



**PARLIAMENT OF INDIA
RAJYA SABHA**

**DEPARTMENT-RELATED PARLIAMENTARY STANDING COMMITTEE
ON SCIENCE AND TECHNOLOGY, ENVIRONMENT, FORESTS AND
CLIMATE CHANGE**

THREE HUNDRED FORTY FOURTH REPORT

**DEMANDS FOR GRANTS (2021-2022) OF THE
DEPARTMENT OF SCIENCE AND TECHNOLOGY
(DEMAND NO. 88)**

(Presented to the Rajya Sabha on 8th March, 2021)
(Laid on the Table of Lok Sabha on 8th March, 2021)



**Rajya Sabha Secretariat, New Delhi
March, 2021/ Phalguna, 1942 (Saka)**

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COMPOSITION OF THE COMMITTEE
(2020-21)
(Constituted w.e.f. 13th September, 2020)

1. Shri Jairam Ramesh – **Chairman**

RAJYA SABHA

2. Shri Anil Baluni
3. Shri R.S. Bharathi
4. Shrimati Vandana Chavan
5. Shri Hishey Lachungpa
6. Shri Parimal Nathwani
7. Shri Bhaskar Rao Nekkanti
8. Shri Ashwini Vaishnaw
9. Shri Binoy Viswam
10. @Shrimati Seema Dwivedi

LOK SABHA

11. Shri Guharam Ajgalley
12. Shri Pradan Baruah
13. Shri E.T. Mohammed Basheer
14. Shri Jashvantsinh Sumanbhai Bhabhor
15. Shri Sudarshan Bhagat
16. Shri Anantkumar Hegde
17. Shri S. Jagathrakshakan
18. Shri Mohammed Azam Khan
19. Shrimati Jyotsna Charandas Mahant
20. Dr. Swami Sakshiji Maharaj
21. Shri Asaduddin Owaisi
22. Dr. Ranjan Singh Rajkumar
23. Shri Kotha Prabhakar Reddy
24. Dr. Jayanta Kumar Roy
25. Shrimati Satabdi Roy (Banerjee)
26. Shri Mahesh Sahoo
27. Shri Francisco Sardinha
28. Shri Anurag Sharma
29. Shri Ram Shiromani
30. Shri Kirti Vardhan Singh
31. Dr. Ramapati Ram Tripathi

SECRETARIAT

Shri Pradeep Chaturvedi, Joint Secretary
Shri T. N. Pandey, Director
Shri Rakesh Anand, Additional Director
Shri Rajiv Saxena, Under Secretary
Shri Harish Kumar, Committee Officer
Shri Ankit Chansoria, Assistant Committee Officer

@ Nominated w.e.f. 23rd December, 2020, in lieu of Shri Ravi Prakash Verma who ceased to be a member of the Committee on expiry of his term in Rajya Sabha on 25th November, 2020.

INTRODUCTION

I, the Chairman of the Department-related Parliamentary Standing Committee on Science and Technology, Environment, Forests and Climate Change, having been authorised by the Committee to present the Report on its behalf, present this Three Hundred Forty Fourth Report of the Committee. This Report deals with the detailed Demands for Grants (2021-2022) of the Department of Science and Technology (Demand No. 88).

2. In the meeting of the Committee held on the 17th February, 2021, the Secretary and other officers of the Department of Science and Technology gave an overview of the various activities of the Department and the Members sought clarifications on various aspects of the performance of the Department to enable it to scrutinise the Demands for Grants.

3. The Committee expresses its thanks to the officers of the Department of Science and Technology for replying to the clarifications sought by the Members and placing before it the required material to enable it to scrutinise the Demands for Grants of the Department.

4. The Committee considered and adopted the draft Report in its meeting held on the 4th March, 2021.

NEW DELHI;
March 4, 2021
Phalguna 13, 1942 (Saka)

(JAIRAM RAMESH)
Chairman,
Department-related Parliamentary Standing Committee on Science
and Technology, Environment, Forests and Climate Change,
Rajya Sabha.

ACRONYMS

BE	Budget Estimate
CEO	Chief Executive Officer
COO	Chief Operating Officer
COVID	Coronavirus Disease
DAE	Department of Atomic Energy
DBT	Department of Biotechnology
DRDO	Defence Research & Development Organization
DST	Department of Science and Technology
GDP	Gross Domestic Product
GERD	Gross Expenditure on Research & Development
ISRO	Indian Space Research Organization
NATMO	National Atlas and Thematic Mapping Organization
NEP	National Education Policy
NRF	National Research Foundation
NM-ICPS	National Mission on Interdisciplinary Cyber Physical System
R&D	Research and Development
RE	Revised Estimate
S&T	Science & Technology
SME	Small and Medium Enterprise
STIP	Science, Technology and Innovation Policy
TDB	Technology Development Board

REPORT

The Department-related Parliamentary Standing Committee on Science and Technology, Environment, Forests and Climate Change considered the Demands for Grants (2021-22) of the Department of Science and Technology in its meeting held on 17th February, 2021.

