Parliamentary Influence on National Science and Technology Policy: The Role of Parliament Committees

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The paper highlights the significance of the role of Parliamentary Institutions in the present scenario of increased role of Science and Technology (S&T) in the development process. In this context, it discusses about the superiority of the recently constituted departmentally-related Parliamentary Standing Committee (DRSC) of Parliament on S&T. Environment and Forests in enhancing the role of Parliament in influencing policy decisions on S&T. The study has based its findings on the analysis of reports produced by the Committee since its inception in March 1993 till March 1999. The study reveals that the scrutiny of S&T institutions through this very Committee system is more effective mechanism in making executive accountable to Parliament. The Committee while scrutinizing the budgetary proposals, mid-term appraisals, annual reports, etc., has pinpointed various lacunae in the S&T related policies of the Ministries/Departments under its purview and has suggested various changes in the policies of the concerned department. However, the analysis brings out that though the rate of acceptance of the recommendations by the respective department is quite high, however, the rate of action taken on the recommendations is very slow. The study concludes with some suggestions for making the 'Committee System' more effective in influencing policy decisions in S&T in the achievement of various socio-economic goals of the society.

Introduction

Increased developments and advancements in S&T though have tremendous applications to benefit the society have also led to the serious problems of its governability. It being a global phenomenon requires constant efforts by all National Governments to manage for its uniqueness in directing their national and international policies. In doing so, one of the major responsibilities of the Governments in the Parliamentary Democracies is to make the Parliaments their effective counterparts. In this context the main issue before the governments is to visualise as to how their operations may be rendered sensitive to the concerns of public and expressed through the Parliamentary channels.

Since the Governments in most of the developed countries and to some extent, in the developing countries are facing a general decline of public confidence in decision-making machinery as people at large have come to take a more circumspect view of the potential technological changes. This has led to the emergence of new participatory demands by the society at large for their involvement in the exercise of decision-making on the affair of science. The crisis of credibility and the loss of legitimacy of traditional political institutions has worsened at the very time when the role and responsibility of decision-making system have greatly expanded and the problems of governability are becoming increasingly complex.1

Public condemnation of democratic institutions as unrepresentative, ineffective or self-serving has led to strong emphasis on changing procedures to implement, expand and strengthen Parliamentary Institutions in the different democracies of the world; specially as a forum for public involvement in policy making on S&T and the passage of legislation in the larger interest of the people. In order to redress an increasing imbalance between the executive and the legislature and to reassert the powers of democracies, in bringing Parliaments closer to the public; the legislative mechanisms are being modified more specifically in the developed countries and to some extent in the developing countries of the world. Other mechanisms like the 'legislative hearing' procedures have been adopted to ensure a broader representation of the competing public views. More so, in recent years, several Parliaments and legislatures have set up
their own sources of objective scientific and technological advice to help them reach conclusions on complex issues independent of executive.²

Broadly speaking, various studies examining the effectiveness of the Parliamentary institutions in influencing S&T policy decisions in the different Parliamentary Democracies of the world reveal that Parliamentary practices such as Questions, Motions and Committee investigation are not being used sufficiently to increase the level of transparency in the Government and the Parliament on the issues of science despite public demands for such transparency. Increased public participation in virtually all aspects of parliamentary democracy from electioneering to the formulation of public policy is necessary to upgrade representational institutions today, has in principle been agreed upon by different nation States. Wider use of Committees as a way to increase the involvement of back-benchers in the government decision-making has become the most commonly cited issue as an ideal process through which to inject greater public participation into the parliamentary process.³

In accordance to the widely held theory; that the Committee Systems offer Parliaments an effective solution to many perceived deficiencies in the democratic process has led to the growing use of Committees in most Parliaments worldover. The Canadian House of Commons has recently opened up its Committee system to provide for more public meetings and to ensure that witnesses appearing before Committees are representative of various shades of public opinion. The Canadian Parliament has also recently called for further expansion of the Committee system as a forum which governments could use for advance consultation both with MPs and with the public. In New Zealand the public input has been formalised through the Committee System. All legislation in the New Zealand House of Representatives is referred to a Committee and the public is given at least one month time to comment upon. Thereby, resulting, in a substantial change in legislation in Committees on regular basis. In the process some bills have even been completely stopped⁴.

In the US, Committees are empowered to bring about affective changes in the future budgets of the Departments, thereby proving as an affective deterrent to the government obstructions of Committees. In countries like Canada, New Zealand and Jamaica the Committees examine legislation prior to the second reading, so that the changes can be made before the House approves the intent of a Bill in principle⁵.

India has had a long tradition of well-developed system of Parliamentary Committees performing different functions. The Committees which deal with the S&T related issues include Financial Committees, Committees on Five Year Plans, Consultative Committees, Incidental-ad-hoc Committees. Financial Committees are the most important among the standing Committees of the Parliament, which have a significant role in the scheme of parliamentary scrutiny.

