



FAST
INDIA

FOUNDATION FOR ADVANCING
SCIENCE AND TECHNOLOGY



Who Governs Science and Technology (S&T) in India?

S&T Decision Makers in Government of India

June 2022

Prepared by: Ayushee Thukral

Foundation for Advancing Science and Technology India (FAST-India)

 <https://fast-india.org/>

 info@fast-india.org



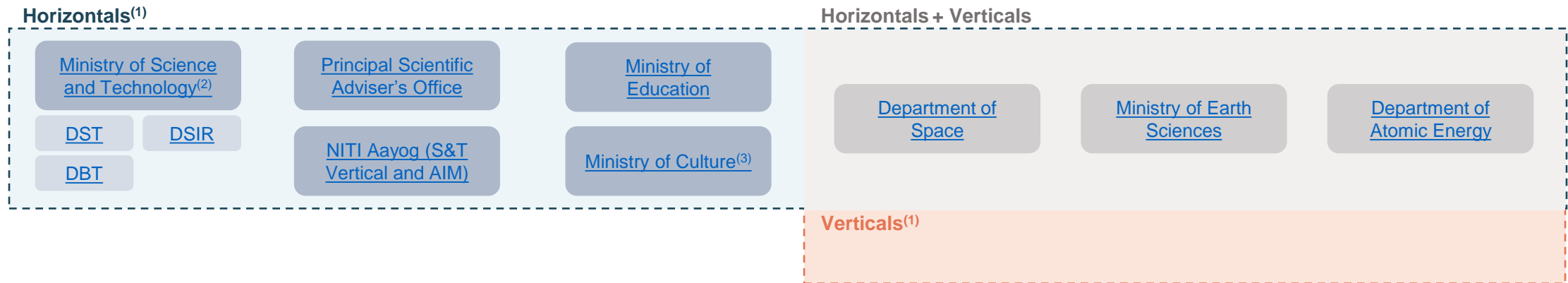
SECTION 1

S&T Ecosystem in India



Mapping the S&T Ecosystem at the Central Government Level in India: Key Ministries

