has already suggested that the industrialists should obtain the services of professional consultants for reorienting their management practices to improve productivity. This clearly indicates the significance of IACP and the important role it can play in planning for economic development.

A. Services rendered by IACP.

1. Advising industrialists on investment opportunities and preparing feasibility reports.
2. Evaluating investment proposals on behalf of Government and industrial development banks.
3. Providing consultation services on management and operational problems to business enterprises.
4. Identifying new investment opportunities for Pakistani and foreign investors.
5. Investigating new schemes, in phases, for small investors.
6. Advising various financial institutions on their investment plans.

IACP is the only consulting organisation in Pakistan with a large number of full time and highly qualified personnel which renders advisory services to various industries. The reports prepared by the Centre are used by the clients for:

(i) Appraising any specific aspect of an industry.
(ii) Acquiring sanction from the Government.
(iii) Planning schemes for modernization and balancing.

(iv) Obtaining loans from loan-giving agencies.

(v) Seeking foreign collaboration in direct investments, capital goods or technical services.

(vi) Formulating investment plans and policies.

B. IACP Set-Up

It is a compact organization comprising many foreign trained experts with practical experience in various fields of business consultancy.

IACP has experts in broad fields namely, Marketing, Finance, Engineering, Petrochemicals, Industrial Economics, Agriculture-based Industries and General Management. The Centre has also Public Relations Department responsible for maintaining liaison with public bodies, industrialists, chambers of commerce and industries, and the Press, and for disseminating information on the activities of the organization.

5. Industrial Development Bank of Pakistan

The purpose of the Industrial Development Bank of Pakistan is to enlarge private sector participation in the country's industrial activity. This is done by providing medium and long-term finance mainly to small and medium-scale industries within the framework of Industrial Investment Schedules drawn up by the Government of Pakistan to canalize investment. The Bank provides credit facilities in the form of local and foreign currency loans, guarantees and equity to industrial concerns for the manufacture, preservation and processing of goods and to mining, transport and service industries. Loans are given for setting up new units and for balancing, modernization and expansion of existing units.

In addition to financial assistance, the Bank gives technical, administrative and management advice to its clients in the planning and execution of the projects. It conducts pre-investment studies and post-sanction surveys, carries out research on industrial and related problems and compiles statistics on various aspects of its operations. The Bank also collaborates with other allied institutions such as East Pakistan Industrial Development Corporation (EPIDC), East Pakistan Small Industries Corporation (EPSIC) and West Pakistan Small Industries Corporation (WPSIC) in financial industries, and participants in RCD Joint-Purpose enterprises on behalf of the Government.

6. National Investment Trust Limited

In the early stages of industrial development in Pakistan, most of the large enterprises were family owned and family managed. The attendant concentration of economic power in a few hands posed a challenge to the balance and regulation of our social structure. A successful device to fact the situation, was the diffusion of share ownership and broadening the industrial base on as wide a front as possible.

Generally speaking middle class and small investors do not possess the know-how of a highly technical nature which is essential for equity investment; they cannot individually exercise effective control over large undertakings or withstand the pressure of the big shareholders. The best course for them was to combine together, pool their resources and invest their savings jointly through the medium of an institution, which by virture of expert advice and the large volume of investable funds available at its disposal, could effectively look after the interests of small investors. In order to achieve these objectives and to give the investors, especially the lower middle and middle class investors, a sense of participation in the industrial prosperity of the country, the National Investment (Unit) Trust was sponsored by the Government of Pakistan. The National Investment Trust Limited was incorporated in October, 1962, as a Limited Company to act as the Management Company of the Trust. The paid-up capital of Rs.1.1 million was equally contributed by eleven participants consisting of some of the leading banks and industrialists, credit institutions, Pakistan Insurance Corporation and the Central Government. The National Investment (Unit) Trust was constituted by a deed executed on 12 November, 1962, between the Management Company and the Trustees, the National Bank of Pakistan for a period of 10 years.

Investment Policy:

The investment policy adopted by the Management Company in regard to the choice of scrips and the spreading of risks has paid good dividends inasmuch as the value of Units has managed to sustain itself in spite of the adverse conditions which prevailed in the Stock Market from time to time. The value of the Units which was initially priced at Rs.10 each has gone up and is at present Rs.12.30. An Investment Committee has been constituted for giving advice in cases where the size or purchase of shares exceeds Rs.300,000 in value.