However the effectiveness of the Financial Committees is circumscribed because of the poor implementation of the recommendations of these Committees. The other reason being, that’s these Committees viz: the Estimates Committee scrutinizes the budget long after it is passed by the Parliament. All that it can do is to examine the estimates in detail by examining the Departmental heads and suggest suitable economies in expenditure for the purpose of future estimates. The financial control of Parliament through these Committees is thus indirect and ex-post-facto and the check on the exorbitant expenditure is more moral than actual⁶. The effectiveness of the Public Accounts Committee is equally circumscribed because the scrutiny of public expenditure is done on the basis of the belated reports of the Auditor-General long after the expenditure is incurred⁷.

In order to involve Parliament more effectively with the policies and programmes of the Government, the Parliament Committee network has further been strengthened with the creation of an elaborate system of 17 DRSCs, consisting of Members of both the Houses of Parliament, covering all the Ministries and Departments of the Union Government. There is a separate Committee to review the S&T Departments and the Departments under the Ministry of Environment and Forests. In fact, this Committee system replaced the three Subject related Committees on Agriculture, S&T and Environment and Forests set up in August 1989 in the Ninth Lok Sabha. However the idea of replacing these Committees with 17 DRSCs was to make the Committee system all pervasive which could cover all Ministries and
Departments and which are in a better position to get the information much more quickly through one particular Ministry under its review. This Committee system is an innovation in the ever evolving process of Parliamentary surveillance over the executive to ensure its accountability to common man. The Committees examine the broad policies of the Ministries/Departments and are in a privileged position to provide necessary direction and guidelines and inputs into the policies in the achievement of long-term perspective. Since the main objective of these Committees is to investigate special subject areas in which the final policy decision is still awaited and the subsequent modification is still under consideration.

In 6 years of working of these Committees, a general feeling has been aroused among the Members of Parliament and the Government at large that the constitution of these Committees is a positive step towards making the administration more accountable to the Parliament and also in making the Parliament more involved in the formulation of national development policies. However a seminar organised jointly by the Parliament and the Institute of Constitutional and Parliamentary Studies brought forth mixed feelings about the organisation and working of these Committees. Whereas, almost all the participants unanimously agreed on the very fact that through these Committees the programmes and performance of the Ministries/Departments come under the direct scrutiny of the DRSCs, thereby providing enough opportunity to the Parliament in bringing about reforms in the policies and programmes of the government and above all save valuable Parliamentary time to the mutual advantage of both Parliament and the Government.

Objectives

Since, these Committees have been constituted for quite sometime, it is necessary to review as to how far these Committees are performing and stand superior to other Standing Committees of Parliament in influencing the S&T policies of the government in the context of achieving socio-economic goals of the society. In this context the present study attempts to examine the working of DRSC on S&T Environment and Forest on the following lines:

- Terms of References and Composition of the Committee.
- Periodicity and modalities of functioning of the Committee;
- Nature of S&T issues/areas considered for scrutiny/inquiry;
- Nature of recommendations made by the Committees;
- Government’s response on the recommendations; and
- National concern reflected in the working of the Committee.

Methodology

The study has based its findings on the analysis of the reports produced by the DRSC on S&T Environment and Forests, since its inception in March 1993. The reports produced so far have been categorised on year-wise basis to visualize the Department/Ministry getting more attention of the Committee as is obvious from the number of inquiry and recommendation reports on demand for grants, annual reports, mid-term appraisals, bills and/or other policy issues. The information about the modality of working of the Committee is based on the discussions with the Committee officers and the available literature on the working of the Committee system.

Terms of Reference of the Committee

The Terms of Reference of the Committee are to consider:

(i) The Demands for Grants of the Ministries/Departments under its enquiry;
(ii) The Annual Reports of these Ministries/Departments;
(iii) National basic long-term policy documents presented to the Houses, if referred to the concerned Committees by the chairman of Rajya Sabha or the Speaker of the Lok Sabha, and
(iv) Bills pertaining to the related Ministries/Departments, if referred to the concerned Committees by the Chairman of the Rajya Sabha or the Speaker of the Lok Sabha. The Committees then report thereon.

Through the provision of these Terms of Reference the Committee is in a position to scrutinise almost all aspects of the working of the
Ministries/Departments under its purview. However the matters of day-to-day administration of the Ministries/Departments are not considered by the Committee.

**Composition of the Committee**

The DRSC on S&T, Environment and Forest like other DRSCs is constituted of 45 members: not more than 30 nominated by the Speaker from amongst the members of the Lok Sabha and 15 nominated by the Chairman of the Rajya Sabha from amongst the members of that House. The Committees function in a non-partisan manner. Though the term of these Committees is for 1y, however, first elected Committee continued at a stretch for two-and-a-half year with the objective to gain best contributions, based on the experience and the expertise gained by the members of the Committee on the previously accomplished subjects of enquiry.

The Members who so far held the position of Chairman to the Committee viz. Shri Syed Sibtey Razi, Shri Ajit P K Jogi, Shri V Narayanaswamy, and shri S R Bommai, all have been experienced leaders and held important positions at the centre or in the states. 