2. BUDGETARY DETAILS FOR THE FINANCIAL YEAR 2020-21 AND ALLOCATION FOR 2021-22

2.1 The following table gives the details of the B.E., R.E. and actual expenditure of the Department in 2020-21 and budgetary allocations made to the Department for B.E. 2021-22:

(₹ in crore)

Sl. No	PARTICULARS	2020-21			Budget Estimates for FY 2021-22
		B.E.	R.E.	Actual (till 31.01.2021)	
1	SECRETARIAT	141.96	136.61	119.23	123.40
2	SURVEY OF INDIA	453.42	449.01	352.40	533.60
3	NATMO	42.25	39.68	20.66	46.90
4	AUTONOMOUS INSTITUTIONS & PROFESSIONAL BODIES	1357.00	1375.00	1299.26	1488.00
5	SCIENCE AND ENGINEERING RESEARCH BOARD	1000.00	742.00	601.32	900.00
6	SCIENCE AND TECHNOLOGY INSTITUTIONAL AND HUMAN CAPACITY BUILDING	1169.50	918.35	642.55	1101.80
7	RESEARCH AND DEVELOPMENT	718.00	402.50	286.02	593.94
8	INNOVATION, TECHNOLOGY DEVELOPMENT AND DEPLOYMENT	1050.65	656.30	463.95	951.95
9	NATIONAL MISSION ON INTERDISCIPLINARY CYBER PHYSICAL SYSTEM (NM- ICPS)	270.85	270.85	254.56	270.00
10	TECHNOLOGY DEVELOPMENT BOARD	100.00	10.00	10.00	50.00
11	SCIENCE COUNSELLORS ABROAD	10.00	11.80	8.00	12.00
GRAND TOTAL (Net of Recoveries)		6301.53	5000.00	4057.95	6067.39

2.2 The Committee observed a decrease of more than 20 percent in R.E.2020-21 allocation of ₹ 5000.00 crore as compared to B.E. 2020-21 allocation of ₹ 6301.53 crore. The Committee desired to know the reasons and the impact of this substantial decrease in budgetary allocations on the implementation of the key programmes and initiatives of the Department. The Department informed the Committee that reduction in allocation in R.E. 2020-21 stage is, firstly, because of the stressed cash position and expenditure restrictions imposed by the Department of Economic Affairs due to the COVID-19 pandemic and, secondly, because of

the decrease in expenditure by the Department owing to closure of its institutions, restrictions on international travel and physical gatherings, etc.

2.3 The Committee acknowledges that despite the restrictions imposed by Department of Economic Affairs and closure of some of its institutions, the Department has been able to utilise over 80 percent of the funds allotted during R.E. 2020-21 upto 31.01.2021. The Committee is satisfied with the utilisation of funds and recommends the Department to ensure its full utilisation by the end of the financial year.

2.4 The following table highlights the reduction in R.E. 2020-21 allocations for the three Umbrella Schemes of the Department:

(₹ in crores)

Budgetary Head	B.E. 2020-21	R.E. 2020-21	% reduction in allocation
Science and technology institutional and human capacity building	1169.50	918.35	21.4%
Research and development	718.00	402.50	43.9%
Innovation, technology development and deployment	1050.65	656.30	37.5%

2.5 The Committee observed that there was a reduction of more than 30 percent in R.E. 2020-21 allocation across the three umbrella schemes of the Department, which is almost 74 percent of the overall reduction in R.E. 2020-21 allocation of the Department. Further, the Committee has been informed through a public representation that a common thread in all the S&T departments is the delay in payment to scientific staff including PhD students and postdocs supported by the departments.

2.6 The Committee is concerned about the impact of the reduction in budgetary allocation on the outcomes and physical targets of the Central Sector Schemes. The Committee, therefore, recommends that the Department should prioritise the available resources and ensure full utilisation of funds, especially, under research and development initiatives and projects, disbursement of fellowships and technology development programmes. Further, the Committee stresses on the Department to take all steps possible to ensure timely disbursement of fellowships and continuously monitor the status.

2.7 The Committee also noted significant under-utilisation under the following budgetary heads:

(₹ in crores)

PARTICULARS	R.E. 2020-21	Actual Expenditure (till 31.01.2021)	% expenditure vis-à-vis RE
NATMO	39.68	20.66	52.06 percent
SCIENCE AND TECHNOLOGY INSTITUTIONAL AND HUMAN CAPACITY BUILDING	918.35	642.55	69.96 percent
RESEARCH AND DEVELOPMENT	402.50	286.02	71.06 percent
INNOVATION, TECHNOLOGY DEVELOPMENT AND DEPLOYMENT	656.30	463.95	70.69 percent

2.8 The Committee observed that the status of utilisation of funds under the budgetary heads Science and Technology Institutional and Human Capacity Building; Research and Development; and Innovation, Technology, Development and Deployment is unsatisfactory. Moreover, the utilisation of funds under the head National Atlas & Thematic Map Organisation (NATMO) is only 52 percent. NATMO is an attached office under the administrative control of the Department and is mandated with the task of preparing thematic and large-scale maps, digital cartography, management of Geo-informatics products, etc. Since one of the major initiatives of the Department for the year 2021-22 pertains to high resolution mapping and liberalisation of geo-spatial data, the Committee expresses its concern over the impact of the under-utilisation of funds under NATMO.