Government of India S&T Ecosystem

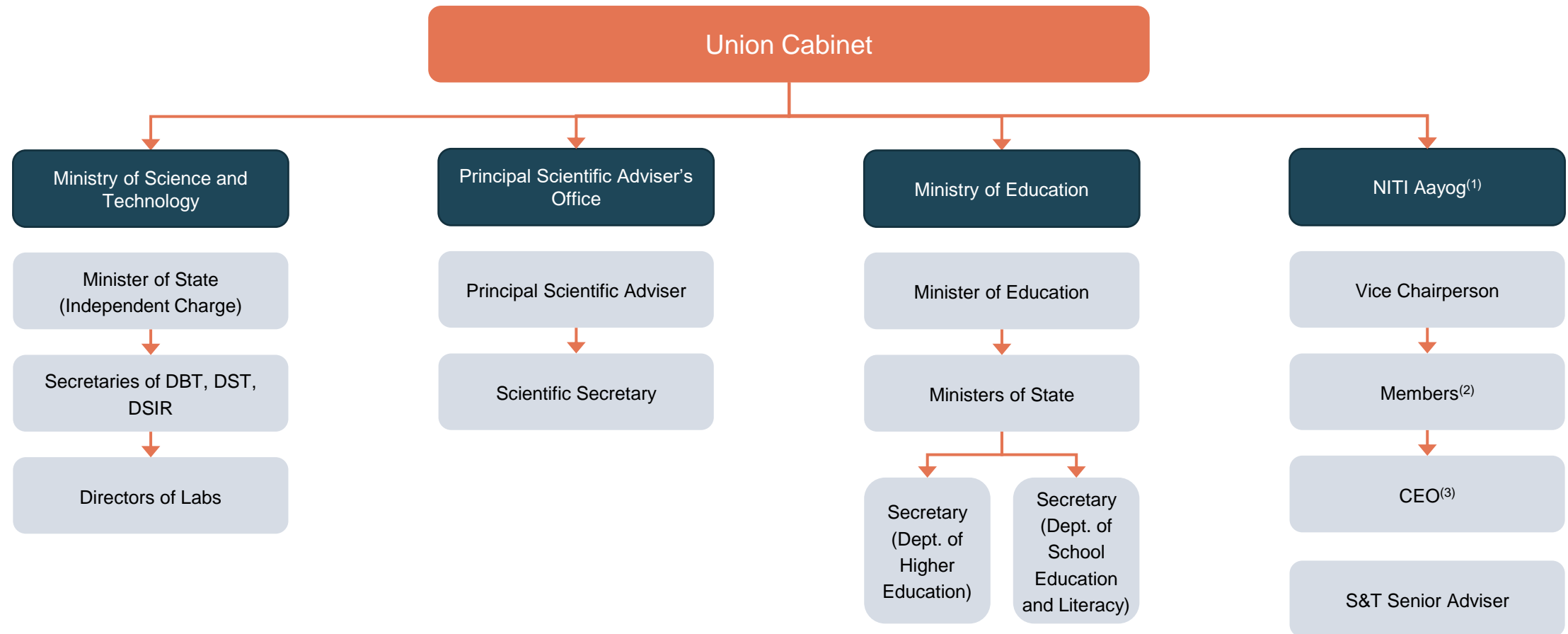


Additional Line Ministries with S&T Focus



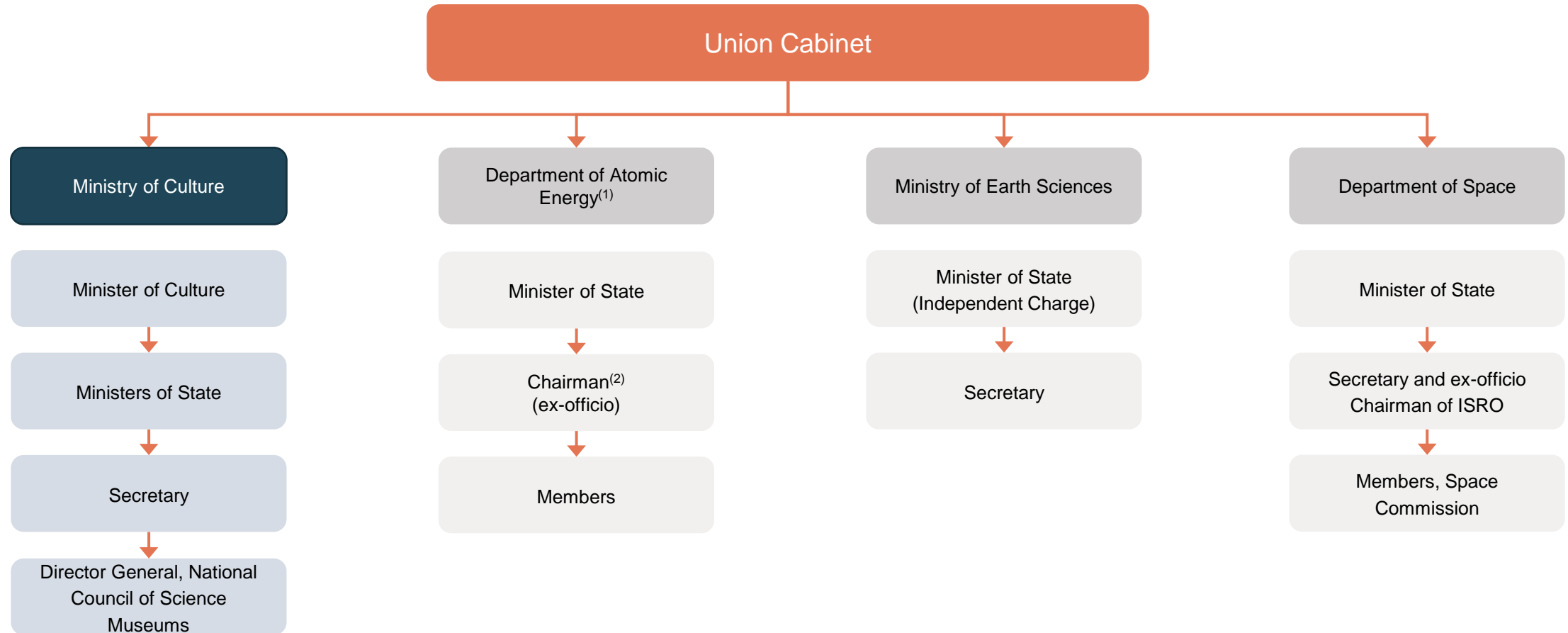
1. Horizontals have been defined as ministries that impact multiple stakeholders for a specific agenda irrespective of S&T domains (For eg: S&T Vertical, NITI Aayog seeks to strengthen S&T by association with multiple S&T agencies and departments). Verticals have been defined as ministries that are responsible for distinct domains of core S&T (For eg: Department of Space undertakes various programmes for promotion of R&D that are restricted to Space)
2. Looks after 3 core S&T departments: Department of Science and Technology (DST), Department of Science and Industrial Research (DSIR), Department of Biotechnology (DBT)
3. Responsible for National Council of Science Museums