**Modality of Working of the Committee**

As per the Terms of Reference of the Committee, the Demands for Grants of different Ministries/Departments under its purview are being scrutinised by the Members of the Committee. In this endeavour, after the general discussion on the budget, both the Houses are adjourned for a fixed period of about one month and during this recess period these Committees consider the Demands for Grants of the Departments/Ministries under its scrutiny, which are then considered by the House in the light of reports given by the Committees. The Committees, while making enquiries into the working of the Ministries/Departments, take oral evidences and the relevant information from the representatives of the concerned departments in the form of presentations, written reports and other related documents.

From the information gathered through various sources the Committee examines whether the money spent is in proportion to the physical objectives achieved and whether or not the money is spent on the programmes and the projects launched in consonance with the policy pronouncements or on unrelated schemes. They also make a perspective assessment of the projections raised by the Ministry/Department in order to ensure that their programmes are justified. After making thorough scrutiny of the proposed R&D programmes of the concerned Department the Committee gives its own interpretations and recommendations to be adopted by the concerned Department in the broader socio-economic context.

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**Abbreviations:** ATR stands for Action Taken Report; DG for Demands for Grants; B for Bills; P for Policies and AR for Annual Reports.
Areas/Subjects of Inquiry by the Committee

The DRSC on S&T, Environment and Forest like other DRSCs has well-defined areas and subjects of inquiry. A break-up of the reports produced by the Committee (March 1993 to March 1999) on the Ministry/Department under its purview exhibits that it has produced ten reports each for the Ministry of Environment and Forests, Department of Science and Technology, Department of Electronics, and Department of Bio-technology; nine reports on the Department of Ocean Development. Whereas, for the DSIR and the Department of Space the Committee has produced eight reports each (Table 1).

A year-wise break-up reveals that 21 reports were produced during the year 1996-97 which account for one-third of the reports produced by the Committee in 6 yrs. The Ministry of Environment & Forests attracted more attention of the Committee in the very first year of inception of the Committee as it produced three reports on the Ministry. However, the focus of the Committee shifted more towards the Department of Science and Technology (DST) as it produced three and four reports on the Department in the years 1995-96, and 1996-97 respectively. More recently, in the year 1998-99 the Committee produced four reports on DSIR, two each for the Department of Biotechnology and the Department of Ocean Development. However, the Department of Space and Electronics had been of pre-dominant concern to the Committee in the year 1996-97 (Table 2).

In the purview of the defined role the Committee scrutinises the budgetary proposals of the concerned Departments before these are taken up for discussion in the Parliament. The Committee also analysed the Five Year Plans, the Annual Plans, the Annual Reports, the Performance Budgets, and all other such material which could throw light on the physical and financial achievements of the Ministry/Department. All the seventeen DRSCs together, in 1995, produced a comprehensive report on the major issues of inquiry and the recommendations to be adopted by the concerned Departments in their policies and programmes in the perspective of achieving national goals.12

Among the 63 reports produced by the Committee on S&T Environment and Forests, 56 reports are based on the scrutiny of the working Ministries/Departments under its purview. Whereas, seven reports are the ‘Action Taken Reports’ (ATRs) based on the extent of implementation of the Committee recommendations by the concerned Ministry/Department. Of the 56 scrutiny reports produced so far by the Committee, 33 reports are based on the Demands For Grants, 14 reports on Annual Reports, five reports are on the Mid-term Appraisal of various Ministries/Departments under its purview. The Committee has also reported on the two bills referred to it viz: (i) National Environment Tribunal Bill and (ii) Water (Prevention & Control of Pollution) Cess (Amendment) Bill; both the bills pertaining to the Ministry for Environment and

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<th>Year</th>
<th>Environment &amp; Forests</th>
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forests. The Committee also made observations in its report on the Demonstration of herbal fuel by Shri P Ram at Dehradun, held in the presence of the Committee Members. The most recent report of the Committee is based on the aspects related to R&D efforts being pursued and achievements made in the area of food preservation (Table 1).

Committee Observations/Recommendations

An overall view of the performance of the Committees administered by Rajya Sabha in terms of number of reports presented reveals that DRSC on S&T Environment & Forests ranked at the second position. The Committee on Human Resource Development produced a maximum of 62 review reports and 16 ATR reports till December 1997. Whereas the Committee on S&T Environment & Forests during the period presented 52 scrutiny reports and four action taken reports which accounted for about 22 percent of the total reports produced by the DRSCs of Rajya Sabha (Table 1). Further, the DRSc on S&T Environment & Forests produced only four Action Taken Reports (ATR) during the same period, whereas the Committee on Commerce and Transport & Communication did not come out with any ATR detailing the response of the Government on the Committees recommendations(Table 3).

An analysis of the reports produced so far by the DRSC on S&T Environment & Forests exhibits that the Committee has sought to project a more clear picture of the weaknesses in the S&T policies of the country by identifying lacunae in the policies and programmes of the Departments under its purview right from the preparation and presentation of budget estimates to its R&D policies and programmes. In turn the Committee through its recommendation has sought to bring out a more systematic and coordinated approach in evolving national S&T policy which could cater to the basic needs of the society and also keep the nation in the stream of international competition. Some of the observations and recommendations on different aspects of S&T policies and programmes of the Government departments under the scrutiny of the Committee are discussed below.