2.9 The Committee recommends that the Department should take necessary measures to ensure proper utilisation of these funds by end of the financial year so that the targeted outcomes linked to the initiatives of the Department under these heads are not adversely impacted.

2.10 The Committee further observed that the Department has received an allocation of ₹ 6067.39 in B.E. 2021-22 which is an increase of more than 21 percent over R.E. 2020-21.

2.11 The Committee expresses its satisfaction over the budgetary allocations for the Financial Year 2021-22 made to the Department and hopes that the increased allocation will enable the Department to regain the momentum lost due to COVID-19 pandemic in the implementation of its various ongoing schemes and new initiatives.

2.12 The Department submitted before the Committee that against the demand of ₹ 7923.15 crore the Department has been allocated ₹ 6067.39 crores in B.E. 2021-22. The Committee enquired from the Department about the impact of the

difference in the budgetary allocations for 2021-22 i.e. those demanded by the Department as compared to actual allocations made for 2021-22. The Department informed the Committee that the shortfall might have impact on some of the key programmes being implemented including initiatives on International Cooperation, Grants to 28 State S&T Councils under the State Science & Technology Programme, establishment of Fab Labs in Eklavya Schools, Science and Technology Communication initiatives, programme on Science Wiki in Indian Languages, etc.

2.13 The Committee recommends the Department to prioritise its activities and optimise its resources in order to support critical projects under different schemes and sub-schemes, and if required, seek additional funds at the supplementary stage so that there is no adverse impact on the ongoing schemes/projects.

3. REVENUE AND CAPITAL ALLOCATIONS IN B.E. 2021-22

3.1 During the meeting of the Committee held on 17th February, 2021, the representatives of the Department of Science and Technology informed the Committee that the Department has increased budget allocation towards creation of capital assets from less than 25 percent two years ago to nearly 30 percent in B.E. 2021-22. It was also brought to the notice of the Committee that the Establishment expenditure, which was about 15 percent of the allocated budget in 2013-14, has been reduced to 10 percent of B.E. 2021-22 allocations.

3.2 The Committee noted that information regarding the detailed break-up of the budgetary allocation under revenue and capital heads, along with details of the activities planned to be undertaken by the Department with the increased allocation for creation of Capital assets was not available in the documents furnished by the Department and enquired about this data from the Department. Moreover, the detailed break-up of budgetary allocations for Revenue and Capital Expenditure as well as funds allotted for Establishment Expenditure under various Budgetary Heads were not readily available with the Department.

3.3 The Committee is constrained to note that details of the activities planned to be undertaken by the Department with the increased allocation for creation of Capital assets was not available in the documents furnished by the Department and break-up of budgetary allocations for Revenue and Capital Expenditure as well as funds allotted for Establishment Expenditure under various Budgetary Heads has not been made available. The Committee recommends that the Department should invariably furnish the above information to the Committee to facilitate a more detailed analysis of Demands for Grants.

KEY INITIATIVES TAKEN BY THE DEPARTMENT:

4 GUIDELINES ON GEOSPATIAL DATA: LIBERALISATION AND DEMOCRATISATION

4.1 Geospatial data combines location, attribute and temporal information about landforms, objects, events or other such phenomena having location on surface of Earth. Geospatial data may be static or dynamic. This data is crucial for many agencies, both government and private, and may be utilised across domains such as infrastructure development, town and city planning, e-commerce, logistics and transportation, agriculture, environment protection, healthcare, resource mapping, disaster management, etc.

4.2 The Committee was informed that the new guidelines issued by the Department for acquiring and producing Geospatial Data and Geospatial Data Services will help deregulate the previously existing tedious process and lead to easy access and acquisition of Geospatial data, barring that of prohibited areas, both between government agencies as well as with the private sector. It was further informed that, not only will this lead to significant revenue generation for the Department, but shall also spur domestic innovation and enable Indian companies to compete in the global mapping ecosystem by leveraging modern geospatial technologies.

4.3 The Committee notes the economic, social, technological and developmental potential that lies in liberalisation and democratisation of the guidelines on acquisition and use of Geospatial data, and recommends that the Department should ensure better coordination between various agencies involved in the process to avoid duplicity of efforts, inordinate delays and waste of resources. The Committee is also concerned about the security related to sharing of geospatial information of sensitive and prohibited areas, and recommends the Department to develop fool proof mechanisms to ensure that the security of data is not compromised.

4.4 The Committee recommends that the Department should promote start-ups and SMEs in the geo-spatial mapping sector by providing handholding, expertise, technology resource, early stage funding and incubation through its various entrepreneurship development programmes. The Committee also recommends the Department to actively promote the repository of geospatial data amongst possible buyers as a prospective revenue grosser.

