# Underemployment in Asia
# II. Its Relation to Investment Policy

by

Chiang HSIEH

*International Labour Office*

*In the first part of this article, which appeared in the June number of the* Review, *the author suggested that underemployment could usefully be classified—according to the technological level envisaged—under three headings: visible, disguised and potential; and that such a classification might then be used as a guide in planning economic development. This leads him, in the concluding part of the article printed below, to consider how existing and subsequent programmes of capital investment in Asia may overcome underemployment by creating new jobs in industry and agriculture.*

THE creation of capital assets in the form of productive equipment and facilities is an essential feature of economic development. For Asian countries its social objective is twofold: *(a)* to create new employment opportunities for workers at present unemployed or underemployed, and *(b)* to raise the level of productivity and national output and, consequently, standards of living both now and in the future.

The social objective of capital formation is thus much broader than the mere provision of employment. It is true that with additional capital equipment, additional employment brings about additional output. To that extent employment creation and output creation are practically synonymous as far as the social consequences of capital formation are concerned.

This is, however, by no means the whole story: the relationship between these two aspects of capital formation is in fact a complicated one. First, given the amount of capital resources invested and

the resultant increase in output, the increase in employment which results will vary with the ratio between labour input and capital input in the projects to be undertaken. This in turn will depend largely on the technical requirements of the projects and on the relative prices of factors of production prevailing in the countries concerned. Second, if the major social objective of capital formation is to increase national output (including services), then the fields in which new employment opportunities are to be opened up will depend in the first instance upon the kinds of production that are to be expanded in particular under the programme of capital formation. Third, the new employment opportunities which will be created as a result of capital formation will form a pattern in time (the flow of new employment opportunities may begin slowly and rise later or may progress at a steady rate) and this pattern will be determined by the particular structure of capital formation which the countries plan to create. Finally, it should be noted that the process of capital formation, much of which consists of construction works of various kinds, itself provides opportunities for employment. The extent to which employment may be so created, however, varies considerably according to the nature of the materials and equipment used, the proportion of materials and equipment to be imported from abroad, and other factors.

In the following pages an attempt is made to examine briefly some of these broader social aspects of capital formation in Asia on the basis of the present investment plans of the countries. However, these plans are by no means complete. In some countries, over-all plans are still in a preparatory stage and, in most countries where comprehensive programmes of capital investment have been worked out and are being put into operation, the programmes are confined primarily to the public sector of the economy. The observations to be made below are, therefore, based on fairly limited information and are subject to revision.

The planned distribution of public capital investment among various branches of development in certain Asian countries is shown in table I. Several significant features of the investment may be noted from this table. First, the largest portion of the planned public capital expenditure is to be devoted to agriculture and to transport and communications. Second, in some of these countries social investment in health, education and housing also forms a substantial part of the planned public capital expenditure. Third, the amounts allocated for the development of industry and mining are relatively small; even in Pakistan, where industrial development is given greater emphasis, the percentage of planned public capital expenditure allocated to this branch of development is still less than 20 per cent.

TABLE I. PLANNED PUBLIC CAPITAL INVESTMENT AND ITS DISTRIBUTION IN CERTAIN ASIAN COUNTRIES

## A. The Colombo Plan

| Branch of development | India | | Pakistan | | Ceylon | | Malaya and Brit. Borneo | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | £ m. | per cent. | £ m. | per cent. | £ m. | per cent. | £ m. | per cent. | £ m. | per cent. |
| Agriculture . | 456 | 33 | 88 | 32 | 38 | 37 | 13 | 12.1 | 595 | 32 |
| Transport and communications ... | 527 | 38 | 57 | 20 | 22 | 22 | 21 | 19.5 | 627 | 34 |
| Fuel and power ..... | 43 | 3 | 51 | 18 | 8 | 8 | 20 | 18.7 | 122 | 6 |
| Industry and mining . | 135 | 10 | 53 | 19 | 6 | 6 | — | 0.2 | 194 | 10 |
| Social capital .... | 218 | 16 | 31 | 11 | 28 | 27 | 53 | 49.5 | 330 | 18 |
| Total ..... | 1,379 | 100 | 280 | 100 | 102 | 100 | 107 | 100 | 1,868 | 100 |

Source: COMMONWEALTH CONSULTATIVE COMMITTEE: *The Colombo Plan for Co-operative Economic Development in South-East Asia* (London, H.M. Stationery Office, 1950), p. 42.