Science & Technology Policy of the Country

While making an inquiry into working of the Ministries/Departments under its purview the Committee was concerned with the overall national science policy of the country. In this context, while making an inquiry into the Demands for Grants of the Department of Science and Technology (DST) the Committee strongly felt that the Department should be in a position to give an integrated picture of the ongoing scientific efforts in India. It being a ‘Nodal Department’ dealing with the S&T policy of the country and concerned with all the matters of management, administration, personal policies, etc., of relevance to S&T. It is therefore the responsibility

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Abbreviations: ATR stands for Action Taken Report; DG for Demands for Grants; B for Bills; P for Policies and AR for Annual Reports
of the Department to keep itself posted with various research programmes being carried out by other scientific departments and the R&D components of the Ministries/Departments of the government which are not scientific per se. The Committee suggested that the DST should endeavour to present a holistic view with regard to the scientific activities of the various government departments, research institutions, Universities, etc. Besides, it should also be in a position to give an outlook about the R&D components of private industry and its priorities.

On the question of revision in the Scientific Policy Resolution of 1958, in view of the Economic Policy announced by the Government in 1991, the Committee was informed that the Scientific Policy Resolution does not require any major changes and is still valid. The Technology Policy Statement, however, requires some modifications keeping in view the changed scenario, both at global and national level and for which the modifications are under consideration. However, the Committee was of the view that there is no need to have two different policies, one for the science and the other for technology. The Committee, therefore recommended that attempts be made by DST to prepare an update on Science and Technology Policy.

The Committee while scrutinising the Demands for Grants, examined the performance of the DST and its major thrust areas identified in the Ninth Five Year Plan. The Committee felt that the expectations of people regarding timely returns of investments made in S&T and their egalitarian distribution amongst various sections of the society were not being met with the desired success. In this context the Committee stressed for the urgent need to review the research projects of DST, keeping in view the national requirements and the likely returns from the research projects as the rewards of research are not commensurate with the investment being made.

However the Committee was apprised with a major programme of DST named Fund for Improvement of S&T Infrastructure in Universities and related Institutions (FIST).

The purpose of FIST scheme was to provide basic infrastructure other facilities and environment for promoting R&D in new and emerging areas and to attract fresh talents. The Committee was convinced of the usefulness of the programme, keeping in view the large number of universities and other institutions engaged in R&D work in the frontier areas of science, therefore recommended the Planning Commission to consider providing higher allocation to the Department.

The Committee also strongly emphasised on encouragement of research in various disciplines through invention promotion programme of National Research Development Corporation (NRDC). The Committee recommended that NRDC should give wide publicity to the programme and provide necessary infrastructure in the form of laboratories/workshops and open it for all those who are keen to try their ideas in various fields.

Going by the analysis of Ramar’s end-product in the expectation of finding an indigenous and economical solution to the energy crisis facing mankind the Committee nonetheless felt that it is not the end of the road. The government should liberalise research and should extend all help to scientists coming forward with their experiments. The government should endeavour to provide the necessary infrastructure and throw it open to students and non-students in order to encourage scientific research.

With regard to the issue of intellectual property rights (IPR) the Committee expressed that there had been apprehensions in the country that the products particularly natural and as well as herbal which have been put to medical uses in the country for past several years are being exploited abroad, where foreign countries have taken patents. The Committee recommended that CSIR must rise to the occasion to see that the country does not fail to exploit its potential, technically and legally in the context of acquiring IPR. However the Committee was informed by DSIR that in the year 1997, DSIR and NRDC organised over fifteen patents and IPR-related workshops for the scientific community with expert resources from India and abroad and these initiatives are being further enlarged. The Committee though expressed its satisfaction over the initiatives, however, suggested that the Department should provide wide publicity to its scheme being administered by NRDC under which assistance is provided to Indian scientists to secure patents for their products and processes.
Organisation and Management of R&D

The Committee while scrutinising the budgetary proposals and annual reports of S&T institutions has primarily focused its attention on the way R&D is being managed in the respective institutions. The Committee in the process pinpointed the inadequacy of the resources for R&D priority areas needing attention, under utilisation of applications of research results, neglected areas of international cooperation in R&D, and various other problems related to the social environment for R&D in the S&T institutes under its purview. Some of the issues relating to organisation and management of R&D on which the Committee has shown concern are discussed below:

The Committee observed with concern that while R&D expenditure per capita and as percentage of Gross National Product (GNP) has been growing over the years in the developed countries, on the other hand the national expenditure on R&D in relation to GNP in India is declining. The Committee opined that there is not only need for higher allocation for R&D activities but also the government should give fiscal incentives to private companies and industrial units like income-tax rebates who spend part of their earnings towards R&D activities.¹⁰