5 NATIONAL MISSION ON INTERDISCIPLINARY CYBER PHYSICAL SYSTEM (NM- ICPS)

5.1 The Committee sought to know from the Department, information with regards to the objectives and achievements of the Department under the National Mission on Interdisciplinary Cyber Physical System (NM- ICPS). The Department informed the Committee that under the Mission, a total of 25

Technology Innovation Hubs have been established across the country. Each hub has a component of “Technology Development” in the areas of Artificial Intelligence and Machine Learning, Internet of Things, Robotics, Data Analytics, Cyber Security, Augment and Virtual Reality, Quantum Technologies, etc.

5.2 The details of B.E. and R.E. allocation and actual utilisation of funds during the years 2019-20 and 2020-21 made under NM-ICPS are as under:

(₹ in crores)

Financial Year	B.E. allocations	R.E. allocations	Actual utilisation (till 31.01.2021)	% utilisation (till 31.01.2021)
2019-20	124.00	123.83	122.79	99.16 percent
2020-21	270.85	270.85	254.56	93.99 percent

5.3 The Committee was informed that the Mission Target was to establish 4 Hubs in initial two years. However, the Department went ahead and established 25 Hubs in 2 years and released 1st year grant for 16 Hubs and initial grant for 9 Hubs totalling to ₹ 392.00 crores.

5.4 The Committee notes with appreciation the achievements of the Department under the Mission. The Committee recommends that the Department should ensure there are adequate mechanisms to avoid duplicity of efforts in these Hubs and that each Hub follows a life-cycle approach resulting in translation, commercialisation of knowledge and technologies developed.

6 Draft 5th Science, Technology, and Innovation Policy (STIP)

6.1 The Department informed the Committee that a new Science, Technology, and Innovation Policy (STIP) was initiated in mid year-2020 with the aim to bring about profound changes through short-term, medium-term, and long-term mission mode projects by building a nurtured ecosystem that promotes research and innovation on the part of both individuals and organizations. The new policy, STIP, revolves around the core principles of being decentralised, evidence-informed, bottom-up, experts-driven, and inclusive.

6.2 The policy was put in public domain for consultation and involved nearly 300 rounds of consultations with more than 40,000 stakeholders. Over 1 lakh suggestions were received by the Department. The process of public consultation was concluded on 31st January, 2021.

6.3 The Committee recognises the need for a new Science, Technology and Innovation (STI) Policy to strengthen the STI ecosystem and make it more competitive. The Committee advises the Department to share and interact with this Committee this important policy of national relevance, to further broaden the scope of consultation and inclusion of diverse ideas.

7. AUTONOMOUS BODIES OF THE DEPARTMENT

7.1 The following table gives details of the allocation and utilisation of funds during the years 2019-20 and 2020-21 along with B.E. 2021-22 allocations made to the 25 Autonomous Bodies of the Department:

(₹ in crores)				
Financial Year	B.E. allocations	R.E. allocations	Actual utilisation(till 31.01.2021)	% utilisation (till 31.01.2021)
2019-20	1182.70	1217.70	1217.30	100 percent
2020-21	1357.00	1357.00	1299.26	94.49 percent
2021-22	1488.00	--	--	--

7.2 The Committee observes that the entire B.E. 2021-22 allocation under this head has been mentioned as revenue expenditure. The Committee also observes that while some of these autonomous institutions are doing credible work in the field of basic sciences, the translation of technology and commercialisation of research is very low. Further, many research institutes under different scientific Departments, including the Department of Science and Technology, are doing research in similar domains. Lack of coordination between these entities leads to duplicity of effort, thereby, resulting in wasteful use of resources.

7.3 The Committee, therefore, recommends that the Department should impress upon all the Autonomous Institutions to enlist 10 goals/objectives that each of these Autonomous Institutions propose to pursue in the medium to long term plan. The Autonomous Institutions should further indicate the goals/objectives that will be pursued during the year 2021-22 along with the steps that the Department plans to undertake to achieve these goals during the year. On its part, Department of Science and Technology should also develop a mechanism to periodically monitor the progress of the goals/objectives of each of these Institutions. The Department should also devise a framework of inter-Departmental consultation and coordination, with the aim of sharing research outcomes, optimising resource utilisation, avoiding overlaps and reducing redundancy.

7.4 The Committee also recommends that these Autonomous Institutions should be advised to explore avenues to augment revenue generation through technology transfer, consultancy services, patents, etc. On its part the Department should also set targets for the same and actively monitor the progress.

7.5 During the meeting, the Committee drew attention of the Department to the dilapidated state of the Birbal Sahni Institute of Palaeosciences, Lucknow and enquired whether the Department was taking any steps for the

overhaul/renovation of its building. The Committee was informed that the Department has given a grant to the institute for construction of a new campus and work on the new building has already started. The Committee notes that the Birbal Sahni Institute of Palaeosciences, Lucknow is an unique institution that carries research, both on fundamental as well as applied aspects of Palaeosciences.

7.6 The Committee, therefore, recommends that the Department should provide the necessary funds to the Birbal Sahni Institute to improve and upgrade its infrastructure. Further, the Department should undertake a thorough assessment of the physical infrastructure of its Institutions/Autonomous Bodies and provide all help to strengthen their infrastructure.

