

Structure of Indian science: autonomy, accountability and internal democracy

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The feeling that the structure of Indian science, as it exists today, is somewhat unequal to the requirements of modern, internationally competitive research has been earlier articulated by me^{1,2}. The structure is in general perhaps too rigid, bureaucratic and hierarchical. The liberalization drive, evident in some other sectors, has left the structure of Indian science relatively untouched. In this context, some suggestions for improvement in relation to the operation of competitive grants have been made earlier³. An attempt is made here to briefly discuss the structure of Indian science in relation to autonomy, accountability and internal democracy, and make a few broad suggestions for improvement.

Autonomy

Autonomy operates at different levels. One is at the level of major S&T departments. Currently, the so-called strategic departments, namely the Department of Atomic Energy (DAE), the Department of Space (DoS) and Defence Research and Development Organisation (DRDO), enjoy a substantial degree of autonomy. In the emerging global scenario, it is difficult to delineate strategic from the non-strategic departments. In any case, I do not see any reason why the other S&T departments should not be granted the same autonomy currently enjoyed by DAE, DoS and DRDO. For the smooth functioning of these departments and to fully realize their potential, they need to be granted autonomy at the same level as the strategic departments have been.

On the other extreme, we have the state universities. In many, or may I say most, of them, autonomy is often conspicuous by its breach. Substantial external interference occurs in normal operations such as appointments and admissions. Nexus involving sections of the academic community and external vested interests often exists. The situation is sometimes so serious and complex and the vested interests so entrenched that it can be improved only through the joint action of political leadership, societal groups and academia.

Then there are institutions like the Indian Institutes of Technology (IITs),

Indian Institute of Science (IISc) and now the Indian Institutes of Science Education and Research (IISERs) supported by the Ministry of Human Resource Development; Central Universities; institutions under the Council of Scientific and Industrial Research, Indian Council for Agricultural Research and Indian Council for Medical Research; and those supported by the Department of Science and Technology, the Department of Biotechnology and the Ministry of Earth Sciences. Many other central ministries and departments also support specialized research institutions. Strategic departments also support institutions involved in research in other areas of science. The Tata Institute of Fundamental Research is the prime example of such institutions. Bulk of the scientific research in the country is carried out in these centrally funded institutions. Most are designed to be autonomous. External interference in admissions, appointments and day-to-day administration is in general minimal. The governing bodies of a number of them are chaired by eminent scientists or scholars. Some others are chaired by persons in the government at different levels. In my view, it is good for the government and the autonomous institutions to have non-officials chair the governing bodies. In any case, the government is represented in the bodies. When they are chaired by non-officials, the government is enabled to retain some freedom of action if anything goes wrong. Furthermore, equally or more importantly, that would minimize unhealthy meddling by the government in the internal affairs of the institution.

Autonomy of an institution does not only mean autonomy of the governing body or the head of the institution. Autonomy should percolate through different levels to individual scientists, with appropriate safeguards depending on the nature of the institution. This, I am not sure happens all the time. Institutional autonomy itself has been under continuous threat. Bureaucracy, not necessarily individual bureaucrats, has an insatiable appetite for controlling institutions often through the insistence on blindly following governmental procedures. There are

limits to autonomy and autonomy should not be confused with license. However, total compliance with government rules and procedures by autonomous institutions is not called for. The leadership of autonomous institutions is sometimes responsible for the erosion. Some, by no means all, are hesitant or afraid to use the autonomy granted to them; they resort to the safer option of strict adherence to government rules and procedures. This is, however, unhealthy and deleterious to institutions. The governance of scientific institutions should be such as to realize their goals, while at the same time working within the broad parameters of the accepted public policy, and financial and administrative propriety.

Opinions are sometimes expressed that institutions need to depend increasingly on private funds to gain autonomy from the government. It is necessary to attract private funds for specific purposes. However, institutional dependence on private, which often means corporate, funding is a sure prescription for disaster. This is a danger against which institutions are vigilant even in countries like USA, where corporate support for research is substantial. Quest for autonomy from the government should not lead to surrender to private interest. Use of public money does not necessarily mean dilution of autonomy. Use of public funds has not resulted in the erosion of independence of some of the constitutional bodies of India. Nearer home, many of the major scientific and technological institutions of the country have functioned with substantial autonomy even when funds for their functioning have come mostly from the Government of India. Therefore, public funding in itself is not a cause for erosion of autonomy. It is often the stature and strength of the institution and the way it functions that matter. In any case, as is often said in relation to liberty, eternal vigilance is the price for autonomy.

