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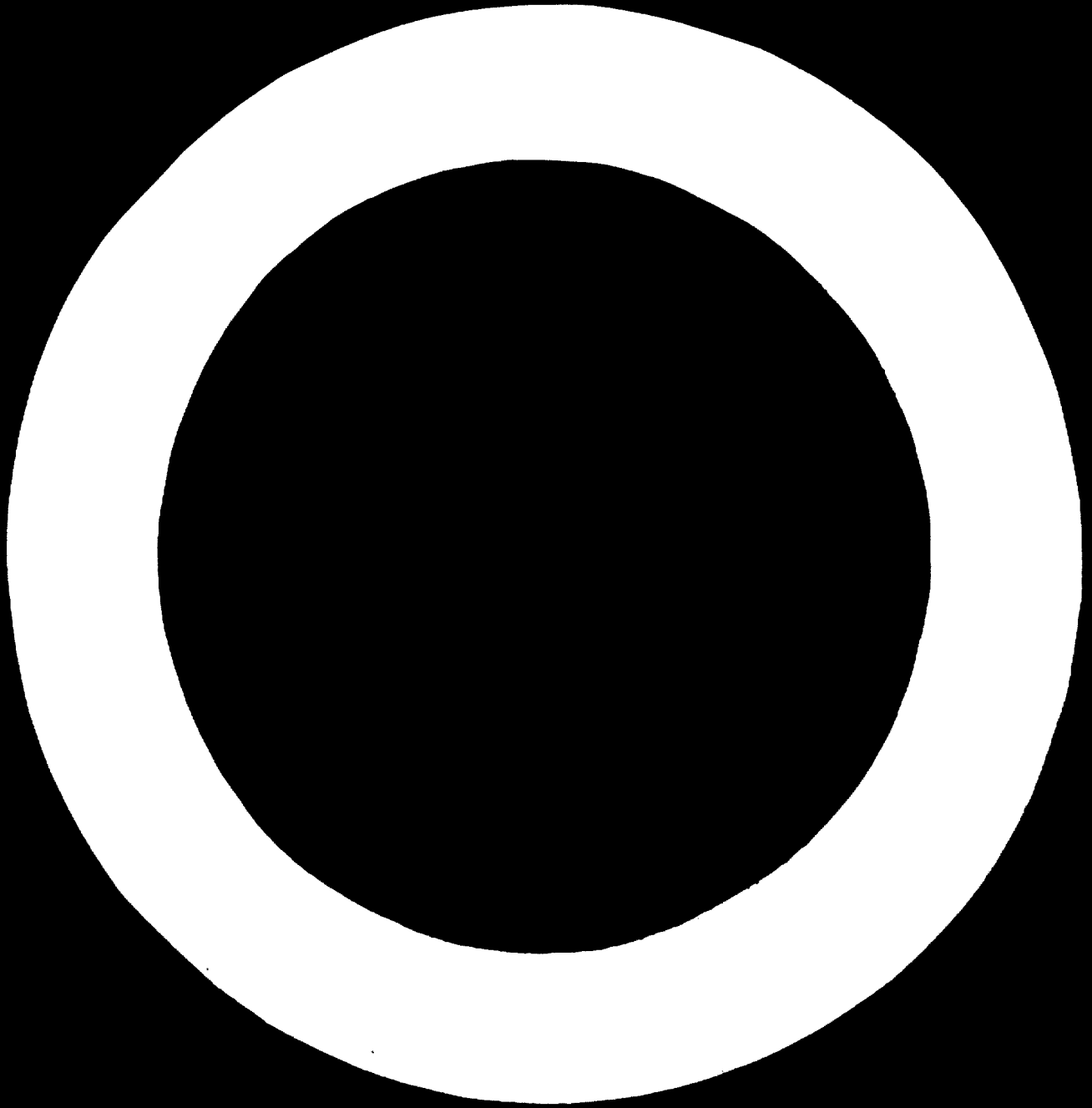
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Problems of Industrial Planning and Plan Implementation in the ECAFE Region

By the ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST

ALTHOUGH INDUSTRIAL planning enhances the possible success of an industry programme, it is a very complex process involving many requisites. This paper discusses the problems in the ECAFE area of industrial planning and plan implementation, the lack of sufficient precise tools of statistical analysis, and the need for more comprehensive techniques of programming and progress control. With reference to selected countries, the methods adopted for the evaluation of performance in relation to planned targets are examined, and the under-utilization of industrial capacity is discussed. This study also contains a brief discussion of the need for adequate manpower planning which is basic to the success of any industrial plans.

This paper was prepared by the ECAFE Secretariat as Chapter 2 of the study "Over-all Evaluation of the Progress and Problems of Industrialization in the ECAFE Region"; it was submitted to the Regional Asian Conference on Industrialization in Manila.

THE INDUSTRIAL PLANNING ORGANIZATION

THE GOALS OF planning and the methods and instruments of plan implementation vary according to the socio-political system in each ECAFE country. The planners in all of these countries recognize the need to set targets of economic growth for a specific period, to translate them into quantitative terms and to organize the resources for the achievement of these objectives. There is, however, a wide disparity in the methods and in the extent of detailed programming that is done. The inadequacies of planning, regardless of the economic system, become most apparent and most injurious in the industrial sector of the developing economies. The rapid and intensive development desired requires co-ordination of decisions in all sectors, whether such decisions entail the programming of state investments or the direction of activity in the private sector. The needs for adequate planning and direction of investment in the private sector and for co-ordination of the motives in private investment with the over-all economic objectives have been generally accepted in the region. Such co-ordination is naturally most essential in the industrial sector where the activities must be closely interrelated, where production links are constantly being formed and where any disequilibrium can have cumulative effects.

