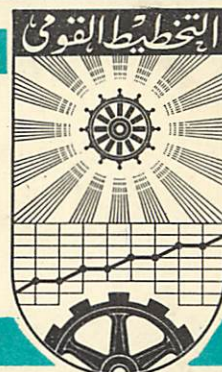


UNITED ARAB REPUBLIC

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THE INSTITUTE OF NATIONAL PLANNING



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Memo. No. 158

CHOIC OF TECHNOLOGY

by

Dr. H. W. Singer
& Dr. W. Hagemajer

January 1962



PROBLEMS OF ACCELERATED GROWTH & MANPOWER
PLANNING IN DEVELOPING COUNTRIES

Cairo, Jan. 3rd. - 10th. 1962

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The discussion of this problem played an important role in the discussions of the Conference. It was realized that it is closely linked with the importance of the employment objectives in growth - the more emphasis on employment, the more important the search for labour - intensive projects and labour - intensive technologies. Also, forecasts of manpower needs must be based on some assumption concerning future technologies about which little is known at present. More research work in this field would be clearly useful.

Suggestions were made that special supplementary development programmes should be drawn up to absorb additional manpower left idle, specially in rural areas. Such additional programmes, e.g. in irrigation, road building or afforestation could be supported by additional aid, particularly aid in kind such as surplus food. Some experience is available, e.g. in Tunisia, but the possibilities of such labour-intensive methods and the best forms of organisation are another subject on which more research is needed.

Several participants mentioned that the right kind of technology suitable for under-developed countries had been submerged by the cause of technical development in the advanced countries and were now no longer available. This means that the under-developed countries often simply have no choice even though the available technology may not be the best for them. From this, some drew the conclusion that the choice of technology is really limited to the distribution of investment over the different sectors which differ in capital-intensity while there is little choice once the project and the sectoral distribution have been decided. Others drew the conclusion that efforts must be made to create a new kind of technology which is at the same time efficient, sufficiently small-scale to correspond to the markets of under-developed countries and corresponding to their factor proportions and resource endowments.

It was also suggested that the problem was on the demand side as well as on the supply side, and that developing countries were not sufficiently interested in any but the most up-to-date and capital-intensive technologies, or were ignorant of any alternatives. The view was expressed/that

the lack of demand for alternative technologies was the chief explanation for their absence but this was doubted by others.

Different views were expressed whether developing countries should try to go for up-to-date technologies or look for labour-intensive alternatives. Those supporting the first view mentioned the additional cost of housing, etc. which were implied in deliberately labour-intensive projects and technologies; the fact that the time factor was often very important; the risk of obsolescence with technologies other than the most up-to-date; the need for efficiency; the risk of training people on out-of-date technologies; the falling capital/output ratio in more advanced countries which was evidence of the power of modern technology which was ultimately even capital-saving in relation to output; the economic linkage effects of heavy industries. On the other side, emphasis was placed on the limited employment potential of up-to-date technology, the importance of familiarising as many people as possible in the developing country with the use of capital equipment, and other factors suggesting search for, and development of, labour-intensive technologies.

In the discussion maximum output was proposed as the criteria of technological device, and that would require a minimum over-all capital output ratio for the economy as a whole and not for individual projects. Large scale projects usually have lower capital coefficients and input requirements and should be applied whenever possible in developing countries. A view was expressed that the objective of planning for maximum growth of output could be accepted under the proviso that a postulated level of earnings should be attained, compatible with the attainable maximum output. Attention was drawn to the advantages of a planned development for the national economy as a whole as capital costs would be lower than with isolated projects.

Maximum output

Another view expressed was that the use of the concept of the input-output ratio as a measuring device should be rejected and recommending the use of the economic productivity of labour as the only criterion of an optimal plan leading to accelerated development.

Some discussion also took place of the present actual possibilities of choosing a range of technologies. It was stated that possibilities for such a choice existed particularly in internal transport and similar subsidiary operations of plants in the textile industries and in service industries. Attention was also drawn to the fact that often the capital-intensity was higher at an earlier stage of processing, and diminished towards the finished products. Examples were given from textiles (spinning-weaving-clothing becoming progressively more labour-intensive) and from metal manufacture (steel-machinery). This might be a guide to developing countries in their patterns of industrialisation where in the interests of employment emphasis might be placed on the stages of processing closer to the finished product.

productivity of labor