The main sources of the Trust's income are the dividend on the shares in the portfolio of the Trust and interest on debentures and Government Securities. NIT has so far provided its Unit-holders with a fairly reasonable and steady income. The first income distribution was made early in 1965 at 60 paisa per Unit, the second after 18 months, i.e., in 1966 at 75 paisa per Unit and the last in 1967 at 70 paisa per Unit. The rate of income distribution announced by the Trust for the year ended 30 June 1967, is 40 per cent higher than that of previous years.

Fiscal Measures:

The recent fiscal measures taken by Government to ensure distribution of the maximum possible dividends are likely to improve the prospects of a better return on the Unit-holders. Under the National Investment (Unit) Trust Ordinance, 1965, the Government of Pakistan have declared NIT Units to be "Approved Securities" and "Approved Investments", for the purpose of Section 20 of the Trust Act, 1882, Insurance Act, 1938, and Companies Act, 1913, to provide for the investment of Staff Provident Funds, Funds of Benevolent Trusts and other similar institutions in NIT Units. Investment in Units entitled the investors to claim Income Tax relief under Section 15-AA of the Income Tax Act. The income of the Trust is free from taxation and is distributed to Unit-holders like dividends. Income from Units up to Rs.3,000 per annum received by a Unit-holder is free from Income Tax. Governments have also laid down that 20 per cent of the newly issued capital of any public limited company should be offered to the Trust at par. This confers upon the Trust a valuable right of pre-emption and one particularly beneficial in the case of attractive issues which are heavily over-subscribed. The amendments to the Income Tax and the Companies Act made in April 1967, are likely to go a long way to improve the prospects of an increase in the income of the Trust as most companies will now try to distribute the maximum amount of profits to their share-holders.

The Trust has to a great extent succeeded in creating investment consciousness in the common man and is playing a significant role in facilitating the process of transition from concentrated to diffused ownership of shares.

7. Pakistan Industrial Credit and Investment Corporation Limited

While under the fostering care of the State Bank of Pakistan, commercial banking, which was seriously disrupted after the partition, began to make steady progress, need was felt for a specialized institution or institutions to provide credits and other facilities for industrial enterprises. Establishment of the Pakistan Industrial Finance Corporation (PIFCO) in 1949 was the first step in this direction. As the industrialisation programme of the country got underway, need began to be felt for another specialized institution that could associate itself right from the start in the establishment of new industries and modernization and balancing of existing industries - a creative institution that could lend funds, both in local currency and in foreign currencies as were needed for the creation of new assets and additional industrial capacity - an institution that would not only advance funds by way of loans but could even take equity capital and could encourage, co-ordinate and even channel the flow of foreign capital and external loans into private industrial enterprises. Such institutions had already been established in Turkey, India and several other countries. Need was, therefore, felt for a similar institution in Pakistan. It was with this end in view that the Pakistan Industrial Credit and Investment Corporation (PICIC) was established on 2nd October, 1957.

Functions:

The main objective of PICIC is to foster the development of industries in the private sector on sound lines. In pursuance of this objective, it is authorised to undertake the following business:

(a) Provide finance to the private sector of industry in the form of long or medium-term loans in local or foreign currencies or share participation or purchase of debentures.

(b) Underwrite any public issue of shares and debentures.

(c) Guarantee and counter-guarantee loan and obligations.

(d) Arrange the participation in industries of local and external finance from private and institutional investors.

(e) Furnish managerial, technical and administrative advice to the private sector of industry or assist the industrialists in procuring such services, and

(f) Facilitate the creation, issue or conversion of capital in any form and to act as a trustee in connexion therewith.

8. Investment Corporation of Pakistan

Investment in large-scale industrialization in the country a few years after Independence developed into a sizable boom which continued up to the middle of the Second Plan Period (1960-65), and the investment targets in the private sector were exceeded. But during the latter part of the Second Plan period, investors' enthusiasm for new issues began to decline.