## B. Proposed Government Outlay on Capital Expenditure in Indo-China and the Philippines

*(in million U.S. $)*

| Country | Period covered | Agriculture, fisheries, forestry, livestock and irrigation | Transport and communications | Electric power | Industry |
|---|---|---|---|---|---|
| Indo-China .... | First five years | 141.0 | 137.9 | 35.0 | 47.5 |
| Philippines ... | 1950-1954 | 14.8 | 18.8 | 2.5 | 5.6 |

Source: Figures for these two countries are quoted from UNITED NATIONS ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST, Committee on Industry and Trade, Third Session: *Industrial Development and Planning* (Document No. General E/CN11/I and T/29, 9 December 1950), p. 60. The original sources were as follows: Indo-China—estimates given by the Subcommission on Modernisation of Indo-China, 1948; Philippines—annual report of the National Economic Council.

This particular pattern of capital formation is based on the realities of the present economic situation in Asia. In many Asian countries expansion of agricultural output is a matter of the greatest urgency. To raise, or indeed to maintain, the standard

of living of the population, the first need is to increase the supply of food. The basic common factor which makes the food problem urgent is the growth of population. Other important contributing factors are the secular decrease in agricultural yields and the undue dependence upon imports of food grains which causes a serious drain on foreign exchange.

The next major fields of capital formation lie in the development of transport and power. In regard to transport it should be mentioned that in most Asian countries a considerable part of the planned capital expenditure allotted to transport is intended to restore present facilities of transport and communications to normal efficiency after long years of wear and tear and absence of replacement. In some countries the work of repairing physical damage done by the war still remains to be completed. Thus the net addition to transport equipment and facilities envisaged in these plans is much less than the figures of total capital outlay would suggest. Such new facilities and additional equipment as are planned are designed to speed up the movement of men and goods between ports and hinterland and between cities and countryside. They are a necessary counterpart to industrial and agricultural development.

The planned development of electric power in the region goes much further than the relief of the present power shortage ; it is

TABLE II. CAPACITY OF POWER PLANTS UNDER CONSTRUCTION OR PLANNED IN CERTAIN ASIAN COUNTRIES

*(in thousands of kilowatts)*

| Country | Thermal power | Hydro power | Diesel power | Total | Present existing capacity |
|---|---|---|---|---|---|
| Burma . . . . . | 10.0 | 30.0 | 0.5 | 40.5 | 36.8 |
| Ceylon . . . . . | — | 120.0 | — | 120.0 | 26.5 |
| Fed. of Malaya . | 80.0 | 100.0 | — | 180.0 | 101.2 |
| Hong Kong . . . | 55.0 | — | — | 55.0 | 109.5 |
| India [1] . . . . . | 901.7 | 1074.3 | 36.0 | 2012.0 | 1537.1 |
| Indonesia [1] . . . | 14.5 | 101.5 | 18.4 | 134.4 | 140.4 |
| Pakistan [1] . . . . | 20.0 | 212.0 | 25.0 [2] | 257.0 | 75.3 |
| Philippines . . . | — | 271.0 | — | 271.0 | 128.6 |
| Singapore . . . . | 150.0 | — | — | 150.0 | 37.0 |
| Thailand . . . . | 12.7 | 14.4 | — | 27.1 | 30.0 |

Source : UNITED NATIONS ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST, Committee on Industry and Trade, Third Session : *Electric Power Resources and Needs for E.C.A.F.E. Countries.* (Document No. General E/CN11/I and T/32, 24 December 1950), p. 44.

[1] Major schemes only. [2] Approximate.

designed to prepare the way for future industrial development. An outstanding common feature of the power programmes, which are shown in table II, is the emphasis on hydro-electric power as a result of the limited potential supply of coal and the abundance of water resources in many Asian countries. Hydro-electric power is to be developed mainly by multi-purpose projects in combination with irrigation and flood control.[1]

Since the purpose of the projects is to stimulate industrial development, the power produced must be available at reasonable cost. In view of the heavy capital expenditure involved, it is therefore important to estimate the power load that may be expected in the course of industrial development, as the rate at which this grows will be an essential factor in determining the future cost of power to the user. " In India it was estimated that every rupee invested in power projects required three rupees for industrial equipment and domestic and public appliances. In Pakistan another form of the same type of estimate arrived at a figure of Rs. 7,000 in industrial equipment for every kilowatt of installed capacity.[2] This suggests the need for close co-ordination between power development and the development of industries.

In the Asian countries social investment in health, education and housing is obviously at least as important as investment in equipment for production. It is well known that the present standards of health, education and housing in those countries are extremely low. The aim of devoting substantial amounts of capital expenditure to these fields of social investment is not only to bring about immediate increase in human welfare within the limits of available economic resources but also to increase the effectiveness of labour, which is the most valuable of all economic resources. In this respect the emphasis on technical training and research in the social investment projects deserves special attention.