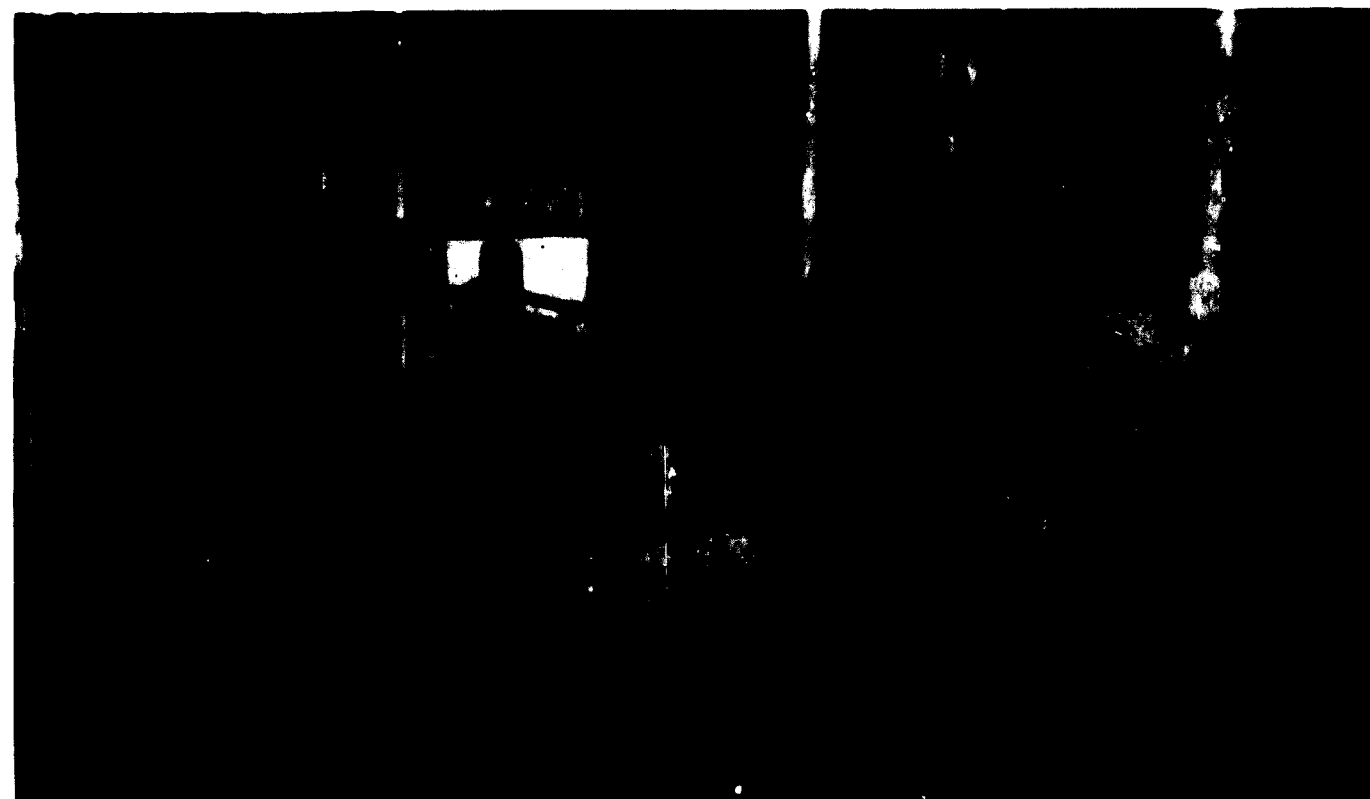
In whatever stage a developing country may be, the formulation and implementation of realistic plans of industrial growth require a planning apparatus and planning techniques which are of the highest quality. It is sometimes argued that the less developed countries should adopt

simple techniques in their planning; but, while the selection of techniques will be limited by various factors such as the level of statistical information, etc., it would be unwise to assume that countries which are less developed will not require the most precise tools for the analysis and development of their economic activities. When inadequate planning has resulted in an incomplete or faulty diagram of the economy, and of its projected growth, developing countries in the region encounter various problems in their programmes of industrialization, such as shortfalls in the growth of related sectors, or the growth of uneconomic activities in a particular sector. It is therefore advisable for the developing countries to perfect as far as possible their planning techniques as an important instrument for promoting rapid and sustained industrial growth.

Although a full discussion of this aspect cannot be attempted within the scope of this paper, it is pertinent to draw attention to two salient problems as they affect the industrialization programmes in the developing countries. In many countries the statistical data for the preparation of detailed programmes of development are not adequate. While the available data may be sufficient for a programme consisting of a few projects, the statistical background for the development of industry as a sector is incomplete. National income statistics are not compiled in some countries of the region. Capital formation data in the industrial sector are not readily available for a few countries including Afghanistan, Burma, Ceylon, India, Nepal and Pakistan. In a number of countries there is need to collect adequate information on the industrial sector itself; for example,



Coke ovens in iron and steel works, Jamshedpur, Bihar, India



Workers withdrawing billets from reheating furnace, preparatory to rolling in section mills. This modern steel mill is about 14 miles from Rangoon, Burma

information relating to the industry-wise contribution of value added, the import content of existing industries, the capital formation in the private sector including the small-scale sector, and the investment efficiencies in the industries. While such information may be available for collection in various organizations, its statistical processing in a centralized manner for the task of planning is not adequate. To quote a few examples, in India, "data on capital investment in industry are very inadequate"; in Nepal, "in the absence of a census of manufactures it is very difficult if not impossible to make an assessment of the capital investment in industries by sector"; in Afghanistan, "no data are available on national income, savings, or investment."¹ Because of the character of their economic activity and productive systems, the centrally planned economies as well as market economies such as Japan found it necessary to amass statistical data to acquire a total picture of their entire economy. This total picture ensures them that each investment decision is taken within a framework of comprehensive information and in co-ordination with related decisions. The statistical apparatus provides the material for planning and, where the material is incomplete, planning is inadequate. The preparation of plans in such detail will not be required by most of the economic systems in the developing region; but, even where the state sector is comparatively small, the planning authority needs comprehensive and accurate statistical data to guide the movement of the economy.

While almost all countries of the region prepare plans for the growth and development of their economy, the detailed planning and programming that is done for the industrial sector varies in quality and in extent. In many instances the plans are programmes of investment indicating an over-all rate of growth. They do not forecast the increase in net domestic product by sectors as a result of the investment, or, if they do so, they do not provide a detailed quantitative breakdown of the production targets by principal commodities. In some cases where the targets for public sector projects are given in detail, no projections of developments in the private sector industry are attempted. In such instances the links between planning and the practical efforts for realization of the objectives are tenuous. The elaborate planning and programming techniques in countries such as China (Taiwan), India, Pakistan and the Republic of Korea provide a graphic forecast of the economy and the industrial sector as planned year-by-year and are suitable to rapidly industrializing countries. The productive levels in each major industry, the consumer demand itemized in as much detail as possible, the material balances, the inter-industrial relationship, and the programme of imports and exports have all become essential parts of industrial planning. For example, the Republic of Korea's second five-year plan contains a programming of production in quantitative terms and in terms of value

added year-by-year, and gives details of the corresponding import-export programme, thus providing a detailed forecast of the foreign exchange position. China (Taiwan)'s third five-year plan gives similar projections for the economy while the plan is in operation (see table 1 and table 2).