At the beginning of the Third Plan period the problems of raising equity capital specially for the new entrepreneurs drew the urgent attention of the Government and the need for a mechanism to merchandise stocks and shares was keenly felt. At the invitation of the Government of Pakistan, through the International Bank for Reconstruction and Development, Professor Louis Loss of Harvard University visited this country to investigate the causes of the lack of depth in the capital market. Professor Loss observed that "there was no merchandising mechanism of the kind which is necessary to reach the growing upper middle and middle classes ...". He, therefore, suggested the organization of an investment banking affiliate which should underwrite public issues in all senses of the term. The proposal was further examined and supported by a committee of officials appointed by the Government of Pakistan in the middle of 1965. The committee observed that the existing pattern of shareholding was such that 75 per cent of the equities of most of the companies listed on the Stock Exchange were held by 19 or fewer persons as defined in Section 23-A of the Income Tax Act; institutional investors, including NIT, held 20 per cent, and the remaining 5 per cent were held by small investors. The stock market was operating on a thin front and transactions even of a modest nature made the market vulnerable to violent fluctuations in share values. This provided a breeding ground for speculation and manipulation of share values, and scared away the small investors. The committee also examined the underwriting functions performed by the existing constituents of the capital market, and found that these were either inadequate or unsuited to meet the demand for equity finance by newcomers.

There was thus a significant institutional gap in the existing framework of the capital market. It was to fill this gap that on the recommendations of the official committee Investment Corporation of Pakistan was set up at Karachi.

The Investment Corporation of Pakistan (ICP) represents a major step in a series of measures undertaken by the Government during the past few years to broaden the base of industrial shareholding, eliminate cartels and monopolies and create a strong middle class having a direct interest in the growth and development of the national economy. It is a body corporate set up by the Central Government under statute to encourage and broaden the base of investments and develop the capital market in Pakistan by providing institutional facilities that would enable the general public to participate gainfully in the country's economic development. It is the first institution of its kind in Pakistan.

Regional Offices:

The Corporation has a Regional Office at Dacca and a branch office at Chittagong. More offices are expected to be established in East and West Pakistan.

Objectives and Functions:

The Investment Corporation of Pakistan has been established with the main object of bringing about depth in the capital market and maintaining stability in share values. With this end in view, the statute creating the Corporation has empowered it to perform various functions.

ICP underwrites new issues, which it will distribute in course of time. As a result of these operations, funds are being channelled into projects that are unable to attract public or institutional response in the initial stages on account of their newness. The Corporation is thus expected to play an important part in the promotion of industrial development. It carries out this function by organising underwriting consortiums of commercial banks and insurance companies. The formation of these consortiums not only adds to the underwriting resources of the Corporation but is also aimed at opening up new sources of institutional finance for underwriting, and developing a new class of financial intermediaries engaged in underwriting as an organised activity.

One of the principal functions with which the Corporation was entrusted under the Ordinance that brought it into existence was to open and maintain investor's accounts, make advances for the purchase of shares, buy and sell shares to account-holders over the counter, and proivde professional advice regarding investments. It performs this function under the Investor's Scheme, launched on January 25, 1967.

The Corporation helps closely held companies, as defined under Section 23-A of the Income Tax Act, to become public by liquidating their excess holdings. In doing so, it is expected not only to broaden the base of share ownership but also to save the market from the pressure of heavy liquidation of excess holdings.

The Corporation is also empowered to merchandise stocks and securities with a view to evening out price fluctuations and bringing about depth in the market. The resulting stability in the stock market should infuse confidence among genuine investors and stimulate equity mindedness among small and medium-savers.

East Pakistan Industrial Development Corporation (EPIDC)

The East Pakistan Industrial Development Corporation traces its history from 1952 when the Pakistan Industrial Development Corporation was set up by the Government. During the period 1952-62 the former Pakistan Industrial Development Corporation, which was established in 1952 by the Government to accelerate the pace of industrial development by investing in industries for which private capital was shy, set up a significant industrial base in East Pakistan almost from the scratch. It installed 21 projects at a total cost of Rs.832.31 million out of which 7 projects were set up during the period 1953-62 at a total cost of Rs.501.85 million. Among these 7 projects were two jute mills with a total capacity of 1420 looms, three Sugar Mills with a total capacity of 33 000 tons per year, the Khulna Newsprint Mill with a total capacity of 35.000 tons per year and the Fenchuganj Fertilizer Factory with a total capacity of 100,600 tons per year.