8. Gross Expenditure on R&D (GERD)

8.1 The Committee desired to be apprised about the details of the Gross Expenditure on R&D (GERD) as a percentage of GDP and the involvement of Private Sector Investment in promotion of Research and Development activities. The Department, in a written reply to the Committee, informed that the GERD in the country has been consistently increasing over the years and has nearly tripled from Rs. 39,437.77 crore in 2007-08 to Rs. 1,13,825.03 crore in 2017-18. India's GERD as percentage of GDP remained at 0.7% during the years 2017-18 and 2018-19 respectively. The Committee was also informed that India's GERD is low in comparison to most of the developed nations; many of them have GDP contribution of 2% or more. It was further brought to the notice of the Committee that only in India, less than 40% of GERD is contributed by private sector. The Committee further observes that The Science, Technology, and Innovation Policy, 2013 had observed that GERD to 2% of GDP has been a national goal for quite some time. The Committee notes that the 2013 Policy had observed the target for GERD could be achieved by 2018-19, if the private sector at least matches the expenditure level of the public sector. The Committee has been informed through a public representation that between 2004-05 and 2018-19, GERD reached its highest in 2008-09. However, since then, GERD in terms of % of GDP has been declining and GERD in 2018-19 was the lowest since 2004-05.

8.2 The Committee recognises the efforts of the Department in promoting R&D activities and highlights the importance of a higher allocation of resources in Research and Development activities. However, the Committee is concerned with the stagnation and decline of Gross Expenditure on R&D as a percentage of GDP. The Committee cannot stress enough on the urgent need to enhance the GERD as a percentage of GDP and, therefore, urges the Department to undertake aggressive steps towards promoting private sector investment in Research and Development, especially since October 2019, companies have been allowed to use corporate social responsibility(CSR) funds for contributions towards research.

9. TECHNOLOGY DEVELOPMENT BOARD

9.1 The Committee in its Three Hundred Twenty Ninth Report on Demands for Grants (2020-21) had recommended that the Department should take steps towards restructuring the administrative and financial framework of the Technology Development Board (TDB) and explore the possibility of establishing it as Section 8 Company on the lines of Biotechnology Industry Research Assistance Council (BIRAC) which is an entity of the Department of Biotechnology. In response, the Department had apprised the Committee that it has taken several steps including revision of Service and Recruitment Rules, filling up of vacancies, delegation of financial powers and decision making, etc. towards the improvement of administrative and financial functioning of (TDB). The Department informed that two Committees have been constituted to explore fresh approaches of funding methods, especially for start-ups and to review the financial framework of TDB. The Department further informed the Committee that the possibilities of establishing TDB as a Section 8 Company has been noted for further examination.

9.2 The Committee notes the steps taken by the Department towards the restructuring of Technology Development Board and recommends that the Department should explore and implement all measures required to enable TDB function as a world-class entity. The Committee asks the Department to furnish updated status of the progress made with regard to the restructuring of TDB as a Section 8 Company.

10. NATIONAL RESEARCH FOUNDATION (NRF)

10.1 The Committee desired to know from the Department the details of the mandate, aims and objectives of National Research Foundation and how it could fit into the work programmes of the Department of Science and Technology. The Department, in their written reply, informed the Committee that the setting up of a 'National Research Foundation' (NRF) was important and the Department supported the proposal. The Department stated that that NRF should focus tightly on two aspects: (i) increasing the resources for R&D (ii) reach the unreached; and submitted the following comments on the proposal to greatly increase the effectiveness and value of NRF in strengthening the research ecosystem of the country:

- (i) The objectives, structure and processes of the proposed NRF largely duplicate or parallel the existing ones in the Ministry of Science & Technology, especially DST and DBT. This is because the nature of proposed NRF is same as the major mandates of DST and DBT, i.e, providing extra-mural funding support (as opposed to primarily funding of its own labs/agencies//autonomous institutions in intra-mural funding mode). In view of the above, duplication of NRF funding targets with DST and DBT's efforts and aims needs to be avoided.

- (ii) To avoid such needless duplications, NRF must therefore focus tightly on the major gap area as identified for NRF in the National Education Policy (NEP) 2020. This gap is to be addressed by creating R&D infrastructure and supporting projects and fellowships and Centers of Excellence etc in universities and colleges especially in the less endowed state universities and colleges, since bulk of our students and faculty are indeed trained there.
- (iii) National S&T missions launched or will be launched in the future should also be connected with universities to bring state of the art knowledge and research to universities. Additional resources required for this purpose may perhaps be provided by NRF.
- (iv) Another gap area identified in NEP 2020 is to support research in social sciences and humanities including their integration with S&T. NRF may support these initiatives.
- (v) NRF may also take up international mega projects in which India is a partner because these are large value projects often running into several thousands of crores and have a stakeholder base which spans across several ministries and agencies such DAE, ISRO, DRDO, DST, Dept of Higher Education, Ministry of Earth Sciences, and many others., requiring effective coordination and pooled financial support.
- (vi) For the departments/ministries which are already largely into extra-mural R&D support, like DBT, DST, the financial support proposed for NRF @ 15% of their annual budget may be limited to only 15% of their R&D budget that must exclude their administrative, salary, fellowships, essential and committed foundational budgets (e.g., for autonomous institutions). Essentially, re-distribution of the budget to NRF which is already being used for R&D by DST, DBT does not bring any additional value to overall R&D investment. This re-distribution is more appropriate for the ministries/departments which are currently contributing less to extra-mural R&D support.
- (vii) In view of above, DST and DBT may be exempted from contributing to NRF since their budget is already largely being spent for extra-mural support to R&D. Diverting resources from there will not add to the aim of strengthening the extramural R&D support, which should be the aim of NRF.
- (viii) Representation of major departments/ministries contributing to extra-mural R&D support such as DST and DBT may be included as part of NRF council, also to avoid duplication and to bring synergy in all major extra-mural support.
- (ix) The overall executive Head of NRF (COO/CEO) should be at the apex level.