The strategies of industrial development and the choice of investment in the industrial sector depend to a large extent on the presence of an adequately detailed plan of action, in short, a plan translated into programmes. In the context of rapid industrialization, investment choice must be guided by projections of demand in a continuously changing economy. Where growth of the market cannot be foreseen, it is natural that investment, particularly in the private sector, will be sluggish and will tend to minimize risks to itself. In such a situation, the flow of investment to the area for substitution of light consumer goods imports with an assured market and the simplest of technologies is an inevitable phenomenon; it has occurred to some extent in the private sector growth in Ceylon. On the other hand, where the future industrial inputs and outputs are forecast and where a pattern of future industrial activity and consumer demand is available as a reference, investment in the private sector is likely to be more vigorous. This has been evident in China (Taiwan) and Pakistan.

These comments direct attention to what has already been said regarding the effects of planning industry as an interdependent and interrelated production system. As an example, reference can be made to the framework of industrial planning in India where the Subject Branches in the Planning Commission and the Development Councils for selected industries examine the desired growth of branches of industry and plan for their development as an interactive whole. In countries at a less sophisticated stage of industrial planning and development, the approach is by projects related to the individual investment, whether it be a refinery, a large factory, a flour mill, or some other project; there is no attempt to plan in terms of configurations of related investments. Industrial planning in the majority of developing countries (the eight-year plan in Burma, the ten-year plan in Ceylon, the plans in Afghanistan and Nepal, the Philippines and Thailand) to a greater or lesser degree illustrate this approach. Ceylon has undertaken the re-organization of its planning machinery as a whole, including industrial planning. In the proposed scheme,² Industry Panels will plan in a co-ordinated manner for various groups of interrelated industries; the investment proposals of these panels will be evaluated by a Planning Unit for Industry, and will be finally incorporated into national plans.

The need for co-ordination of investment proposals and a thorough examination of inter-industrial relations becomes evident when one examines how the choice of a particular process can affect the economies of existing industry. The bleaching process in the textile industry may

¹ Quotations from Country Studies for the Asian Regional Conference.

² Country Studies for Asian Regional Conference.

be designed to use a by-product from the surplus chlorine in an existing caustic soda plant, or the soda ash process for caustic soda may be selected because it fits into a soda-ash, caustic soda, glass complex, and because chlorine consuming industries are few.

Thus the choice of investments and the evaluation of investment proposals in the field of industry become integral parts of industrial planning. Such an evaluation of individual investments for their net contribution to national income is possible only within a clearly planned framework of economic growth. Where such a framework is not available, evaluation of any industrial proposal will inevitably be of an *ad hoc* nature, and its final impact on national income and growth will be measurable only in approximate and vague terms. This was evident when rapid import-substitution took place in industries which gave immediate profits to the private investor. The short-term benefits of foreign exchange saving obscured some of the limitations that were inherent in the process, particularly during the "import-substituting" industrial growth in some of the developing countries in the region. In the absence of a framework within which individual investment proposals can be evaluated and without a comprehensive appraisal of their impact on the foreign exchange budget, industrial capacity has been built in relatively inessential and foreign exchange consuming areas, thereby aggravating foreign exchange problems.

A different example can be drawn from China (Taiwan) where the programme of industrial investment and production in the third four-year plan was subject to careful analysis in relation to its effect on the foreign exchange position of the country. The net recurrent foreign exchange saving and the period of recovery of the foreign component in the investments were calculated so that the country's commitments and their effect on the balance of payment were anticipated (table 1). The developing countries should give the highest priority to the improvement of their planning apparatus and the refinement of their methodologies to plan for optimal development; this is particularly applicable to the industrial sector.

PROBLEMS OF IMPLEMENTATION OF INDUSTRIAL PLANS

A brief review of performance in comparison with planned targets in some of the countries in the ECAFE region brings to light some of the failures and shortfalls in the implementation of industrial plans. The execution and management of the plans, as distinct from the plan formulation, make the severest demands on the scarce managerial resources of the developing countries. The wide discrepancy between achievement and objectives at the end of the plan period (the distinction is limited to the industrial programmes) has been largely due to failures in sectoral co-ordination and effective direction of the plan. In some instances, planned targets may have over-estimated existing capacities; but, allowing for this factor, the skill in assembling resources and ensuring that the execution of the

various components of the plan are correctly phased has a great deal to do with the final results of the plans.

The rate of industrial progress in developing countries is influenced significantly by their capacity and executive efficiency. The efficiency of their executive apparatus, from the highest level downwards, will generally determine the time required from the original proposal of a plant to its final commissioning. In many cases, the period is obviously excessive, even after considering the limitation in skills and resources, the time consumed in negotiations for aid, contract procedures, and the delays contributing to shortfalls in critical areas. In India the fourth steel plant and the growth of the chemical fertilizer industry illustrate these comments. In the Philippines work on the integrated steel mill began in July 1964 after six years of protracted negotiations for credit. In Ceylon, work has not yet started on the newsprint mill and the fertilizer plant which are both included in the ten-year plan.

The procedures for the inclusion of projects in a plan will vary from country to country. Generally the administrative delays, from the time feasibility surveys are undertaken until a project is accepted for implementation, are numerous in many developing countries of the region. The next stage, when engineering surveys and final project reports are prepared and contracts for supply of equipment and construction of plant are finalized, is often beset with complex administrative procedures involving the public sector. Data regarding the private sector are not available, but many of the countries report examples where additional capacity has been sanctioned for the private sector but has not been made available during the plan period. The construction period itself depends on the efficiencies of the construction industry, its capacity to programme a large volume of work in conformity with modern techniques of programming construction work, and its managerial and technical ability. At all these critical points of plan execution, a careful analysis of the methods of work and identification of the bottlenecks must be undertaken continuously to reduce the period of gestation of industrial activity in the developing countries.

Apart from the execution of the plan itself, the shortfalls in operating efficiencies in the new industries is another important factor in the disparity between performance and plans. Detailed information is not available on the under-utilization of capacities in the industries of the region; but table 2 gives some information for Afghanistan, Burma, Ceylon, China (Taiwan) and India. The under-utilization of capacity has been due to different causes, partly to foreign exchange difficulties resulting in a reduction of the imports required by industry, partly due to failures in sectoral co-ordination outside the control of the industries themselves, and partly due to inefficiencies within the industry resulting in output below rated capacity. The under-utilization of capacity, however, becomes a serious problem in a developing country which allocates its scarce capital to projects after a strenuous mobilization of its resources.