In 1962 the Government bifurcated the former Pakistan Industrial Development Corporation into two provincial bodies, the EPIDC and the WPIDC with the object of accelerating the tempo of development in the provinces, particularly in East Pakistan. This proved to be a great catalyst of industrial growth in the Province and capital investment by the Corporation in the province shot up from 49.39 million in 1960-61 to Rs.268.37 million in 1966-67, and a new era of industrial growth started.

The Second Plan witnessed a rapid acceleration in the industrialization programme of EPIDC. The large allocation of Rs.652 million was to the extent of about 94 per cent. In some sectors, like sugar paper, basic metal etc. utilization exceeded allocations. The Corporation completed 20 projects in this period including 12 jute mills, 4 sugar factories, a chemical plant and a paper mill. This added 3000 jute looms, 3500 tons of sugar production capacity, 1500 tons of paper capacity, and the production of 230 million tablets and 10 million ampalex per annum.

In the wake of the successful implementation of the Second Plan Programme the Third Five-Year Plan was launched in July 1965 with a more ambitious programme. The EPIDC was entrusted with the responsibilities of implementing a programme which was more than three times bigger in financial size compared to the Second Plan allocation. The Third Plan allocation for EPIDC was for Rs.2,006.74 million, including Rs.75.00 million for fuel and mineral sector. During the first three years of the Third Plan 20 projects have been completed at a total cost of Rs.750 million. These include the country's first Steel Mill, eleven jute mills, 2 sugar factories, the first refiner in the Province, a DDT factory and other units. These have provided a firm and solid industrial base to the economy of the Province. The most significant aspect of this Third Plan's industrial policy of East Pakistan is to enter the field of heavy industries. A welcome beginning has been made with the commissioning of the Chittagong Steel Mill.

Thus we see that PIDC/EPIDC, during the Decade of 1958-68, has completed 47 projects at a total cost of Rs.1,573.85 million.

West Pakistan Industrial Development Corporation (WPIDC)

The West Pakistan Industrial Development Corporation has been able, over the last few years, to combine profitably with its function to fulfil larger socio-economic aims in its programmes. It has raised production, cut down waste, enforced timeliness in decisions with the result that today almost all the major projects of the Corporation are giving good return on the capital invested.

Some projects have declared as much as 15 to 23 per cent dividend out of those 16 projects of the Corporation which have been converted into limited companies the majority are earning profit. The Karachi Shipyard and Engineering Works Ltd.,

which was previously incurring heavy losses, has turned the corner. Today it is earning profit and getting orders for the manufacture of ocean-going vessels.

A few facts are stated here to substantiate the above assertions:

(a) The WPIDC has resorted to self-financing out of its own earnings. The local currency requirements for the on-going extensions of Zeal-Pak Cement Factory at Hyderabad and the three fertilizer factories at Multan, Daudkhel and Lyallpur to the extent of Rs. six crores twenty lacs have been met entirely from within WPIDC's own resources.

(b) With a change in the system of financing from 1965-66 Government's investment in WPIDC is now treated as a development loan, bearing interest.

(c) WPIDC successfully completed all the projects allocated to it in the 2nd Five-Year Plan and has largely achieved the target of Rs.239.30 million provided in 3rd Plan.

(d) The WPIDC has taken a lead in another field: of Management Training and Consultancy Services. There is a Management Training Institute at Karachi which has so far trained about 20,000 persons at various levels and a full-fledged training institute attached to every engineering complex.

WPIDC has completed over 50 projects involving an investment of about Rs.1,000 million and another 6, having a capital outlay of Rs.172 million have either started trial production or are scheduled to start operation. Among the completed projects are two cement factories and their extension, three fertiliser factories all of which have had their extensions completed, shipyard with its second phase under implementation, natural gas, chemicals and pharmaceuticals, paper and board, jute manufacture, carpets, woollen textiles, timber seasoning and preservation and important fields like mining of iron ore, coal, salt, limestone and gypsum.

Of the completed projects 19 have been transferred to private enterprise under the policy of disinvestment and 30 are being managed by the Corporation. The WPIDC managed projects employ 25,000 persons and are producing goods worth Rs.350 million annually. It will be noticed that some of the fields in which the Corporation had concentrated attention like cement fertilisers and gas have been increasingly taken up by the private sector.