10.2 The Committee welcomes the creation of a National Research Foundation to increase the resources for Research and Development and strengthening its outreach, although the logic of its being managed by the Ministry of Education is not very clear. Such a NRF must focus sharply on the natural sciences. Bringing social sciences also under its ambit is not advisable. Since, as stated by the Department of Science and Technology, the objectives, structure and processes of the proposed NRF duplicate or parallel some of the existing initiatives in the Ministry of Science & Technology, especially DST and DBT, the Committee is of the view that the National Research Foundation should work closely with the Ministry of Science and Technology to avoid duplication of efforts. The Committee endorses the view of the Department that DST and DBT be included in the NRF council, to avoid duplication and to bring synergy in all major extra-mural support. Further, the Principal Scientific Adviser to the Government should strongly consider focusing NRF efforts in under-served regions and under-funded areas of research, building research capacity of states and the ability of state governments to spend on R&D, and amplifying important strategic initiatives of the Ministry of Science and Technology.

RECOMMENDATIONS/OBSERVATIONS-AT A GLANCE

BUDGETARY DETAILS FOR THE FINANCIAL YEAR 2020-21 AND ALLOCATION FOR 2021-22

The Committee acknowledges that despite the restrictions imposed by Department of Economic Affairs and closure of some of its institutions, the Department has been able to utilise over 80 percent of the funds allotted during R.E. 2020-21 upto 31.01.2021. The Committee is satisfied with the utilisation of funds and recommends the Department to ensure its full utilisation by the end of the financial year. (Para 2.3)

The Committee is concerned about the impact of the reduction in budgetary allocation on the outcomes and physical targets of the Central Sector Schemes. The Committee, therefore, recommends that the Department should prioritise the available resources and ensure full utilisation of funds, especially, under research and development initiatives and projects, disbursement of fellowships and technology development programmes. Further, the Committee stresses on the Department to take all steps possible to ensure timely disbursement of fellowships and continuously monitor the status. (Para 2.6)

The Committee recommends that the Department should take necessary measures to ensure proper utilisation of these funds by end of the financial year so that the targeted outcomes linked to the initiatives of the Department under these heads are not adversely impacted. (Para 2.9)

The Committee expresses its satisfaction over the budgetary allocations for the Financial Year 2021-22 made to the Department and hopes that the increased allocation will enable the Department to regain the momentum lost due to COVID-19 pandemic in the implementation of its various ongoing schemes and new initiatives. (Para 2.11)

The Committee recommends the Department to prioritise its activities and optimise its resources in order to support critical projects under different schemes and sub-schemes, and if required, seek additional funds at the supplementary stage so that there is no adverse impact on the ongoing schemes/projects. (Para 2.13)

REVENUE AND CAPITAL ALLOCATIONS IN B.E. 2021-22

The Committee is constrained to note that details of the activities planned to be undertaken by the Department with the increased allocation for creation of Capital assets was not available in the documents furnished by the Department and break-up of budgetary allocations for Revenue and Capital Expenditure as well as funds allotted for Establishment Expenditure under various Budgetary Heads has not been made available. The Committee recommends that the Department should invariably furnish the

above information to the Committee to facilitate a more detailed analysis of Demands for Grants. (Para 3.3)

KEY INITIATIVES TAKEN BY THE DEPARTMENT:

GUIDELINES ON GEOSPATIAL DATA: LIBERALISATION AND DEMOCRATISATION

The Committee notes the economic, social, technological and developmental potential that lies in liberalisation and democratisation of the guidelines on acquisition and use of Geospatial data, and recommends that the Department should ensure better coordination between various agencies involved in the process to avoid duplicity of efforts, inordinate delays and waste of resources. The Committee is also concerned about the security related to sharing of geospatial information of sensitive and prohibited areas, and recommends the Department to develop fool proof mechanisms to ensure that the security of data is not compromised. (Para 4. 3)

The Committee recommends that the Department should promote start-ups and SMEs in the geo-spatial mapping sector by providing handholding, expertise, technology resource, early stage funding and incubation through its various entrepreneurship development programmes. The Committee also recommends the Department to actively promote the repository of geospatial data amongst possible buyers as a prospective revenue grosser. (Para 4.4)