As regards the development of manufacturing industries it should be noted that, although only a small proportion of the planned public capital expenditure is allotted to this field, numbers of concrete industrial projects are being prepared or carried out in different Asian countries under government auspices. Among consumer goods industries, the most important projects relate to the cotton textile industry. Priorities are also given to industries processing local raw materials. The projects relating to producer goods industries are for the most part incorporated in the over-all programme of development. Thus, in order to expand agricultural

[1] In table I (A) the capital outlays on hydro-electric power projects are included in the figures for agricultural development.

[2] *Electric Power Resources and Needs for E.C.A.F.E. Countries, op cit.*, p. 47.

production, the majority of the Asian countries are making special efforts to develop the chemical fertiliser industry. To meet (at least in part) the anticipated increase in demand for construction materials such as iron, steel and cement, several of the countries are preparing plans to initiate or expand local production of such materials.[1]

What are the implications of the above policy of capital formation in Asia as regards increased employment opportunities ? While a definite answer to this question cannot be given without more detailed factual information, some general observations may be made.

So far as can be concluded from the pattern of planned public capital expenditure, it appears that a large proportion of the new employment opportunities to be created for existing agricultural labour will still be in agriculture. The capital investment to be undertaken in agriculture consists mainly of irrigation works designed to bring more land under cultivation and more of the existing cultivated land under irrigation. The Colombo Plan, for instance, envisages a total increase of 13 million acres of land under cultivation and a total increase of 13 million acres under irrigation when the programmes of all the participating countries are completed.[2] A shift of agricultural population from land now in use to newly developed lands is expected to follow. The extent to which this shift will take place depends partly upon the average size of the family holdings planned for settlers and partly on the degree of mechanisation which the governments plan to introduce. On the existing cultivated land the agricultural population is also likely to be more fully and productively employed, partly because the excess labour will be to some extent reduced by migration to new land and partly because with the improvement of irrigation more labour time can be productively spent on land now in use.

With regard to the opportunities for industrial employment, it may be noted that the amounts to be added to manufacturing plant and equipment, as envisaged in the present plans of capital formation, are very small and are capable of equipping only a negligible fraction of the existing surplus labour. Indeed it can hardly be otherwise, since the limited capital resources available to these countries are to be concentrated chiefly on basic development. Investments in power and transport and social investments are given high priority, because without such investments it will be difficult for manufacturing industries to grow.

[1] For a more detailed account of the various industrial projects undertaken or in preparation in Asian countries, see *Industrial Development and Planning, op. cit.*

[2] *The Colombo Plan for Co-operative Economic Development in South and South-East Asia, op. cit.*, p. 44.

In terms of time sequence it would therefore seem that the creation of opportunities for industrial employment will fall mainly in the next stage of capital formation after the current basic developments have been completed. One important problem in this connection is the choice of the new industrial structure most appropriate to the economic and social conditions of the countries concerned, having regard to capital requirements and the potentials for the creation of additional output as well as employment. Broadly speaking, the new industrial structure in most Asian countries is likely to consist of three major sectors: *(a)* rural industries designed primarily to provide part-time employment and supplementary income for agriculturists; *(b)* small-scale industries; and *(c)* large-scale industries.

The social importance of rural industries in Asian countries is well known. Small-scale industries are both economically and socially desirable in those countries because their capital and skill requirements are low. For the same amount of capital investment such industries can provide more employment than large-scale industries. Furthermore, owing to the low cost of labour relatively to the cost of capital equipment, there is a considerable range of products that small-scale industries, when modernised and reorganised, can produce at a substantially less unit cost than the heavily capitalised large-scale industries.

On the other hand, large-scale industries are also necessary, because for a number of products, particularly capital goods, the technology of production is such that only capital-intensive and large-scale producing units can secure low costs of production. The essence of industrial planning is to achieve a sound balance of development between these groups of industries. More specifically, the problems involved are, first, to determine the kinds of products which can be most economically manufactured by each group; second, to work out ways and means of co-ordinating their development; third, to devise effective measures to promote entrepreneurship in each group of industries; fourth, to develop the best methods of expanding investable funds without causing price inflation, and of directing them to the respective groups in required proportions; and lastly, to prepare plans to ensure that the various types of industrial plants and equipment to be created and the industrial skills to be developed by training are in conformity with the needs of the planned new industrial structure.

This new industrial structure, when formed, will provide industrial employment for the surplus agricultural labour. In order that new opportunities for industrial employment may continue to expand, it is necessary that the planned new industrial structure should be broadly based, and that different industries should grow

simultaneously so that the increased output in each industry can be matched by the increased demand for the products of that industry caused by the expansion of employment and income generated by other growing industries. In this connection it should be emphasised that a continuous increase in per capita agricultural income will in itself be an important factor making possible a continuous increase in domestic demand for industrial products and hence a continuous expansion of industrial production and employment.