THE FEDERATION OF PAKISTAN CHAMBERS OF COMMERCE AND INDUSTRY

The Federation of Pakistan Chambers of Commerce and Industry is the association of all the national chambers of commerce and industry and association of trade and industry in Pakistan. Its membership does not consist of individual firms but of groups of firms which are of two kinds. Chambers representing all the trades and industries of a particular city or area, and associations representing any one particular trade or industry on a country-wide basis. There are also groups of firms representing specific trades and industries of specific areas, and Town Associations covering smaller business centres. They can join only the chambers and not the Federation, but, as is obvious, they are linked with the Federation through the respective chambers of which they are members. The Federation is, thus, the only representative body of Pakistan's private enterprise taken as a whole. It is at the apex of all the business bodies in the country.

The Federation has been so organized as to cover both Commerce and Industry. This is indispensable in a developing economy in which almost all the manufacturing concerns are simultaneously engaged in commercial activities; they are wholesalers, and in the case of small and cottage industries, even retailers. The problems of trade and industry, therefore, intermingle and overlap and they can be studied in all aspects only if the representatives of trade and industry sit together.

The Federation's constitution is not unitary but federal in character i.e., it wields only defined powers, whereas, the residuary powers belong to the bodies which are affiliated to it. The Federation has normally no say in the internal affairs of a member body but, under the law it can arbitrate over the internal disputes of an affiliated body when referred.

The Federation generally takes up only such matters as affect commonly all the trades and industries, or the economy of the country as a whole. Matters pertaining to particular trades or industries or any particular area, are taken up by the respective associations and chambers who, like the Federation, have direct access to the Central Government. The Federation has, however, three Zonal Committees, one each for East Pakistan, Karachi and West Pakistan, which take up matters relating to the zonal trade and industry as a whole with the Government authorities within the zone.

The Federation also looks after the relations of the national private enterprise with its counterpart in a foreign country as also with an international organization, of course, in normal consultation with the Government of Pakistan. At present, the Federation is affiliated to International Chamber of Commerce (ICC), Paris, through Pakistan Council of ICC, Afro-Asian Organization for Economic Co-operation (AFRASEC), Cairo, and International Organization of Employers (IOE), Brussels. The Federation has, at the moment, 64 Chambers and Associations on its membership list. These bodies are spread all over Pakistan.

9. Chambers of Commerce and Industry

A number of Chambers of Commerce and Industry have been set up in important cities of Pakistan like Karachi, Dacca, Lahore, etc. Their main objects are to protect, promote, discuss and deal with matters connected with trade, Commerce and Industry. The federation of Chambers of Commerce and Industry co-ordinates the activities of these Chambers.

More recently the RCD Chamber of Commerce and Industry has been formed to promote trade, commerce and industry among the three RCD Countries viz. Iran, Pakistan and Turkey. A number of joint industrial projects are envisaged.

The headquarters of the federation are located at Karachi.