The Committee, while scrutinizing the Demands for Grants of the Department of Space (DOS) in the year 1996-1997, recommended that adequate funding for the DOS is necessary to meet the requirements of Space programme for the bearing it has on vital areas of national development. The Committee also stressed on providing sufficient financial provisions and other organizational support to those R&D programmes of the Departments which are more application-oriented and directed towards society related programmes. In a report on the Mid-term Appraisal of the programmes and functioning of the DOS the Committee discussed about the state-of-the-art and technology for remote sensing which has varied applications viz. drought monitoring and assessment, disaster management, wasteland management, water resource management, ocean/marine resource management and mineral prospecting. The Committee stressed that the multi-purpose activities of the Department should be more benefit-oriented and should earnestly help to percolate the benefits of Space Technology to different sections of the society.²¹

The Committee expressed its serious concern about the R&D programmes being neglected in some of the vital sectors of economy. For instance, while examining the Demands For Grants of the Department of Electronics (DOE) the Committee strongly felt that the Department had failed to catch up with the changing needs of development. As there has been gradual decline in budgetary allocations from Rs 147 crore in 1995-96 to Rs 132.50 crore in 1996-97, the programme-wise details revealed the reduction in the allocations for Software Export Promotion Programme, Electronics for Rural Sector and Healthcare etc. The Committee recommended that Planning Commission should look into the priorities of the Department and enhance budgetary outlays suitably.²²

On the issue of strengthening country’s position in the international market the Committee opined that the vast potential of R&D institutions could be utilised with appropriate thrust in exploring traditional knowledge and skills which exist in the country. In this context the Committee suggested that the knowledge of plants and herbs which exists in the laboratories of CSIR could be the area of strength in the international market as the plant-based and herbal drugs are becoming popular worldwide. Meanwhile the Committee was informed that DSIR was already trying to bring all these laboratories along with other institutions like Arya Vaidyashala of Kerala to launch Bioactive Molecular Programme, which will not only be beneficial in value addition to natural resources but also create products which are globally competitive.²³

The Committee while reviewing the performance of R&D activities of the institutions under its purview, recommended them to identify joint R&D projects with other countries based on mutual strength to participate in R&D on global basis. It further suggested that special efforts be made to initiate technology development leading to more exports and development of infrastructure to help boost exports. In this context the Committee recommended to the Department of Electronics to pursue R&D in a few selected areas keeping in view the high rate of obsolescence in electronics. The areas selected for development should be of strategic need, for making optimal use of national resources in order to derive maximum benefits for the country.²⁴
In the context of making R&D institutions globally competitive the Committee felt that most laboratories functioning under the administrative control of DSIR require upgradation and replacement of obsolete equipments to make them globally competitive. The Secretary DSIR informed that the Government keeping in view the recommendations of this Committee in its previous reports (36th and 56th report) had committed to provide a modernisation grant of Rs 250 crores to DSIR during the Ninth Plan period. However the Committee stressed that the Department should generate internal resources also for modernising the laboratories of CSIR.  

**Linkages Between Research Institutions and Industry**

While enquiring into the R&D programmes of different S&T Departments under its purview the Committee suggested that along with the increase in the number of R&D programmes of different Departments, there is need to strengthen their linkages with industry in promoting and involving industry in developing and commercialising new and improved products or processes in various sectors of the economy.

In this context, while scrutinizing the R&D programmes of the Department of Biotechnology (DBT) the Committee observed that although the DBT has generated technologies and processes which can be utilised by the industry the response of the latter to commercially exploit them had not been encouraging. The Committee felt that this could be attributed to various factors including the weak linkages between the industry and research institutions. In view of that the Committee recommended that the DBT should carry out joint developmental work together with the industry and the user institutes so that a clear liaison is established on the utility of the projects.

Committee’s felt need for increased interaction between the industry and the government laboratories is reflected in the Committee queries about the efforts being made by the respective R&D institution in transfer much more knowhow, developed indigenously, to industries. The Committee in this context was informed that DST attempted to associate industries with the research programmes, right from the beginning.

Whereas the Committee was informed by DSIR that it has established Research Councils having around 50 per cent participation by industry. The Department has also created incentives for laboratories doing industrial research. The Committee was of the view that the industry related laboratories of CSIR should aim at better interface with industry so that the technologies developed by them are eventually commercialized. This would bring self-reliance and confidence within the CSIR system providing further impetus to R&D activities of these laboratories. The Committee also suggested, that DSIR should make study of the approach adopted by MITI of Japan in its efforts to bring about increased interaction between the R&D institutions and the Industry.

**S&T Manpower Planning**

The Committee equally concerned itself with the problem of non-availability of manpower in the highly specialised areas of R&D in the different departments under its inquiry. While discussing about the problem of trained manpower in DBT the Committee suggested that the Department should make every effort to have a dialogue with the host institutions as well as other scientific agencies, University Grants Commission (UGC) and State Government Departments to takeover technically trained personnel and create more positions for their regularisation and absorption.

