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EDITORIAL

Governance: Science and Technology

The installation of a new government is an appropriate time to think of governance. The post-election scene is always dominated by an unseemly scramble for power and portfolios; the business of governance seems relegated to the background as both politicians and bureaucrats (technocrats among them) jockey for positions of advantage. Elections which signal a change of political leadership, as this one has, lead to a much greater period of uncertainty regarding policies and priorities. But once the dust has settled, the routine business of governance resumes. While some sections of the media focus excessively on the stock markets and financial policy, there are many aspects of governance which attract very little public attention. For readers of this journal, science and technology (S&T) and higher education may be areas of special interest. For many years science and technology was an area in which prime ministers took a special interest; but over the last fifteen years the perceived importance of this portfolio has declined dramatically. Education used to be watched over by a Ministry of Education; but a change of title to Ministry of Human Resource Development (MHRD) was effected a long time ago; a move that seemed to signal a degree of ambivalence about the relationship between education and human development. The domains of both S&T and higher education are beset with problems that need attention.

The previous government enunciated an S&T policy in 2003; a document (S&T-2003), which stated objectives and outlined a 'Strategy and Implementation Plan'. However, in the year that has passed since its public unveiling at the 2003 Indian Science Congress, there has been little sign of any move to implement any of the stated objectives. S&T-2003 declares: 'A concerted strategy is necessary to infuse a new sense of dynamism in our science and technology institutions. The science departments, agencies and other academic institutions, including universities, i.e. the science and technology system as a whole, would be substantially strengthened, given full autonomy and debureaucratized'. Implicit in this statement is the acceptance of the fact that our institutions need rejuvenation. S&T-2003 goes on to add: 'Mechanisms will be established to review on a continuous basis the academic and administrative structures and

procedures in the science and technology system at all levels, so that reforms could be effected to meet the challenges of the changing needs'. Unfortunately, since its launch, S&T-2003 appears to have been consigned, like all policy documents, to oblivion.

The health of our research institutions has been the subject of some debate; many quantitative indicators suggesting that research productivity has stagnated. The opponents of publication statistics have been quick to react, setting in motion studies of alternative indicators for the health of our S&T establishment. It will be interesting to see the results of these analyses and the indices on which they rest. The science advisory mechanisms which assist in the governance of the S&T sector have been largely ineffective. The Science Advisory Committee to the Cabinet (SAC-C) has had little to show for its efforts; establishing a well-known fact of governance, that instruments that lack executive authority are doomed to irrelevance. The attempt to expand the interface between government and the scientific community by involving the science academies has not been a success; with the academies often electing presidents, who also serve in the executive arm of government, thus precluding independent inputs. The profusion of academies also ensures that government sees the scientific community as a formless, heterogeneous group, whose concerns are diverse and poorly articulated. In this scenario, the spokesmen for science are the secretaries to the government S&T departments, who also have the responsibility to implement policy. Unsurprisingly, the enthusiasm for change and reform is minimal in the various departments that constitute the Ministry of Science and Technology.

The practice of science and technology in India is mainly divided amongst three major classes of institutions. The strategic departments, Defence Research and Development Organization (DRDO), the Department of Atomic Energy (DAE) and the Indian Space Research Organization (ISRO) are largely insulated from public review and budgetary fluctuations. The national laboratories, with the Council of Scientific and Industrial Research (CSIR), the Indian Council of Agricultural Research (ICAR) and the Indian Council of Medical Research (ICMR) being the most visible, constitute a second category. Many of the institutions that come under this

group struggle with problems of limited research output, an aging scientific workforce and management practices that are an anachronism in the present context. Finally, there is a third category; a large body of academic institutions including universities (deemed and real), funded centrally and by the states. Within this class, public perception and scientific output varies widely. The levels of funding and the management structures also show considerable variations; the academic ambience and environment for research can be dramatically different. As old institutions, many of our most famous universities among them, have declined as centres of research, new institutions have been created. These have generally been small, focussed in specific areas and generously funded, creating small islands of academic strength, in an otherwise indifferent environment.

A major and immediate cause of concern is the state of many national laboratories and universities. Once productive and flourishing departments have decayed; a degeneration witnessed and sometimes encouraged by successive governments at the centre and in the states, which are responsible for appointing and supporting those who govern these institutions. In the universities the inability to recruit a new generation of enthusiastic and competent faculty, with strong research interests, has been debilitating. S&T-2003 states, rather optimistically: 'Flexible mechanisms for induction of new faculty in key areas of science would be developed. Constancy of support and attention will be ensured over at least a ten-year period'. It may be time to put in place a scheme for underwriting salary and research support for 'new blood' faculty in many of our university departments, which have been decimated by retirements and neglect. The issue of new 'central' initiatives in state-run universities must be viewed afresh, with the UGC and AICTE promoting a culture of research vigorously.

S&T-2003 begins with the then Prime Minister, Atal Bihari Vajpayee, quoting Jawaharlal Nehru: 'Scientists are a minority in league with the future'. But he adds: '... let us remember that a bright future can be realized only when science is in league with the majority of our soci-

ety'. There are many areas where modern science may have a direct impact on large sections of our predominantly deprived society; agriculture and health are pre-eminent among them. The full potential of emerging technologies which stem from the dramatic advance of modern biology needs to be tapped. To do so the connections between laboratories which emphasize basic research and the agencies within the Health and Agriculture ministries, ICMR and ICAR, need to be strengthened. The various ministries and departments do not always coordinate activities effectively; collaboration and group efforts will be necessary to bring new vaccines to trials and to address the many contentious issues raised by the introduction of transgenic crops.

Successive governments have reaffirmed their commitment to promoting science and technology in India and to enhance government spending on science. The growth in the budget for scientific research and the consequent increase in the number of researchers have strained funding mechanisms. Despite several well-intentioned efforts, the administrative and financial procedures at the funding agencies and recipient institutions remain mired in bureaucratic tangles. S&T-2003 promised to set up 'more efficient funding mechanisms... either by creating new structures or restructuring the existing ones, for promotion of basic research in science, medical and engineering institutions. In particular, administrative and financial procedures will be simplified to permit efficient operation of research programmes in diverse institutions across the country'. S&T-2003 does consider the need for 'innovative fiscal measures to ensure successful implementation of the policy objectives'. Enhanced private investment in the S&T sector must be promoted, if innovative applications of research are to become more common.

Governance is a difficult and demanding task. Policies and visions are easier to enunciate than to implement. The challenge before those who accept responsibility is to do the best that is possible, with the greatest commitment to the tasks at hand.

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