Table 1

CHINA (TAIWAN): FOREIGN EXCHANGE SAVING IN THE INDUSTRIAL SECTOR ESTIMATED IN THE THIRD FOUR-YEAR PLAN, 1961-1964
(Value in million U.S. dollars)

Industry	Foreign exchange component of capital requirements (per cent)	Foreign exchange saving in 4 years			Net saving	Cost of imported equipment	Exchange saving in final year 1964	Exchange saving in 1964 as per cent of cost of imported equipment (per cent)	Output capital ratio (1964 net output to total investment) (per cent)	Employment-capital rate (No. per million U.S. dollars)
		Increase in export of finished goods	Increase in import of raw material	Decrease of finished goods imports						
1. Grand total										
Including power	47	185.1	100.3	150.7	252.4	269.1	108.6	40	24	217 ^a
Excluding power	45	185.1	103.3	150.7	252.4	156.8	108.6	(6)	38	349 ^b
2. General chemicals	54	29.2	10.9	76.1	94.3	37.5	43.6	116	38	148
a. Fertilizer	57	-5.8	13.0	52.7	33.9	19.0	19.7	104	24	65
b. Alkalis and chlorine	40	—	1.3	5.6	4.4	3.5	1.8	50	33	166
c. Paper	57	14.1	-2.6	—	16.7	6.2	6.6	107	66	176
d. Plastics	76	16.8	4.2	—	12.6	3.2	5.7	180	83	687
e. Pharmaceuticals	60	—	-7.9	7.3	15.2	2.1	5.2	250	96	91
f. Leather	37	4.1	3.0	2.7	3.8	0.7	1.7	249	27	737
g. Other chemicals	42	—	—	7.7	7.7	2.9	3.0	102	12	24
3. Basic metal and machinery mfg.	59	11.7	15.5	54.0	67.2	43.4	29.4	68	37	95
a. Iron and steel	71	—	—	—	16.8	35.0	9.2	26	33	56
b. Aluminium	38	11.7	3.1	—	8.7	3.9	2.9	75	26	22
c. Machinery mfg.	29	—	2.8	26.1	23.3	2.1	9.5	45.2	48	316
d. Electrical machinery and appliances	36	—	9.6	27.9	18.4	2.4	7.8	320	70	252
4. Other industries	12	18.9	4.8	1.4	15.5	2.5	6.8	2.66	78	1,949
a. Handicrafts	4	11.2	1.6	—	9.6	0.3	4.3	1,237	132	4,384
b. Rubber and wood products	18	7.7	3.1	1.4	6.0	2.2	2.5	114	39	168

Source: Third Four-Year Plan.

^a 204 persons excluding power and handicrafts; 137 persons including power but excluding handicrafts.

Table 2
UNDER-UTILIZATION OF CAPACITY IN INDUSTRY IN FIVE ECAFE COUNTRIES

		Per cent
<i>Afghanistan</i> ^a (1963)	Capacity utilized in textile industry	43
<i>Burma</i> ^b (1963)	Capacity utilized in condensed milk factories	85.2
	Capacity utilized in oil mills	20.0
	Capacity utilized in hosiery industry	46.9
	Capacity utilized in fruit canning and preserving factories	59.6
	Capacity utilized in cigarette factories	75.2
	Capacity utilized in coir mills	51.5
<i>Ceylon</i> (1964)	Under-utilization of capacity in light consumer industry in the private sector during 1964 estimated at approximately 60 per cent	
<i>China (Taiwan)</i> ^c (1962)	Capacity utilization in cement industry	94.47
	Capacity utilization in sheet glass industry	91.37
	Capacity utilization in asbestos tile industry	87.30
	Capacity utilization in paints industry	31.40
	Capacity utilization in soap industry	53.88
	Capacity utilization in soda ash industry	61.58
	Capacity utilization in caustic soda industry	85.38
<i>India</i>	Under-utilization of capacity in industry is estimated at 17 per cent	

^a Country Study.

^b Economic Survey for Burma 1963.

^c Country Study.

These conditions emphasize the importance of machinery for effective and co-ordinated management of plans, including industrial plans, and the evaluation of efficiency and performance in industry. Many of the countries in the region have periodic appraisals of the progress on their plans, and other economic surveys which draw attention to weak links in their execution. These include annual surveys (Burma, China (Taiwan) and the Republic of Korea) and periodic appraisals of plan implementation (Afghanistan, India and Pakistan). Some countries have regular machinery built into the administrative structure for continuous review of their plans. India, for example, has a progress unit in the Plan Co-ordination Section of the Planning Commission which collects important data on the various programmes and presents them to the Commission. The National Planning Department of Ceylon has adopted a system of quarterly reporting on the progress on planned projects. In the Republic of Korea, the Office of the Economic Planning Board evaluates the progress of the plan and submits half-yearly reports on its results to the Prime Minister. In Pakistan, the Planning Commission is vested with the function of maintaining a review of the over-all progress on the plan, while the Planning Cell in the Central Ministry of Industries co-ordinates the activities under the industrial plan, prepares the investment schedules for the private sector, and examines and reports on the progress of all projects sanctioned in the private sector and the public sector. In the case of industry, an effective evaluation of progress made with the plan, to be meaningful and to enable the planning authorities to identify failures and shortfalls in given strategic projects and in sectoral co-

ordination, requires highly developed and refined techniques of progress control. India has devised what it terms "the line of balance technology" for a quick and effective evaluation of progress on individual projects. For the evaluation of progress in a whole sector, the adaptation of methods of programme evaluation and review will be necessary. The modern techniques of CPM (Critical Path Method) and PERT (Progress Evaluation and Review Techniques) which are largely relevant to individual projects could be appropriately adapted and simplified for use in progress reviews of industrial plans. What is required in many of the countries in developing regions is a detailed breakdown of plans into their component parts and the determination of their relationships, the identification of the critical points in the programme which can affect the over-all plan, and a continuous vigilance over these critical interrelations of the plan. These components are particularly relevant for the Public Sector Programme; but, even in the private sector for which targets are in effect forecasts and where the activity is not rigidly bound by the projected figures, the movement of the sector's activity in relation to projections can always be appropriately evaluated.