In training the manpower the country has made considerable investment in advance areas of research, development, and application and losing this manpower would entail huge national loss. The Department should be conscious of the fact that more often a potential scientist goes abroad as a student and subsequently spends all or most of his/her working life abroad which is the crux of the problem of braindrain. The Committee also suggested the DBT that the technical manpower may also be trained: (i) On the industrial aspects of biotechnology and (ii) In the assessment, production and supply of biologicals needed in in the modern biotechnology programmes for making their programmes more application-oriented and also keeping with the international trends.

The Committee also expressed its grave concern over the brain-drain problem in Indian Space
Research Organisation (ISRO) which has become acute after the adoption of liberalisation policy by Government of India in 1991. As, since then about 42 per cent of the ISRO staff, mostly specialised in computer technology has left ISRO for more lucrative jobs within and outside India. In this context the Committee recommended that the problem must be addressed urgently to prevent the flight of talents. For that the Government should provide pay perks and amenities that help to arrest the trend.29

In the case of Department of Electronics (DOE) the Committee was informed that approximately, 20,000 professionals are required for every billion dollar of exports and for generating new professionals, there is also a need for re-training of existing professionals, to take care of obsolescence. The Committee observed that the manpower development for software export should be given high priority. In view of that comprehensive programmes be launched for updating the technological skills and knowledge of software professionals so that country could compete in the international market with other world leaders in the area.30

Whereas the Committee observed that CSIR has a work force of 25,233 employees comprising 19,095 scientific and technical personnel and 6,138 administrative employees depicting a ratio of 3:1 between the scientific and non-scientific personnel. The Committee felt that the entire staff pattern of CSIR should be reviewed with a view to bring down the ratio of scientific and technological personnel to administrative personnel to a level where the productivity is optimum.31

Science for Society

While the Committee expressed its satisfaction, to some extent, over the basic and product oriented R&D activities of Ministries/Departments under its scrutiny, however, Committee felt that not much work has been done by the R&D Departments for majority of people. The Committee opined that still a more vigorous R&D is required to be pursued for development of farmers, weaker sections of society and backward regions in the country. In this context the Committee suggested to CSIR that in order to reduce dependence of the farmers on pesticides and insecticides, work on the development of pheromones be undertaken which could control the damage caused to crops by harmful insects and pests.32

In the sector of Rural and Social Applications of Electronics the Committee was informed that the DOE strives to develop and demonstrate cost-effective applications of electronics for rural and social development including agriculture, watershed development, and adult literacy. The projects are usually implemented by R&D institutions, NGOs and field groups. To promote the utilisation of computers at the panchayat and block level. The DOE is launching a few projects for establishing Village Level Information Centres (SAMADHAN Centres) that will be repositories of information on various topics of interest to local population. In addition, these centres would be used as training and educational centres. The Committee observed though the objectives of this programme are laudable it, however, failed to understand the reason as to why the funds allocated under this head could not be fully utilised. The Committee recommended that all efforts be made by the Department to see that the outlay earmarked for this programme, in the year 1998-1999, may be fully utilised and the benefits of the schemes percolate down to a large segment of rural population.33

The Committee expressed its dissatisfaction over the issue of providing drinking water to all the villages in the country. The Committee opined that despite the technical inputs provided by CSIR laboratories to the Mission by way of quality testing, removal of arsenic from drinking water, etc., what is needed presently is to develop technologies for water conservation and water harvesting as the water table is going down and other traditional sources of water are drying up. The Committee recommended DSIR to coordinate its activities with the Ministries of Water Resource, Rural Development, and the State Governments for transferring technologies in the areas of purifying water to make it potable.34

The Committee suggested CSIR to devise appropriate and economically viable solutions for bridging the gap at diverse stages of the 'cold chain' for which it is seeking to set up a Technology Mission. The Committee opined that the food processing sector in India offers tremendous scope for application of techniques and technologies. In this context the Committee recommended that cheap and simple processing technologies for value addition, minimising post-harvest losses and employment generation be developed, which could be easily learnt by people living in rural areas.
Environment Management for Sustainable Development

The Committee’s more frequent review of the working of the Ministry of Environment and Forests reflects on the Committees concern for environment conservation and sustainable development. The Committee while examining the Annual Report of the Ministry of Environment and Forests was seriously concerned to find that in spite of several laws, which aim at forest conservation and promoting afforestation, the forest areas are steadily undergoing various stages of degradation. The Committee felt that as almost every section of the society is closely linked, in one way or the other, with forests, henceforth the responsibility of conservation and enhancement of forest areas should not be left to the Ministry of Environment and Forests alone. Instead the society at large should be fully involved in this task.35

On the issue of non-utilisation of funds in respect of national parks and sanctuaries the Committee is informed that the matching contributions from the States was not forthcoming, as a result the funds remained unutilised on such projects. The Committee recommended that the government should review allocation in respect of all those projects where States are reluctant to pay their shares. The Committee suggested that government should monitor, control and execute these projects on its own, instead of relying on the State machinery. Also the Committee took a serious view over the similar kind of reasons by the Ministry in the demand for grants for the year 1998-99 over the non-utilisation of funds and delays in operationalising of schemes like the ‘Taj Protection Mission’.36