Mapping the S&T Ecosystem at the Central Government Level in India: Reporting Lines for Core S&T Ministries



1. NITI Aayog structure includes governing council (comprising PM as Chairperson, Chief Ministers of all states and UTs with legislatures, and Lt Governors of other UTs), regional councils (created for fixed term to address specific issues), ex-officio members, special invitees
2. Includes part time members
3. Appointed in the rank of Secretary to Government of India

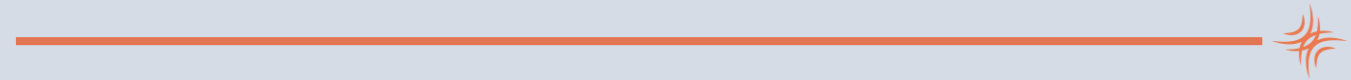
Mapping the S&T Ecosystem at the Central Government Level in India: Reporting Lines for Core S&T Ministries (cont'd)



1. Atomic Energy Commission is the governing body of the Department of Atomic Energy
 2. Secretary to the Government of India in the Department of Atomic Energy is ex-officio Chairman of the Commission

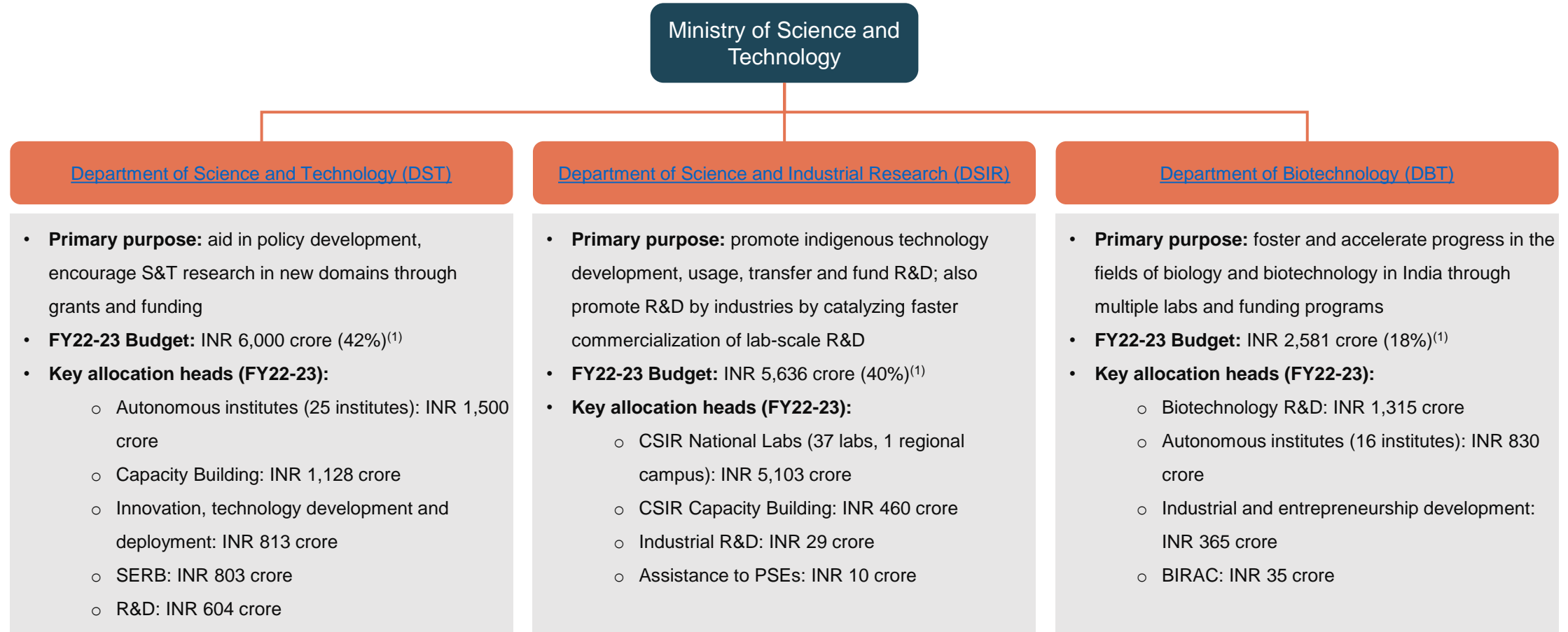


SECTION 2



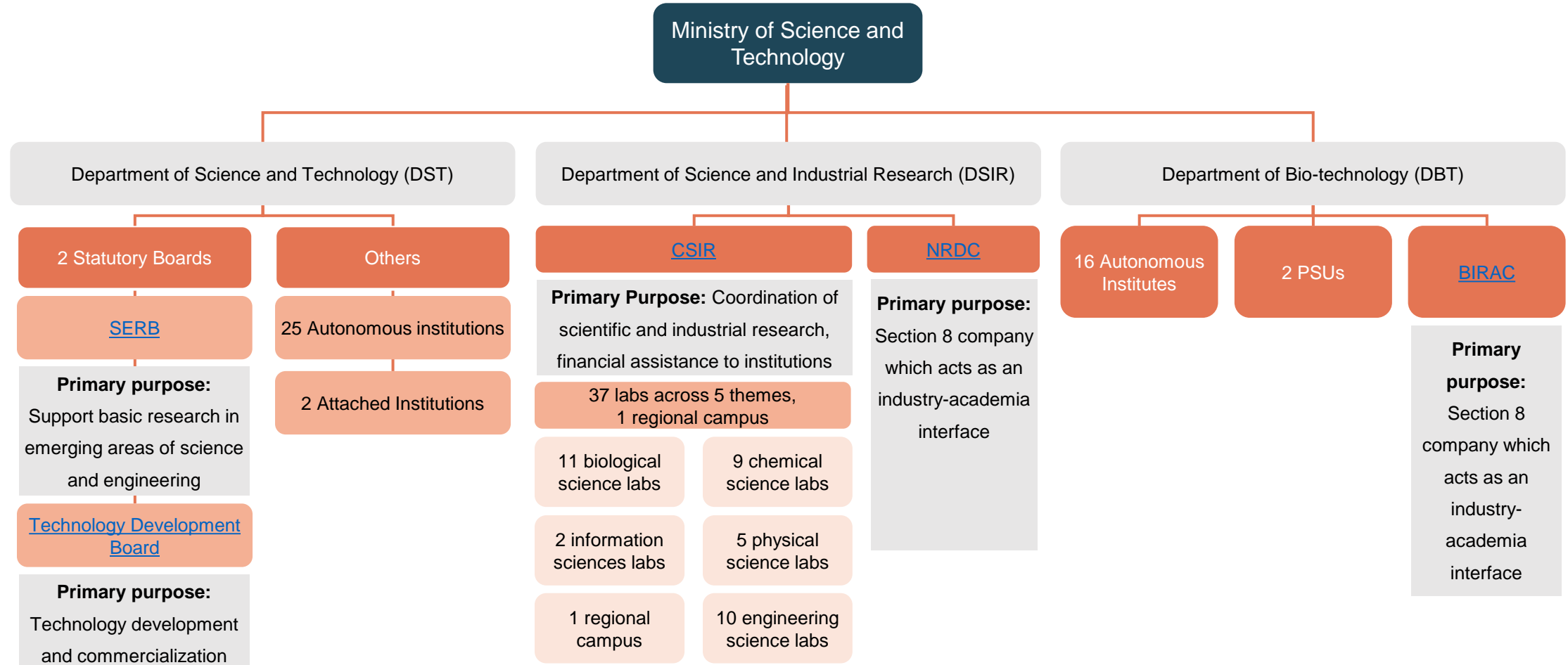
S&T Ecosystem in India: Horizontals

Ministry of Science and Technology: Structure Overview



1. Percentage of total FY22-23 ministry budget of INR 14,217 crore

Ministry of Science and Technology: Structure Overview (cont'd)



Principal Scientific Adviser to the Government of India