Accountability

Any organization which receives public funds is accountable within the accounts-audit set up of the government. This does

not involve compliance with every bit of government rules and regulations. The most important question that needs to be constantly addressed is whether funds are utilized for the purpose for which they are allotted. This should not involve constant nit-picking. In establishment matters pertaining to supporting staff, whose nature of work is substantially similar to that of staff in the government, there are limits to autonomy. Here again, wholesale adoption of government policies and procedures is neither necessary nor desirable. In many of these issues, the balance between autonomy and accountability is delicate. The limits of either cannot be defined precisely. A balance needs to be maintained through mutual respect and understanding.

At a broader level, the accountability of publicly funded institutions is to the society at large. The most important component of societal oversight is that by the political leadership and, in a democracy, by the elected representatives of the people. This is true the world over. The inclusion of eminent persons from different sections of the society and government, and peoples' representatives in bodies charged with governing or advising institutions, involves a recognition of societal oversight. In normal circumstances, the oversight should primarily involve sensitizing the institutions to societal needs and the broad national policy framework. The collective wisdom of leaders of different sections of the society, government and elected bodies, could be valuable for the institutions. Societal participation in governance should not, however, be construed as licence for crass interference in the internal affairs of the institutions and gross violation of autonomy, as it happens in many institutions of higher learning.

In short, autonomy and accountability of scientific institutions should be treated as two sides of the same coin. In academic and scientific matters, autonomy should be almost absolute within the overall framework of national priorities and the stated mandate of the institutions. Even in establishment and financial matters, where there are limits to autonomy, it is important to modulate governmental procedures to suit the specific requirements of the institutions. Accountability should be primarily in terms of performance and not in terms of the gritty-nitty of rules and regulations.

Internal democracy

Internal democracy is as important as autonomy and, in a broad sense, it is an extension of autonomy. One element of internal democracy is academic freedom. When involved in centralized mission-oriented programmes or in institutions meant for dealing with specialized areas, there are limits to this freedom. But even in such situations, it is important to ensure that researchers are not treated as cogs in the machine, but are given full scope for intellectual expression within the requirements of the mission or the mandate of the institution. Such constraints do not exist in a substantial section of research institutions in the country or, if they do, they are sufficiently loose to permit a variety of choices. Even when freedom of choice exists, wisdom lies in researchers from different specializations voluntarily coming together to address worthwhile problems. Happily, such collaborative efforts are gaining momentum in many areas in the country.

Another important element of internal democracy is the participation of the scientific community of an institution in decision making processes. In this context, internal democracy does not necessarily mean electoral democracy. There are less divisive ways of ensuring participation of scientists in decision making. That is through systems and conventions. No organizational set-up is perfect. Yet, examples of governance with substantial participation of the faculty are provided by IISc and IITs. Distortions can and do occur even in the best of systems. However, avenues exist in these institutions for faculty members to influence decisions, if they choose to. The same cannot be said about many of the otherwise excellent smaller institutions. Some of them tend to be far too director-centric. Most of the directors are excellent scientists and able administrators, but that is no substitute for robust systems for governance. Most of these institutions are also sub-critical in size. This is an area which deserves critical attention. Participatory processes are sometimes inconvenient, but are necessary for the wholesome governance of institutions.

Participation of the scientific community, at least through consultative processes, in decision-making is desirable at the national level as well. It is good to be benefited by inputs from widely different quarters. Furthermore, participation would

engender a sense of belonging to the community as a whole. In any case, it is the right of scientists to be involved in major decisions affecting the community through appropriate consultative mechanisms. I am not entirely sure that this happens in practice. The impression is that too few are involved in arriving at major decisions, which sometimes results in the same person assuming mutually incompatible responsibilities. Secretaries of government departments, heads of major institutions, chairmen of high-power committees, presidents of national academies, positions involved in opinion-making, etc. have distinctly different, though related, functions. Occupation of more than one type of position by the same person could lead to conflict of interest. In any case, concentration of authority in too few hands is unhealthy. In this context, some progress has occurred in relation to science academies. It was earlier normal for government secretaries or heads of major institutions to be concurrently presidents of academies. That situation no longer exists. During the last few years, the presidents of the academies have been academics without high positions in government or other major institutions. This is a small step in the right direction. Many more important steps are necessary to ensure an even spread of authority and indeed responsibility. Authority and responsibility go together. The involvement of the community in decision-making through appropriate consultative process is also likely to result in a more responsible community.

The scientific enterprise in the country is a tried and tested system which has delivered. However, there are many weaknesses which need to be addressed. This contribution is a modest attempt to do so with respect to a particular aspect of the system. As I had indicated earlier^{1,2}, I believe that, if there is the urge and the will, the scientific community itself can find solutions for most of the lacunae associated with the structure of Indian science.

1. Vijayan, M., *Curr. Sci.*, 2009, **96**, 451.
2. Vijayan, M., *Frontline*, 4 December 2009, p. 96.
3. Vijayan, M., *Curr. Sci.*, 2011, **100**, 815.

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