Some of the countries in the region have established machinery to evaluate the performance of industries and assess their efficiencies. The Government of India has two special bodies, the Committee on Plan Projects and the Programme Evaluation Organization. However, the large majority of the countries in the region do not maintain a continuing organization which, by the utilization of capacity, productivity and operating efficiencies, can keep

costs and economies in imports, etc., under review. Such a review would provide an over-all picture of the efficiency of different industrial branches in the economy. For example, it would assist the planning authorities to identify those inefficiencies which flow into industry from other sectors, such as transportation and power, and also isolate and give more specific attention to the inefficiencies in particular industries which impede the growth of the sector as a whole. For example, in Ceylon, the high cost of transportation and of power inflates the cost in industry; and, in an industry such as cement, this cost will affect competitiveness in the international market. China (Taiwan) in its industrial surveys, as pointed out earlier, collects detailed information on the industries in relation to capacity, utilization, productivity, financial ratios, etc. In the Republic of Korea, a continuous review of industry of a similar character is maintained. Ceylon is introducing a system of measurement of efficiency in public sector industries. Sufficient data are not available for the other countries of the region in regard to the machinery for evaluation. For effective evaluation of efficiencies, however, the norms of efficiency must be satisfactorily determined and, for this purpose, the exchange of information regarding standards of performance in the region and their comparison with the standards of advanced economies will be of great assistance to developing countries. It will enable them to deal more effectively with the high cost structure of some of their industries and the wide disparities that exist in costs and imports even among the developing countries themselves, such as the difference in costs of heavy chemicals between India and Pakistan, or costs of soda ash between Pakistan and Taiwan, and others.

MANPOWER DEVELOPMENT FOR INDUSTRIAL GROWTH

The problems of plan implementation in the developing countries focus attention on one of the more significant factors in the region's industrial growth—the availability of skilled manpower. The exact correlation between skilled manpower and development may not be easily determined, but the composite index prepared by Harbison and Myers presents an interesting basis for comparison between the developed countries and the developing ones. The availability of capital resources is in itself evidently of limited value if the manpower for the proper organization and utilization of these resources is not available in corresponding proportions. Under-utilization of installed capacities as well as delays in implementation have often had their sources in the shortage of skilled manpower, and one of the major problems of industrialization in the region is that of creating the skills in the proportion required for the programmes of industrialization that are envisaged.

"The major capital stock of an industrially advanced country is not its physical equipment, it is the body of knowledge amassed from tested findings and the capacity and training of the population to use this knowledge effectively." This comment from Simon Kuznets reiterates

the importance of the level of technology in a country's industrial growth, and its basis—the fund of trained skills within the country. This is well illustrated in the quick economic recovery of Federal Republic of Germany and Japan after the extensive destruction of their physical assets.

The index of human resources development worked out by Harbison and Myers on the basis of 14 indicators divides the countries into four levels of development (table 3). According to this classification, the majority of countries are at levels I and II, the Republic of Korea at level III and Japan at the level of advanced countries. The information on one of the key indicators—"scientists and engineers per 10,000 population" is given only for mainland China, China (Taiwan) and India. While China (Taiwan) shows 30 for this indicator, mainland China and India have 3.1 and 2.6. A straight comparison of these indicators between small and large countries is misleading as the larger countries with a smaller *per capita* cadre of scientists and engineers will still have in absolute terms a sufficient number of them to build a complex industrial base for development beyond the capacity of the smaller countries. But the index reveals the varying intensities in the application of science and technology which is the initiating force in industrialization, and the very wide disparities that exist between advanced countries and developing countries and among developing countries themselves.

Table 5 shows the numbers of professional and technical personnel for selected developing ECAFE countries and advanced countries. The paucity of technically trained personnel is evident from these figures. Developing countries have, however, not given the same detailed care to manpower planning as they have to other factors of development. The assessments of manpower needs for the implementation of plans including industrialization programmes have been ancillary to the projects themselves, and training of cadres is very often carried out only at the project level. The first few development plans in many of the countries of the region, including India, Pakistan and Ceylon, do not provide detailed manpower plans for the different branches of economic activity. The assessment of manpower needs and long-term manpower planning will of course be possible only when specific plans of development are available. Then, a more or less accurate projection of the demand for skills can be made for different sections of the economy and, in the case of industry, for different branches of industry. Such a demand projection for key categories of personnel is made in India's fourth five-year plan. These projections include forecasts for a few segments of industry as well, such as coal, iron and steel and power.

While training programmes have been prepared and extensive training facilities made available, China (Taiwan) has made no such forecast of manpower needs. In the case of the Republic of Korea, high priority has been given to the development of human resources for the execution of the plan. The first five-year development plan included a five-year technical development plan; for its preparation

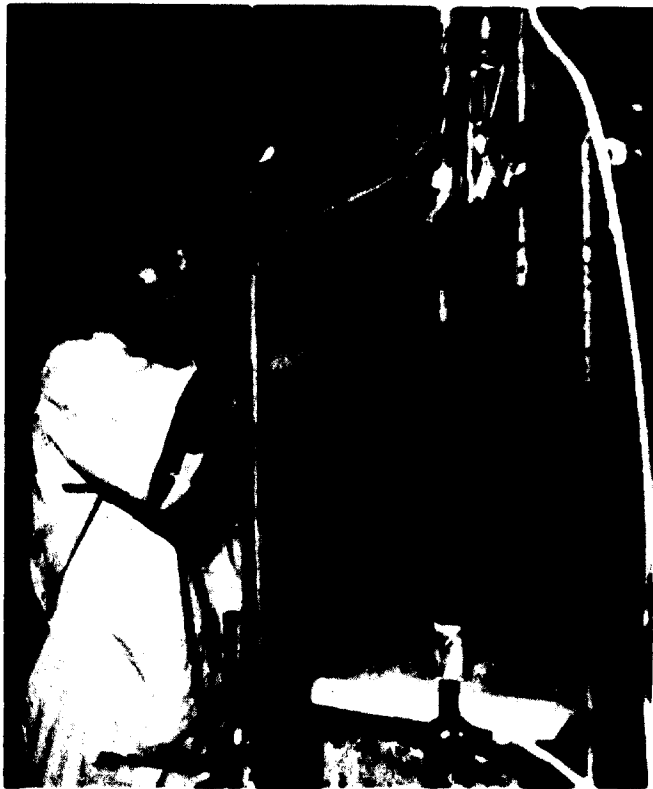
Table 3
INDICATORS OF HUMAN RESOURCES AND ECONOMIC DEVELOPMENT
(Average)

Indicator	Level I 17 countries	Level II 21 countries	Level III 21 countries	Level IV 16 countries
1. Composite index	3	21	50	115
2. NP per capita (\$US)	84	182	380	1,100
3. Percentage of active population in agriculture	83	65	52	23
4. Teachers 1st and 2nd level per 10,000 population	17	38	53	80
5. Scientists and engineers per 10,000 population	0.6	3	25	42
6. Physicians and dentists per 10,000 population	0.5	3	8	15
7. 1st level enrollment ratio (unadjusted)	2.2	4.2	6.2	7.3
8. 1st and 2nd level enrollment ratio (adjusted)	2.0	4.5	6.6	8.9
9. 2nd level enrollment ratio (adjusted)	2.7	1.2	2.7	5.9
10. 3rd level enrollment ratio	0.15	1.6	5	11
11. Percentage enrolled in scientific and technical faculties	2.4	2.8	2.6	2.8
12. Percentage enrolled in humanities, fine arts and law faculties	3.4	3.9	3.3	3.2
13. Public expenditure on education as % of national income	3.7	2.1	3.1	4.2
14. Percentage in age group 5-14	2.4	2.4	2.2	1.8

Source: Education, Man Power and Economic Growth: Strategies of Human Resource Development, by Harbison and Myers, 1963.