Regarding the issue of controlling vehicular pollution the Committee recommended that the Ministry should properly co-ordinate with the Ministry of Surface Transport and other State governments, so as to ensure that the notified mass emission standards are fully adhered to. The Ministry of Environment and Forests should also, by using various methods, educate the people about the harmful effects of air pollution caused by motor vehicles. In urban areas, lot of air pollution is caused by the motor vehicles. Therefore the Ministry should take effective steps urgently to deal with the problem.37

The National Environment and Tribunal Bill, 1992, introduced in the Lok Sabha on 18 August 1993 was thoroughly examined by the Committee. The Committee, in turn, gave various recommendations, thereby enlarging the scope of the Bill by including in its ambit the compensation for damages which are caused even by such substances as have not been identified as hazardous by the Ministry of Environment and Forests. As the Committee insisted on the very fact that environment pollution can be caused by substances which may not be hazardous as per the specifications of the Ministry but the scale of damage they can cause may be quite extensive.38

National Concern Reflected in the Working of the Committee

The overall view of the working of the Committee reveals that it has sought to project a more clear picture of the weaknesses in the S&T policies of the country by identifying lacunae in the policies and programmes of the Departments under its purview. In turn the Committee through its recommendations has sought to bring out a more systematic and co-ordinated approach in evolving national S&T policy which could cater to the basic needs of the society and also keep the nation in the stream of international competition.

However, in certain cases where the Committee observed that its recommendations are being neglected, the Committee has re-asserted its view point. For instance the Committee in most of the cases have repeatedly recommended that instead of increasing the non-plan allocations drastically at the revised estimate stage, it should be made at the original budget estimate stage itself. For example, the Committee took note of the fact, while looking into the Demands for Grants (1995-96) of DSIR that despite a clear recommendation to make sufficient provision in the non-plan outlay of CSIR to meet its committed liability, adequate non-plan allocation has not been made in the budget estimates for the year 1995-96. The Department still had to divert money from its plan funds to meet its committed liability under non-plan budget. The Committee expressed that such a diversion adversely affects the R&D activities of the concerned Department and a continuing increase under this head was undesirable and would not be supported in the long run.39
The Committee, whenever considered necessary, has re-emphasised its concern at the under utilisation of plan outlays and budgetary allocations. For instance the Committee while scrutinizing the demands for grants of the Ministry of Environment and Forest commented that the Ganga Action Plan and Control of Pollution were two major areas for which substantial allocations had been sought by the Ministry and approved by the Planning Commission. But inability to spend properly in these two areas, to the extent of Rs 55 crore, reflects lack of adequate planning and proper management.40

The Committee observed that there had been a tendency in different Departments to proliferate more and more schemes cited in the Performance Budget which have not been able to match the targets and there have been significant shortfall. For instance the figures in respect of Forest Survey, Forest Conservation, and National Afforestation and Eco-Development Board (NAEB), as quoted by the Ministry, do not present an encouraging picture. The Ministry has been planning to acquire a Digital Cartography System to strengthen the capacity of the Forest Survey of India ever since the inception of the eighth plan. At the time of consideration of its Demands for Grants by this Committee the previous year the Ministry had expressed confidence in acquiring it during the year 1994-95 itself on the basis of the recommendations of the Technical Evaluation Committee. However, since the provision for the Digital Cartography System has been shown in the Budget estimates for 1995-96 the Committee wanted to know the reasons for the delay in acquiring the system.

The Committee, is of the view that even though the current level of shortfalls in achieving the targets in the areas of Forest Survey, Forest Conservation and National Afforestation and Eco-development Programme do not give the final picture, they are by no means encouraging. There is urgent need for the Ministry to make determined efforts to achieve the optimum targets.

Response from the Government

The response of the Ministries/Departments in terms of action taken on the Committee recommendations is very slow. As is obvious from the number of ATRs presented by the Committee to the House. However the response of DOE and DBT has been relatively more as, the Committee has produced two ATRs for each of these Departments out of the total seven ATRs produced by the Committee. There is no ATR either for DOS or far DST (Table 1).

An analysis of the Action Taken Reports reveals that most of the recommendations have been accepted by the concerned Departments. The recommendations which have not been accepted are: (i) Are either those recommendations which the Committee did not pursue in view of the replies by the Government, (ii) Or the recommendations in respect of which the replies of the Government have not been accepted and the final replies are awaited.

Though, there is acceptance for action by the concerned Department, however the actual action taken is very slow. The Committee has time and again impressed upon the Departments for expeditious implementation of the recommendations. However the response of the Departments has/ had been: (i) Either yet to start the action or (ii) The action is on the initial stages of implementation. However, almost all the Committees administered by Lok Sabha and Rajya Sabha complain that the response of the Ministries/Departments, in terms of action taken on the accepted recommendations is not very encouraging.