10. RCD Chamber of Commerce and Industry

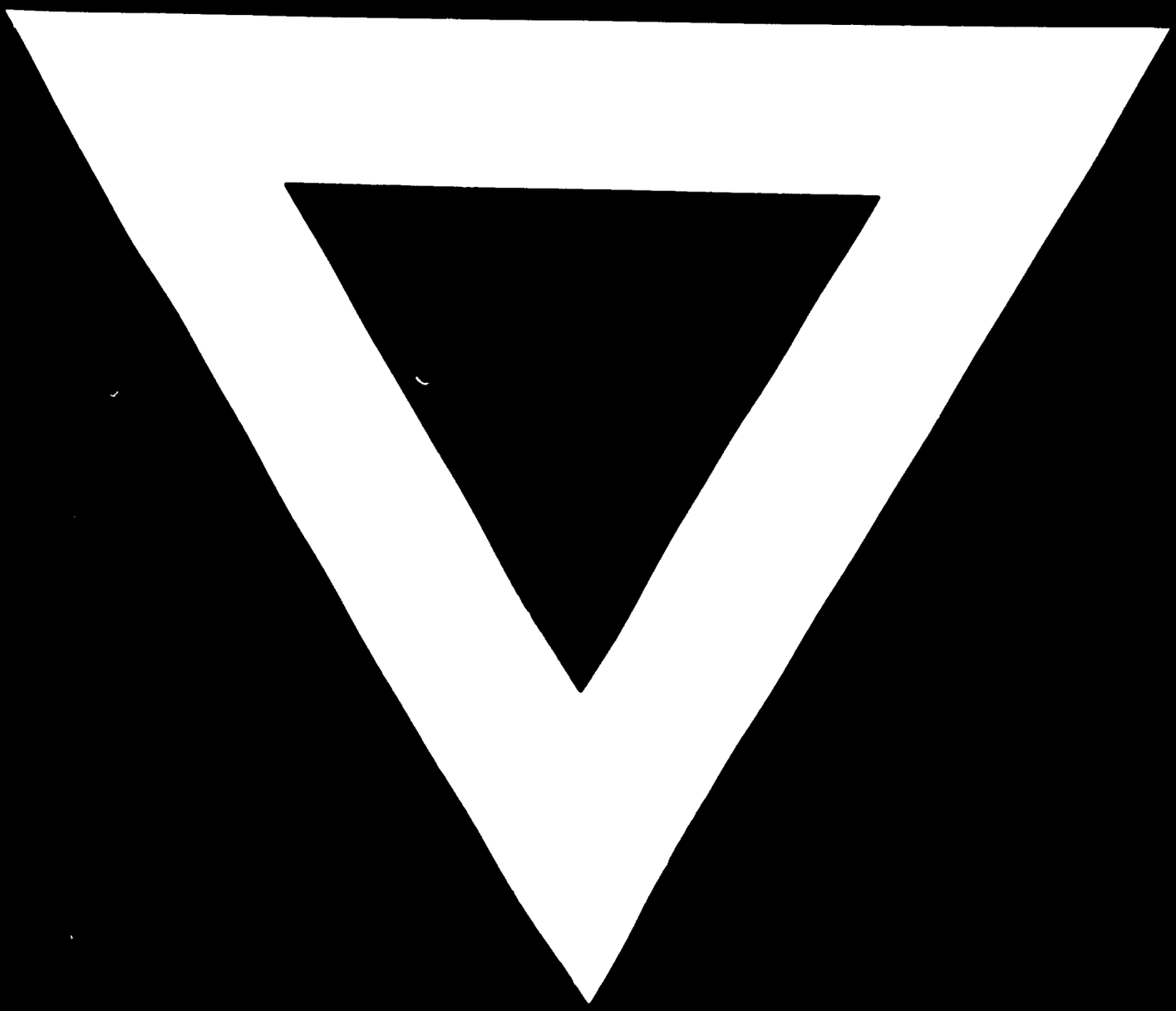
Developing countries cannot depend upon the goodwill of the highly industrially advanced countries for providing access to their markets, and they should endeavour to promote trade between themselves. The developing countries will face increasing difficulties not only to market their manufactured goods but also to effect repayment of international loans in foreign exchange, if their share in world trade does not increase at a much faster rate. In this context, the Istanbul Summit Declaration of 1964 was both historical and momentous for Iran, Pakistan and Turkey. It is indeed heartening that within a period of 6 years, the idea of RCD has matured into successful executive programme.

In view of the fact that joint industrial ventures form an important core of the RCD programme, it is confidently expected that when these joint industrial ventures are completed, the economies of Iran, Pakistan and Turkey, would become complementary to each other in many respects and thereby lay a firm foundation for ever-increasing

economic collaboration and trade. It can thus be seen that the Regional Co-operation for Development between, Iran, Pakistan and Turkey is in accordance with the accepted principle of regional assistance enunciated by the United Nations for all the developing countries and what is more, such a regional co-operation is being actively pursued in the form of common markets by the highly industrially advanced countries themselves. It is also noteworthy that while associations like the European Common Market tend to be a 'closed-shop' in relation to outside world, the RCD is indeed 'outward' looking and has extended its invitation to other neighbouring countries to join them as and when they prefer to do so.

The RCD Chamber has recommended a list of commodities for each country whose movement should be made free in the region. It has even nullified various inhibiting rules and regulations which tend to obstruct smooth flow of trade. The establishment of an RCD Development Bank is urgently necessary as specialized banking service will certainly facilitate trade and payments. The mechanism of the market, expanding as it is, offers hope for the establishment of a number of industries in each country, which would not have been otherwise possible in view of the limited domestic demands of each country. In other words, what is uneconomic on the basis of the national market becomes economic on the basis of the RCD market and at the same time enables the industry to compete better in international markets.

Some 22 fields of industries have already been identified as suitable RCD projects after detailed feasibility studies.



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