Table 4
INDICATORS OF DEVELOPMENT FOR ASIAN COUNTRIES

Country indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Afghanistan	1.9	50	85	3.3	na	na	4	4	1.2	0.14	21.3	33.7	na	na
Indonesia	10.7	131	75	29.4	na	0.2	39	39	7.3	0.7	22.6	30.9	0.8	20.1
Burma	14.2	57	na	na	na	1.0	31	45	10.7	0.7	40.9	46.2	3.6	23.6
Iran	17.3	108	80	24.6	na	1.3	26	2.8	11.8	1.1	16.3	47.4	na	23.9
China (Mainland)	19.5	73	69	24.0	3.1	2.6	36	35	14.2	1.0	55.7	na	na	20.6
Malaya, Former Federation of	23.6	356	56	60.2	na	1.8	58	62	21.0	0.5	26.0	34.9	na	26.9
Pakistan	25.2	70	65	20.2	na	0.1	20	29	16.2	1.8	29.9	42.4	1.2	na
Thailand	35.1	96	85	57.4	na	2.0	51	55	22.1	2.6	12.2	29.7	2.7	27.8
India	35.2	73	71	30.2	2.4	1.5	24	35	24.2	2.2	27.3	57.9	1.7	24.1
China (Taiwan)	48.4	161	63	52.3	30.0	3.6	63	69	30.9	3.5	39.6	25.1	3.3	23.5
Korea, Republic of	55.0	144	75	34.6	na	2.8	59	62	26.5	5.7	30.3	25.3	4.1	25.3
Japan	111.4	306	39	75.3	na	13.5	62	96	79.4	8.4	22.1	26.6	5.7	22.7



Research workers at Government subsidized laboratory in Indonesia study palm oil quality. Research is under way to make palm oil available to patients suffering from Vitamin A deficiency which results in night blindness among other ill effects

power requirements" by category. The Republic of Korea offers an appropriate example of detailed manpower planning as an integral part of an industrialization and economic development programme.

In Nepal a manpower survey was conducted in 1957 with the assistance of the United Nations Technical Assistance Administration (UNTA) and the International Labour Organisation (ILO). In the first five-year plan, special emphasis was given to training technical personnel and an average of about 5 per cent of the budget of each department over the five-year period was to be spent on training. However, the manpower planning in Nepal for the future needs of economic development was at the nascent stage, as only the immediate requirements for eliminating bottlenecks in the implementation of the plans had been studied.

In Ceylon, the Technical Education Commission 1961 stressed the urgent need for long-term planning of manpower resources. The training programmes were organized at the project level, but the co-ordination of education and training at different levels with the programmes of development were not undertaken on a comprehensive scale.

In Japan, the population census and employment status survey give detailed statistical information on the labour force of the country. Monthly labour force surveys report on the change in the situation on the basis of the first two surveys. In its medium-term economic plan, Japan has prepared estimates of the demand for skilled personnel

during the ten-year period. Because of the spectacularly high rate of expansion of the Japanese economy, the effective supply of skilled managerial and technical manpower to sustain the growth of the economy is one of the major problems.

In the Philippines, the National Science Development Board proposes to conduct a survey of technical manpower. Several surveys have been conducted to assess the training needs of the country. However, while recommending the establishment of training centres; these surveys do not identify the fields of vocational training and technical skill and the extent of the training required.

In Burma, Malaysia and Thailand, programmes of technical training have been undertaken and training facilities have been extended through the establishment of additional institutions. Manpower surveys and forecasts of manpower in the various segments of the economy on the other hand have not been carried out. In Malaysia and Thailand, such detailed manpower programmes will be possible only within a more elaborate framework of planning in which the development programmes of the various sections are more clearly identified.

This brief review of the manpower development in the industrializing countries of the region stresses the importance of comprehensive manpower development programmes as part of industrialization plans. External assistance has been available to many countries for training personnel but, in order to use such assistance purposefully, the specific manpower needs of the country must receive prior assessment. The major role of manpower in the programmes of external assistance is seen in the early phase of industrialization in China (mainland); the project assistance given was of an integrated kind; there was, as it were, a transfer of the main factors, including skilled manpower, required for a speedy break-through. In the rapid and extensive creation of the technical manpower required for industrialization, the advanced economies could render aid to the developing region; and, with more comprehensive manpower planning in the region, a massive effort could be made with the assistance of advanced countries to create the necessary fund of technical and managerial skills.

DEVELOPMENT AGENCIES IN THE INDUSTRIAL SECTOR

The agencies for the implementation of industrial plans in the developing ECAFE countries, and their relative importance are, in the last analysis, determined by the economic systems of the countries. The countries in favour of private enterprise in industry have permitted the State to enter industrial activity largely as a pioneering agency and an agency of development. The final objective is the transfer of these industrial enterprises to the private sector after they have established their viability. This procedure has been adopted in Pakistan and to some extent in China (Taiwan) and the Republic of Korea. In the Philippines, Malaysia, Thailand, Nepal and Afghanistan, industrial investment is left to the private sector, the State functioning

mainly in a promotional role. In Ceylon, Cambodia and India, the industrial sector contains the features of a mixed economy, and includes state investments in varying proportions. In the mixed economies of India, Ceylon and Cambodia, the areas for investment by the public and private sectors have been demarcated mainly on the principle that industries which are strategic to national development and have a commanding influence over the growth of the economy should be in the state sector. The economic system contemplates the co-existence of an economically powerful public sector and a vigorous and expanding private sector. Burma's recent approach to ownership in industry as declared in the Industries Nationalization Law, 1964, indicates that the private sector in that country will diminish in importance, and that productive enterprise will be predominantly state-owned. In China (mainland), North Vietnam and North Korea, all important economic activities are managed by the State.