In view of the special importance attached to the development of small-scale industries in many Asian countries something should be said perhaps of the needs of this type of industry. The extent to which decentralised small-scale industries can be developed with economic advantage depends, in the first place, upon the availability of cheap electric power. One main objective of the multi-purpose projects is precisely to create this favourable cost condition. A further step in planning is, therefore, to prepare concrete schemes for the establishment of a transmission network so that the power generated can be distributed to distant localities, particularly the rural areas. The mere availability of power, however, does not ensure that the price of electricity will be low; as already indicated, its cost to industry is governed largely by the load factor. The latter depends, in turn, upon how quickly industries will develop to make full use of the increased generating capacity. This consideration suggests the particular importance of mapping out, promptly, detailed regional programmes for the development of small-scale industries as complements to the multiple-purpose projects. If such programmes can be rapidly carried out as soon as power becomes available, then cheapness of power will be assured and this will itself provide a stimulus to further development of such industries.

A basic social consideration in favour of the development of small-scale industries is that for the same amount of capital investment they can provide more employment opportunities than large-scale industries. On the other hand, net output per worker is likely to be smaller. The difference between these two types of industries in net output per unit of capital is, however, much less certain, depending upon the particular quantitative relationship between *(a)* the number of workers employed per unit of capital and *(b)* net output produced per worker for each type of industry. From an economic point of view the method of production to be preferred for a given product will clearly be the one by which each additional unit of capital brings the largest increase in output. This consideration is especially important for the Asian countries, where capital is the most scarce of all productive factors. It is for this

reason that the prospective role which small-scale industries may justifiably play in the new industrial structure of those countries will be determined, in large measure, by the extent to which capital-saving innovations are applied to these industries. The essential nature of such capital-saving innovations is to develop new methods of production—technical as well as organisational—which will increase the output per unit of labour without at the same time reducing the number of workers employed per unit of capital. The output per unit of capital will then increase. If all the possibilities for such capital-saving innovations are fully explored and a large number of them are introduced, it is possible that a new type of industry—radically different both from the present cottage and handicraft industries and from the large-scale factory industries —may emerge which, for the same amount of capital investment, can at the same time produce more output than the former and provide more employment than the latter.

The above employment-creating effects of the current programmes of capital formation in Asia will be fully felt only after the programmes have been completed. It now remains to consider their immediate effects on the employment situation. Judging from the financial estimates there can be little doubt that the execution of these programmes will itself create a large volume of employment. A necessary part of the planning will, therefore, be to estimate on the basis of the engineering data for various projects the approximate labour force required for the fulfilment of these programmes. Such estimates will, of course, need to be broken down according to the different types and grades of skill required, so that appropriate arrangements for training can be made. Another problem confronting planning authorities is to devise appropriate methods of mobilising the necessary labour force to man specific projects in various localities. In localities where there is no chronic surplus of agricultural labour, large-scale construction works may draw so much labour away from the land as to reduce seriously local agricultural output. In such cases part of the necessary labour force will need to be recruited from other localities unless it is possible simultaneously to introduce labour-saving methods of cultivation in these localities.

Certain kinds of construction projects that are essential for the expansion of national output mainly require unskilled labour and use relatively little of the scarce resources. When efficiently organised such projects should be able to provide employment for a large number of workers within a short period of time. An example is the Huai River project now in progress in China. During the first phase of this project, which consisted chiefly of building earth dykes and dredging river beds, employment was

created in the first eight months (November 1950-July 1951) for 2.2 million peasants who in many cases would otherwise have been on relief as a result of the flood damage.[1] The second phase of the project, begun in the latter part of 1951, should make it possible to eliminate flooding in the Huai River valley completely and to provide water for the dry areas ; and a similarly large labour force is required for its execution.

Finally, it should be pointed out that, unlike China's flood control work of 1950-51 which resulted in an almost immediate increase in food production, there are many types of capital construction that will take considerable time to come to fruition. During the period of construction the resultant increase in employment will create no additional output of consumer goods, but labour income will increase so that the effective demand for essential consumer goods will also increase. The immediate impact is therefore likely to be a shortage of essential consumer goods. Among these food is likely to be important, since under present economic conditions in the Asian countries a given increase in labour income is likely to increase the demand for food more rapidly than demand for other essential consumer goods. One important problem created by the acceleration of capital formation will therefore be to ensure that there is a sufficient marketable surplus of food available to meet the needs of workers who are newly employed, directly or indirectly, on various projects of capital construction. Here again it is primarily the responsibility of governments to maintain the stability of food prices, to see that food is efficiently procured and equitably distributed, to encourage food production, and to arrange for imports of food financed by foreign loans whenever necessary. Similar measures may also be needed to ensure the availability of other essential consumer goods.

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[1] Cf. Tso-yi FU : " Ending the Flood Menace ", in *China Reconstructs* (Peking), No. 1, January-February 1952, pp. 8-10.