

Science And Technology For Self-reliance In Bangladesh

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This is the fourth instalment of the article.

In Bangladesh there are now about sixty-five organizations including universities and government testing laboratories, where research work is carried out. Of these, 21 research institutions belong to agriculture and water resources. Some important ones being Agricultural Research Council, Agricultural Research Institute, Rice Research Institute, Jute Research Institute, Forest Research Institute, Agricultural University etc.

Although the infrastructure for Agricultural Research is quite well set and research-man-power is relatively good, the financial support for Research and extension services is very inadequate. Even then the impact of Agricultural research in Bangladesh is quite significant. The food production here has increased from about 3 million tons in 1950 to over 16 million tons in 1987-88.

Fertilizer use has been low compared to most of the Asian countries. While in Japan fertilizer use is 430 Kg/ha, in Bangladesh it is only 59/ha. This is one of the major causes of low productivity, rice-out being only 2.3 tons/ha, compared to 6.3 tons/ha. in Japan or Korea. It seems, therefore, that self sufficiency in food is well within the reach in Bangladesh. Rural education, power supplies, irrigation, agricultural machinery, fertilizers, pesticides, improve seed and above all research input are the essential factors to be used.

Besides the universities, the two most important research organizations in Bangladesh engaged in industrial research, material research and energy research are Council of Scientific and Industrial Research and Atomic Energy Commission. In spite of having reasonable scientific staffs, the research outputs of these institutions are far from satisfactory. The main reason is that there is very little money given for R&D. By removing the weaknesses of research organiza-

tions, as mentioned earlier, the dependence of Bangladesh for materials, industrial products and energy could greatly be reduced.

Energy is the greatest obstacle to attaining self-reliance in Bangladesh. It is estimated that indigenous natural gas meets about 55% of the present commercial energy demand and 40% of the total energy consumed is by commercial fuels, the rest being traditional fuels, only 12% of total energy need of the country is imported. But even this takes away 60% of our total export earning. For Bangladesh, nuclear and solar energy, perhaps, hold the best promise to meet the increasing energy demand for long term future. And this needs intense research and development effort both in financial, intellectual and human investments.

The United Nations has set a target of one per cent of GNP to be spent by developing countries on R&D and for scientific & Technological infrastructure. Perhaps, this was thought to be the maximum rate of expansion possible in view of the limits set by trained manpower and technology absorbing capacity of most of the underdeveloped countries. But, for Bangladesh, the technology absorbing capacity, in view of her long tradition and trained manpower, is far greater than her poor per capita income will reflect. At least 3% of her GNP must therefore be invested for R&D. Since the size of the GNP itself is small, the expending of even three per cent of it for R&D will not prove adequate in Bangladesh, to meet the gigantic challenge of her moving away from the present state of poverty, ignorance and dependence.

Perhaps, the need for some kind of external help will remain for some time. However, supports from external sources, when sought for, can very well be directed towards increasing the scientific and technological capability of the country. The material support borrowed from other countries can then effectively be multiplied to pay off the loans. The relations with other countries can then be one of dynamic interaction and mutual co-operation, rather than static dependence and cumulative loan.

It is true that science and technology is no fairy wand which by itself can transform a poor country into self dependent. Economic development being a complex phenomena has its human as well as material basis. Thus, in analysing the historic origin of the present differences between the economic conditions of the West and the East, a host hypothetical causes have been advanced such as natural ability, climate, natural resources, religions, social systems, methods of government, international relations etc. While acknowledging the importance of some of these factors, as might exist, these are not independent of each other, not amenable to objective judgement, control or quantitative measurement.

In this article all these factors are thus considered as mutually interacting variables which together constitute the changing environment in which science and technology is to be applied as an active agent for working towards self-reliance.

In my opinion, the purpose of analysing the reasons for our present economic dependence should be to arrive at such a cause that can be

controlled relatively easily, otherwise, even a well discovered cause may remain as unchanging as a pre-determined fate or destiny for us.

The point of view taken in this paper, with science and technology as the major controllable factor in bringing self-reliance, is supported by the fact that development has been possible in societies having non identical social, political and economic conditions, to begin with, though not with equal ease. Also there is evidence that societies have adjusted enormously, although with different amounts of reluctance, if and when industrialization has taken place, through science and technology.

History has made it abundantly clear that development is more like an organic phenomena, demanding human enterprise. It is the expansion of pure and applied research, technical discovery, the training of research workers and a big level of general education that keep the economy moving. If a country fails to develop its human resources, it fails to develop much else.

A clear schematic picture for self-reliance in Bangladesh is not attempted in this article, because it is believed that much of the specimism that otherwise might arise from normal economic calculations, can hopefully be proved wrong, when the role played by human enterprise through science and technology is emphasised.

It takes the educated individuals to mobilise capital, exploit natural resources and to create markets. The progress cannot be expected from the automatic action of economic forces. The quality of scientific education, not only in its creativity and innovations, but also in its ability to produce leaders of integrity and will for development is crucially important for self-reliance in Bangladesh as in many developing countries.