Regardless of the ideological framework and the system of ownership adopted by the various countries, the process of industrialization in the developing countries indicates in no uncertain terms the major role that the State assumes. Even when the countries have attempted to give the dominant role to the private sector, the State has played the role of mid-wife for a large number of industries for which investment was not forthcoming, and resources had to be organized at a level not within the capacity of the private sector. The Industrial Development Corporations of Pakistan illustrate the role of the State in pioneering development in the industrial sector in order to create a self-reliant and viable private sector in industry. The West Pakistan Industrial Development Corporation has completed 70 industrial projects at a cost of 860 million rupees. The total investments of the East Pakistan Development Corporation totalled 837.7 million rupees at the end of 1963-1964. Twenty-four State projects in Pakistan had been converted into public companies with a paid-up capital of 560 million rupees.³ In the second five-year plan, public sector investment is in the region of 1,496 million as against 4,304 million in the private sector. In the third plan the proposed investment in the public sector is 4,750 million against 8,300 million rupees in the private sector.⁴

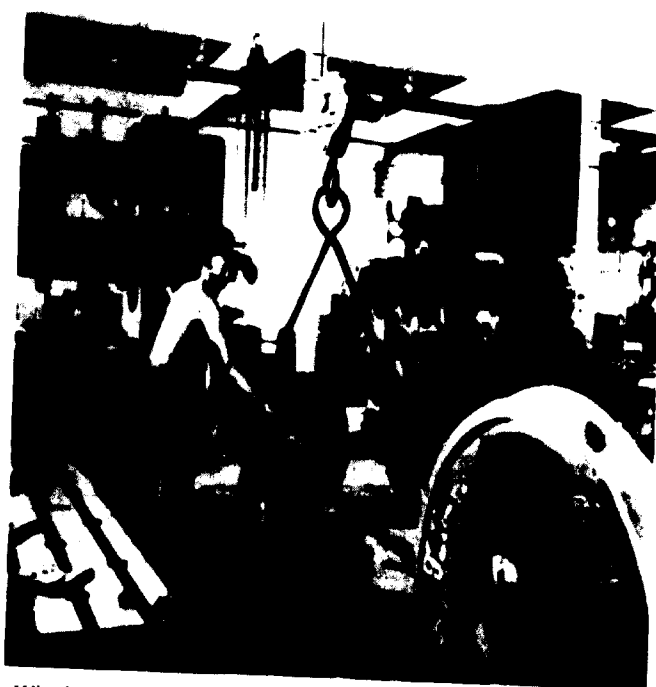
In China (Taiwan), the government investment has covered not only public utilities and services but also a number of productive enterprises, such as the Taiwan Sugar Corporation, the Taiwan Aluminium Corporation, and the Chinese Petroleum Corporation. The industrial output of the public sector amounted to 31.4 per cent of the total in 1964. Its share had declined from 60.5 per cent in 1952.⁵

In both countries it has been demonstrated how the process of industrialization can be accelerated by the active enterprise of the State; and that, even where private sector

³ Country Study for Asian Conference on Industrialization.

⁴ Outline of the Third Five-Year Plan.

⁵ Country Study.



Wheel repair shop at the central workshops of the State Railway of Thailand near Bangkok, Thailand



Forestry research in the Philippines. A local technician is shown here checking a paper machine which produces wrapping paper from sulfate pulp

ownership is the objective, the private sector must be supported by the State and developed as an entrepreneurial class.

Between the two extremes of a predominantly private sector industry and state-owned industry, the mixed economies have problems of their own. Even in these mixed economies, the industrial output of the private sector claims by far the major share of total production. The structure of ownership in India's industrial sector can be ascertained to some extent from the pattern of investments in its three plans. In the first plan, the investment was predominantly

in the private sector, the public sector being allocated only 600 million rupees or 15 per cent of the total for industry. In the second plan, nearly 48 per cent was allocated to the public sector; and, in the third plan, 51 per cent.⁶ The ten-year plan in Ceylon projects an investment of 1,280 million rupees in the public sector and 530 million rupees in the private sector. In the actual implementation of the plan, however, the investment in the private sector since 1961 has exceeded the target for the period. In Cambodia, the public sector investment in industry up to 1964 has been approximately 1,414 million riels and, in the private sector, 2,769 million riels for the period 1955-1959. A number of enterprises with a capital of 434 million riels, including a cigarette factory and a fishing and canning enterprise, are owned jointly⁷ by the public sector and the private sector.

Uncertainty concerning the future of the private sector can affect the rate and scale of investment of the private *entrepreneur*. While the forms of ownership of industrial enterprise are in the final analysis a socio-political choice, it must be noted that, whatever agencies of development the country may choose, whether the private or public sector, its policies must be defined with adequate clarity and its objectives explicit enough to ensure that each sector knows its distinctive role in the growth of the economy. The Government must strengthen and maximize the effectiveness and confidence of the agency or agencies it selects.

Most countries of the region have attempted to create a suitable investment climate for the private sector through concessionary taxation, protective and preferential fiscal measures, and credit and financing institutions. Tax exemptions ranging from two years to ten years are granted to approved or "pioneer" industries. Pakistan has made the tax holiday an instrument to regulate the location of industry by providing for tax holidays on a scale ranging from two to six years depending on the location. Nepal, in its Industrial Enterprise Act of 1961, offers new industries tax exemptions for ten years. The Act also contains a provision to guarantee 5 per cent profits for any specified iron industry for a period of five years. Most of the other countries restrict the tax exemption to five years. Rebate on investments in approved industries are offered by most countries of the region. New industries are generally protected from competition from imports, and also from an excessive inflow of investments into any given industry.

The conditions, however, of the private enterprise sector in a developing economy must be so defined and regulated, that its growth at no stage becomes inimical to the over-all development of the economy. One aspect of private sector growth receives comment in Pakistan's outline of the third plan. "In a period of rapid economic growth in which private enterprise has a major role to play, some concentration of economic power and wealth is unavoidable because the process of capital formation depends mainly on

corporate profits, and it is easier for well-established firms to expand their size and enter new fields of enterprise. But the growth of large firms or industrial groups is useful only up to a certain point. Carried too far it can expose the social and political structure to new strains and tensions which may in the long run adversely affect the entire development effort." In Pakistan, the Capital Issues Act is employed as an instrument for control of the capital structure of private sector enterprise. Companies with capital above two million rupees are persuaded to change their status to that of public companies. In this way, the medium of capital issues is used to broaden the base of share holdings. Fifty per cent of shares offered to the public are reserved for individual holdings not exceeding 100; this is intended to ensure participation by middle-class investors. Pakistan's policy statements focus attention on the political and social factors which underpin any programmes of economic development. In such a context, the structure of ownership itself must be such that it does not interfere with the planned objective of mobilizing national effort on the broadest possible base.