NATIONAL MISSION ON INTERDISCIPLINARY CYBER PHYSICAL SYSTEM (NM- ICPS)

The Committee notes with appreciation the achievements of the Department under the Mission. The Committee recommends that the Department should ensure there are adequate mechanisms to avoid duplicity of efforts in these Hubs and that each Hub follows a life-cycle approach resulting in translation, commercialisation of knowledge and technologies developed. (Para 5.4)

Draft 5th Science, Technology, and Innovation Policy (STIP)

The Committee recognises the need for a new Science, Technology and Innovation (STI) Policy to strengthen the STI ecosystem and make it more competitive. The Committee advises the Department to share and interact with this Committee this important policy of national relevance, to further broaden the scope of consultation and inclusion of diverse ideas. (Para 6.3)

AUTONOMOUS BODIES OF THE DEPARTMENT

The Committee, therefore, recommends that the Department should impress upon all the Autonomous Institutions to enlist 10 goals/objectives that each of these Autonomous Institutions propose to pursue in the medium to long term plan. The Autonomous Institutions should further indicate the

goals/objectives that will be pursued during the year 2021-22 along with the steps that the Department plans to undertake to achieve these goals during the year. On its part, Department of Science and Technology should also develop a mechanism to periodically monitor the progress of the goals/objectives of each of these Institutions. The Department should also devise a framework of inter-Departmental consultation and coordination, with the aim of sharing research outcomes, optimising resource utilisation, avoiding overlaps and reducing redundancy. (Para 7.3)

The Committee also recommends that these Autonomous Institutions should be advised to explore avenues to augment revenue generation through technology transfer, consultancy services, patents, etc. On its part the Department should also set targets for the same and actively monitor the progress. (Para7.4)

The Committee, therefore, recommends that the Department should provide the necessary funds to the Birbal Sahni Institute to improve and upgrade its infrastructure. Further, the Department should undertake a thorough assessment of the physical infrastructure of its Institutions/Autonomous Bodies and provide all help to strengthen their infrastructure. (Para7.6)

Gross Expenditure on R&D (GERD)

The Committee recognises the efforts of the Department in promoting R&D activities and highlights the importance of a higher allocation of resources in Research and Development activities. However, the Committee is concerned with the stagnation and decline of Gross Expenditure on R&D as a percentage of GDP. The Committee cannot stress enough on the urgent need to enhance the GERD as a percentage of GDP and, therefore, urges the Department to undertake aggressive steps towards promoting private sector investment in Research and Development, especially since October 2019, companies have been allowed to use corporate social responsibility(CSR) funds for contributions towards research. (Para 8.2)

TECHNOLOGY DEVELOPMENT BOARD

The Committee notes the steps taken by the Department towards the restructuring of Technology Development Board and recommends that the Department should explore and implement all measures required to enable TDB function as a world-class entity. The Committee asks the Department to furnish updated status of the progress made with regard to the restructuring of TDB as a Section 8 Company. (Para 9.2)

NATIONAL RESEARCH FOUNDATION (NRF)

The Committee welcomes the creation of a National Research Foundation to increase the resources for Research and Development and

strengthening its outreach, although the logic of its being managed by the Ministry of Education is not very clear. Such a NRF must focus sharply on the natural sciences. Bringing social sciences also under its ambit is not advisable. Since, as stated by the Department of Science and Technology, the objectives, structure and processes of the proposed NRF duplicate or parallel some of the existing initiatives in the Ministry of Science & Technology, especially DST and DBT, the Committee is of the view that the National Research Foundation should work closely with the Ministry of Science and Technology to avoid duplication of efforts. The Committee endorses the view of the Department that DST and DBT be included in the NRF council, to avoid duplication and to bring synergy in all major extra-mural support. Further, the Principal Scientific Adviser to the Government should strongly consider focusing NRF efforts in under-served regions and under-funded areas of research, building research capacity of states and the ability of state governments to spend on R&D, and amplifying important strategic initiatives of the Ministry of Science and Technology.

(Para 10.2)

MINUTES

IV
FOURTH MEETING

The Committee met at 11:00 A.M. on Wednesday, the 17th February, 2021 in Committee Room 'A', Ground Floor, PHA, New Delhi.

MEMBERS PRESENT

1. Shri Jairam Ramesh -- **Chairman**

RAJYA SABHA

2. Shri Ashwini Vaishnaw
3. Shrimati Seema Dwivedi

LOK SABHA

4. Shri Guharam Ajgalley
5. Dr. Swami Sakshiji Maharaj
6. Shri Asaduddin Owiasi
7. Dr. Ranjan Singh Rajkumar
8. Shri Anurag Sharma
9. Shri Ram Shiromani
10. Shri Kirti Vardhan Singh
11. Dr. Ramapati Ram Tripathi

SECRETARIAT

Shri Pradeep Chaturvedi, Joint Secretary
Shri Rakesh Anand, Additional Director
Shri Rajiv Saxena, Under Secretary
Shri Harish Kumar, Committee Officer

Witnesses:

