

Science and Technology Policy

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This brief comment is to discuss a few points affecting Science and Technology Policy, specially in the case of Sri Lanka. This is not a formal paper, but it is to be seen as largely an attempt to sensitize a few of the issues involved.

Science and Technology Policy has two dimensions. Firstly, as an academic discipline which studies the control, direction and progress of science and technology, and secondly, in the practical domain as action-oriented towards carrying out policies in Science and Technology so as to consciously influence social and economic changes. In the academic sphere, Science and Technology Policy rests on the interphase between hard and social sciences. Thus, if one were to enumerate: there is a sociology of science and technology, an economics of science and technology, and hypothetically one could even imagine a psychology of science and technology. The sociology of science and technology itself, could be broken down into sub-disciplines, so that we have sociology of medicine, sociology of technological change, and so on. There have been several workers in these spheres specially during the last ten to fifteen years, who have attempted to identify factors, social and economic, that have had an impact on science and technology and conversely, those factors in science and technology that have had an impact in the socio-economic sphere. These studies go back to several writings in nineteenth century Europe including those of the very important ones of Marx. Later, more detailed and sophisticated elaborations and studies like those of Burnham, Kuhn, Price and others have given a more complete picture of the relationship between science and technology and the socio-economic sphere. These writers have been working in the interphase between the hard and social sciences to point out the interactions between society on the one hand and science and technology on the other.

In the Western world, work in this sphere has become of extreme importance recently, within the context of a virtual near crisis in the hard sciences and the given technology. There is a deep questioning today in certain quarters about the direction development of science and technology has taken over the last few centuries. The current concern at a symptomatic level on the environment, the quality of life, etc., are more visible associated aspects of this questioning that is occurring. Within the Third World, on the other hand, there has been a questioning of the appropriateness of imported technologies as leading, for example, to the strengthening of structures of dependence with the countries in the centre. In these imported technologies, the role of multinational corporations have been

subjected to intense analysis and discussion in the Third World. Further, recent students of the Third World both from the Third World itself, and sympathetic western scholars—have begun to question the entire life styles, as well as the science and technology styles that arose as part of historical development in the West during which historical process, we as members of the Third World were treated as raw material and manipulated objects of this development. In short, the science and technology that is available today in the West is—as it were, the congealed history and experience of western man in its phase of subjugation of the Third World. This questioning and new theoretical perspectives have removed much of the aura of the assumptions of an objectivity which was held as the basis of science and technology. It is now seen that scientific objectivity was an objectivity contained within certain social and historical limits and as such in an absolute sense was not 'objective'. The growth of science and technology in the West was a process by which scientific and technical progress was made through a historical process to which we were outsiders, as well as subject matter. The major aim now is to re-enter history as equal partners and may be to restructure science and technology to our views and needs.

Science Policy in Sri Lanka has been largely unconscious of the broad considerations that we have sketched above. Formal policies have not been formulated at a government level to incorporate even general policy guidelines even without recourse to the theoretical considerations that we have sketched above. Several writers, including G. C. N. Jayasuriya, Osmund Jayaratne, R. O. B. Wijesekera, as well as myself among others, have written on some of the dimensions of the problems of science and technology within a Sri Lanka context. However, these considerations have not crept in any degree into formal decision-making.

This lack of a formalised science policy is largely due to a lack of awareness among political decision-makers of the importance of science and technology. One has to contrast the experience of Sri Lanka in this regard to those of India and China. Although India has followed what may be described as an elitist science and technology policy and China has followed what may be described as a more mass-oriented science and technology policy, there are strong similarities between the two and has resulted in both being very strong scientific and technological powers today. In the case of India, this advance is due largely to the personality of Jawarhalal Nehru who in the very early years of the post-independence era, took science under his wings, gave it high priority and brought out a strong

scientific structure. India today possesses a vast scientific infrastructure that can vie virtually with any country in the world.

In the case of Sri Lanka, unfortunately, no formalised science and technology policy has emerged due largely to uninspired leadership at the top in this regard. A Ministry of Scientific Affairs was created a few years ago as part of a larger Ministry of Industries and Scientific Affairs, but has not been given sufficient powers to have a strong impact on the country. In spite of this lack of a formal scientific and technological policy there has been a commitment on the part of the government towards science and technology which has continued to grow, although somewhat haphazardly, and today Sri Lankan scientists in many fields fare very much better than those of many other Third World countries. Thus, our scientific and technological infrastructure is higher than that of many medium size countries of Africa and Asia, although we are a small country. Because of this virtually unconscious growth in science and technology, we boast today a brain drain of considerable proportion with flight of personnel to the more affluent countries for not only money but scientific recognition reasons. Many scientists and technologists affected by the brain drain give as a major reason, not so much the lack of money but the lack of job satisfaction, and the fact that scientific and technological decisions in the country are being still left in the hands of amateurs specially from the Administrative Services. For the scientific community who is in close communication with developments elsewhere and who have witnessed a growth of scientific advisory bodies of a very high-powered nature in both capitalist and socialist countries, this amateur control in Sri Lanka stands as an irritating anomaly. Informal discussions with local scientific and technological personnel indicate a strong degree of frustration and resentment in this regard.

Another strong reason for frustration among scientific personnel is the inclusion as part of aid

packages of sub-standard foreign expertise when local expertise is available in the country. There is a definite place in the country for foreign expertise in fields where no competent Sri Lankans exist, but many of the foreign expertise are in those fields where Sri Lanka has a high degree of competence. Perhaps one of the most glaring of these is the case of a foreigner, prone to making statements at academic gatherings of Sri Lankans on subjects virtually varying from rural development to atomic physics, subjects on which he holds no competence. The image evoked is that of white colonial Government Agents at provincial school prize-givings during the pre-colonial era.

There have been moves over the last few months within the National Science Council, the Association for the Advancement of Science and the National Academy of Science to get the importance of science and technology policy across to the political authorities. In the recent general elections, one major political party included science and technology policy in its manifesto whilst the others largely ignored it. It is essential that for further growth of science and technology, both regular and consistent patronage as well as formal recognition from the top is necessary for the growth of a viable scientific community. In this respect, scientists and technologists should continue applying pressure at all points for not only the recognition and acceptance of science and technology, but for the conscious use of science and technology in different spheres of the economy. These measures should include pressures from scientific associations, trade unions and lobbying of politicians. One lesson that the new academic subjects dealing with science policy reveals is that science and technology cannot be divorced from politics and *vice versa*, and that the structures of society and structures of science are intimately connected.



The actual content of science and technology policy is determined by the concrete economical and political tasks of each country, and also by the intrinsic requirements of scientific development itself. Science, like other spheres of human activity, has a relative independence and actively influences politics; consequently, political tasks have a subordinated role to economic, scientific and technological objectives. Science and technology policy must change with the development of science, with the appearance of new scientific perspectives, and with changes in the social function of science within society. Each country establishes its own particular system of scientific institutions and science management structure and determines its specific direction for developing science and technology in accordance with the socio-economic development objectives of the country. Nevertheless, there are certain aspects of science and technology policy which are common to all countries.