China (Taiwan) draws attention to a problem which is the reverse of what has been discussed. It is reported that one of the impediments to the promotion of private investment is the preponderance of the traditional owner-manager system and the narrowness and instability of the stock market. These conditions militate against the development of big modern corporations which can increase the efficiency and pioneering capacity of the private sector.⁸

The problems that are part of the growth of the private industry sector under conditions of development are too complicated to be discussed comprehensively in this paper. But attention should be drawn to the problems of pricing and their inflationary impact on the economy and on the cost-structure of industry itself. A high cost structure in industry is likely to occur in the early stages of industrialization and will reflect the over-all factor costs in the economy. However, over and above these costs the protected markets enjoyed by industries permit a raising of the general price-level both for the consumer and for other industries in the case of intermediate goods, thus generating an inflationary process which will retard growth. In these circumstances, measures for price control and stabilization are proposed by some of the countries in which the problem is acute. In a recent study of the problem in India, proposals have been made for the establishment of machinery for a continuous review of the price level and for necessary stabilization of prices.

The problems of the public sector in the region have been primarily those of managerial inefficiencies. The early experience with state-owned enterprise in many of the developing countries has frequently been unfortunate; but both Burma and Ceylon, where the problem was most pronounced, are reported to have overcome the initial

⁶ Country Study.

⁷ Country Study.

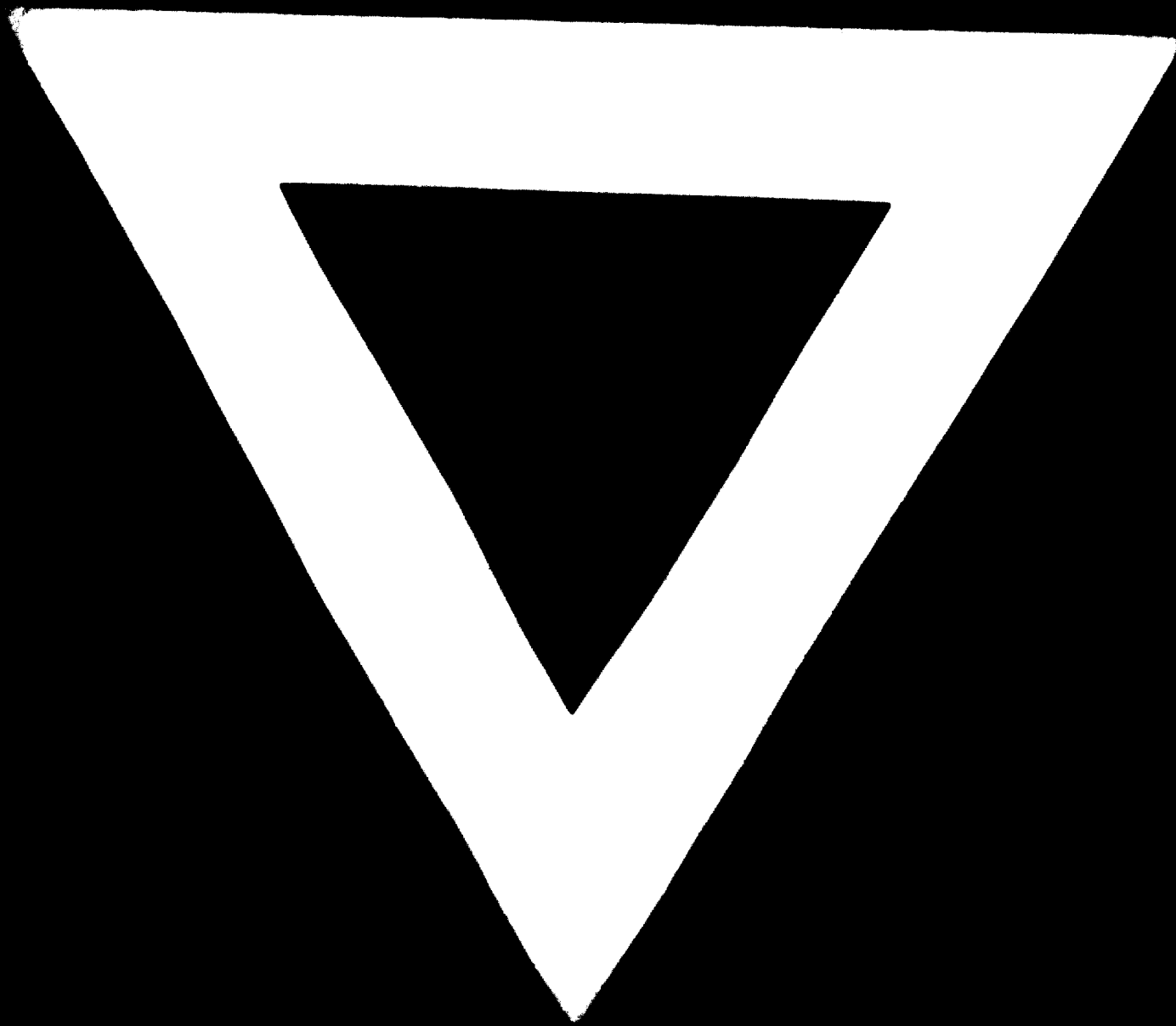
⁸ Country Study.

difficulties, and to be operating the majority of the state enterprises profitably. Public sector enterprise in the developing regions has leaned heavily on government practice and procedure, and created conditions which inhibit operations in commercial and industrial lines. Public sector enterprise in a developing economy, unlike nationalized undertakings or public utilities in developed countries, is a pioneering agency and is employed as an instrument of development. Its characteristics will vary according to its political and economic environment, according to whether its main task is one of pioneering for the private sector as in Pakistan, or whether it is a permanent element in a mixed economy, or a part of an integrated state-owned economy. In a mixed economy, the problems of the public sector require careful analysis. It must find appropriate substi-

tutes for the ideological drive given by the state-owned system, or the individual enterprise and profit motivation given by the private sector.

Progress in industrialization is being achieved in the ECAFE area. It is important, however, that all of the basic tools be employed in accelerating the industrial process so that the structure being developed will be economically sound and broadly oriented. The strategies of industrial planning, the selection of investments which are growth stimulating and product linking, the implementation of well-conceived industrial plans and techniques which permit periodic progress evaluation, the application of the techniques of manpower development, the development of capital-saving technologies, are only a few of the avenues leading to a healthy industrial development.





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