Department of Science and Technology

- (i) Prof Ashutosh Sharma, Secretary
 - (ii) Shri Vishvajit Sahay, Additional Secretary & FA
 - (iii) Smt. Anju Bhalla, Joint Secretary (Admin.)
 - (iv) Shri Sunil Kumar, Joint Secretary
 - (v) Prof. Sandeep Verma, Secretary, SERB
 - (vi) Shri Akhilesh Jha, CCA
 - (vii) Dr. Akhilesh Gupta, Scientist 'G' & Head
2. At the outset, the Chairman welcomed the Members of the Committee and the representatives of Department of Science and Technology (DST). He asked the Secretary to give a brief presentation on the Demands for Grants 2021-22 of

the Department and inform the Committee about the allocation requested and actually made to the Department for the year 2021-22; the potential impact of the shortfall on the current and proposed projects of the Department; and the strategy devised by the Department for dealing with situation arising due to the reduced allocation. The Chairman also asked the Secretary to dwell briefly on National Research Foundation (NRF) and how it fits into DST's work programme.

3. Thereafter, the Secretary, Department of Science and Technology made a power point presentation wherein the Committee was informed that the Department had made a demand of ₹ 7923.15 crore for 2021-22 against which they have been allocated ₹ 6067.39 crore. The huge shortfall might have impact on some of the key programmes being implemented including initiatives on International Cooperation, Grants to 28 State S&T Councils under the State Science & Technology Programme, etc. The Committee was further informed that the Department's allocation has been reduced to ₹ 5000.00 crore in R.E. 2020-21. It was also explained that reduction in allocation in R.E. 2020-21 was, firstly, because of the stressed cash position and expenditure restrictions imposed by the Department of Economic Affairs due to the COVID-19 pandemic and, secondly, because of the decrease in expenditure by the Department owing to closure of its institutions, restrictions on international travel and physical gatherings, etc. The Committee was also informed about the new initiatives planned by the Department such as liberalisation and democratisation of Geospatial Data; National Mission on Interdisciplinary Cyber Physical System (NM- ICPS); development of Technology Innovation Hubs under the National Quantum Technology Mission and the National Mission on Cyber-Physical Systems, creation of a new Science and Technology Innovation Policy (STIP), etc .

4. The Chairman and Members then raised various queries and concerns such as impact of reduction in budgetary allocation in R.E. 2020-21 on the initiatives of the Department; detailed break-up of allocation in B.E. 2021-22 under capital, revenue and establishment expenditure; industrial use and potential of commercialisation of research being done by the Department; increase in expenditure towards research and development and the share of public and private investment; measures that may be taken to enhance revenue generation; security concerns relating to the liberalization of geospatial data; outcome and target based performance of autonomous institutions under the Department; dilapidated building of the Birbal Sahani Institute of Palaeosciences, Lucknow, etc.

5. The representatives of the Department, while presenting their views, also responded to some of the queries raised by the Chairman and Members of the Committee. The Chairman directed the representatives of the Department to furnish detailed written replies to queries/points/issues raised by him and the Members of the Committee during the meeting, to the Secretariat, at the earliest.

6. The witnesses then withdrew.
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19. A verbatim record of the proceedings was kept.
20. The Committee adjourned at 2:00 p.m.

*Relate to other matters.

VII
SEVENTH MEETING

The Committee met at 2:30 P.M. on Thursday, the 4th March, 2021 in Committee Room No. 4, First Floor, PHAE, New Delhi.

MEMBERS PRESENT

1. Shri Jairam Ramesh -- **Chairman**

RAJYA SABHA

2. Shri Anil Baluni
3. Shri Ashwini Vaishnaw
4. Shrimati Seema Dwivedi

LOK SABHA

5. Shri Guharam Ajgalley
6. Shri Pradan Baruah
7. Dr. Swami Sakshiji Maharaj
8. Shri Asaduddin Owiasi
9. Shri Francisco Sardinha
10. Shri Ram Shiromani

SECRETARIAT

Shri Pradeep Chaturvedi, Joint Secretary
Shri T.N. Pandey, Director
Shri Rakesh Anand, Additional Director
Shri Rajiv Saxena, Under Secretary
Shri Harish Kumar, Committee Officer

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9. The Committee then considered the draft 341st, 342nd, 343rd, 344th, 345th, 346th and 347th reports on Demands for Grants 2021-22 of the Ministries/Departments of Atomic Energy, Biotechnology, Scientific & Industrial

*Relate to other matters.

Research, Science & Technology, Space, Environment, Forest & Climate Change; and Earth Sciences, respectively, and adopted the same. The Committee also decided to present/lay the reports to both the Houses of Parliament on the 8th March, 2021.

10. The Committee also decided to nominate the Chairman and, in his absence, Shri Ashwini Vaishnaw, and in his absence, Shrimati Seema Dwivedi to present the reports in Rajya Sabha and Dr. Swami Sakshiji Maharaj and, in his absence, Shri Fransisco Sardinha to lay the reports on the Table of Lok Sabha on the 8th March, 2021.

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13. The Committee adjourned at 4:30 p.m.

*Relate to other matters.