However, in few case there has been action as per the Committee recommendations. To illustrate such example of positive response from the Government; the Committee on S&T Environment and Forests in its Fourth Report observed that a large amount of money is being spent by the DOE on the funding of various projects like C-MET which are engaged in R&D work. The Department has not deployed any machinery to assess their performance. The Committee recommended that the Department should set up a cell to monitor the projects and stop the funding where performance of the projects is not up to the mark. The DOE agreed with the recommendations and took steps for funding of the projects by five cells in various Technical Divisions covering all the projects under the administrative control of the Department.41

The ATRs, apart from highlighting the extent of action taken by the concerned department on the Committee recommendations also report Committee's satisfaction with the action taken. For instance the
Ministry informed the Committee that it had initiated the Ministry in accordance to the recommendations made by the Committee in improving the performance of its various schemes viz: Paryavaran Sudhar Yojana, Paryavaran Vahini in its drive for creating environmental awareness and to involve people in the preservation of environment and forests and wildlife. However the Committee was not satisfied with the extent of action taken by the Ministry on its recommendations. The Committee observed that there had not been any major R&D efforts and other initiatives on the part of the Ministry even after it recommended for that. In response to that the Ministry informed the Committee that it had initiated the process of integrating the programmes related to R&D as suggested, and is also finalising priority areas for concerted efforts.

An analysis of ATR reports exhibit that most of the recommendations accepted were of great significance in bringing about policy changes in the concerned Ministry/Department. However the extent and nature of actions in most cases were not to the satisfaction of the Committee. Because the actions taken were very slow or it had yet to be initiated.

Conclusions and Recommendations

A study of the overall working of the DRSC on S&T, Environment and Forests through its inquiries into the S&T Departments and other issues involving S&T has proved to have been significant in various ways like: (i) An important source of information to the Members of Parliament on the issues of S&T, (ii) Involving MPs in the decision-making process on S&T issues, (iii) Ensuring accountability of the executive to the Parliament, and (iv) Providing common forum for the Members of Parliament and the executive to work in close cooperation in evolving S&T policies of the country. Moreover the nature of inquiry and the recommendations by these Committees has brought about awareness to the government, as to how the Parliament perceives the role of science in the fulfilment of various goals of the nation.

The Committee, has proved successful in making government more accountable and responsive to Parliament in affecting necessary changes in the S&T policies and programmes of the government.

The Committee after making recommendations is equally concerned with the implementation of recommendations, and the follow up action is affected when the Committee undertakes review of the Demands for Grants for the next year or during the Mid-Term Appraisal or takes up the examination of Annual Reports of the concerned Department.

The Committee's deliberations with all its influential Members exhibit that the mode of inquiry into different programmes of various Departments have been constructive, rather than constraining. As, the Committee did not setout with the intention of opposing the policies and programmes of the departments under its inquiry. Rather it sought to ensure that government has S&T Policies which need to be stimulated through active involvement of the Parliament, in the policies and programmes involving S&T in the initial stages of their formulation, and implementation in the achievement of professed goals.

Since the Committee is in the nascent stage of its development and is proving successful in its veture, it is necessary that it may be provided with the necessary infrastructure, institutional mechanisms, and other facilities required for making it more effective. In view of that the following steps are recommended:

- The Committee inquiries into the R&D programmes of various S&T departments should involve more indepth study and inquiry through extensive survey of strength of input and output linkages of R&D Departments with other institutions, to make those programmes more efficient and application oriented. In this context the Committee should also visit similar departments of other developed countries to learn from their experiences, thereby suggesting better options to the Departments under its scrutiny.

- Apart from making inquiries into the workings of S&T Departments based on the defined Terms of Reference, the Committee should also take up 'issue based' inquiries more specifically in the emerging areas of S&T and other problems involving S&T which need attention of the Government and the Parliament in the interest of the nation.

- The Committee reports may be debated in the Joint House of the Parliament to make other Members, who are not Members of the
Committee, conversant and involved with the findings of the Committee, thereby ensuring an informed debate on the issues it has examined, as being practised in the UK.

- The deliberations of the Committee be open to the press and public and also the findings of the Committee should be made public through various mass media sources; not only to create awareness among the people but also to involve them with the policy issues of S&T.

- The Committee should be provided with expert assistance on more specialised and complex issues of science, as being followed in countries like the US and the UK. In the US, college professors from academics come for a tenure of 3 to 5 years to serve in the US Senate or the US Congress as aides to the Committees. Whereas, in the UK the Select Committees have part-time advisors whose advice can be obtained at the time when it is required.

- As regards action on the recommendations made by the Committee, a high-level Committee may be constituted to oversee and assess the extent of implementation of the recommendations and to inquire reason for the delays in submitting Action Taken Reports.

- The Committee has based its inquiries on the information provided to it by the concerned Department. However, it has no power to demand witnesses. There is little the Committee can do about it. In order to make the Committee effective in its approach of working it should be given authority to call Minister/Government officials as witness in need of requisite information, as being practiced in countries like Select Committees in the UK and Science and Parliament Committees in Canada and where these committees have proved their worth.

- It is also suggested that Committee should be constituted of fewer Members for undertaking more in-depth and serious inquiries.

References