Principal Scientific Adviser (PSA) office has been set up to advise the Prime Minister and the cabinet in matters of science and technology. It enables collaboration across multiple stakeholders, provides ecosystem for emerging domains of S&T, and fosters effective public private linkages for research

Key Projects Undertaken by PSA's Office

PM's Science, Technology and Innovation Advisory Council (PM-STIAC)

- Overarching council that facilitates PSA's Office to assess the state of S&T across domains, recognise challenges, devise interventions and roadmaps, and advise the Prime Minister of India accordingly
- Supported by Invest India, PM-STIAC has facilitated delivery of nine national missions

Empowered Technology Group (ETG)

- ETG has been established to lay down, coordinate, and oversee national policies for :
 - Procurement of technologies
 - R&D in technology with large resource outlays
 - Determine direction of government's R&D development programmes

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

- Jointly initiated the 5th National Science, Technology and Innovation Policy as a holistic policy to reorient science, technology and innovation in terms of priorities, sectoral focus and strategies

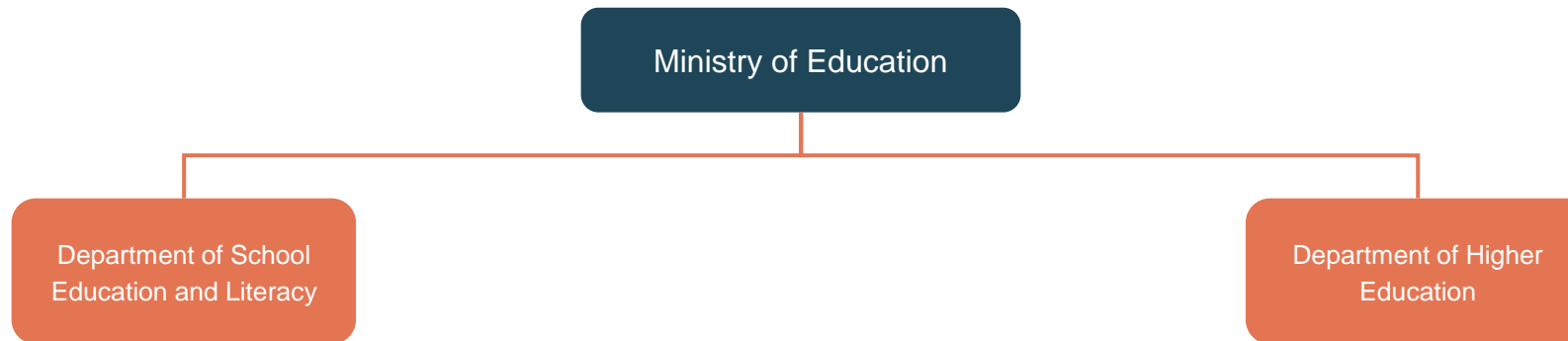
S&T Clusters

- S&T Clusters have been established across 5 cities in India as formal umbrella structures for S&T organisations
- These clusters will create strong linkages between academic institutions, industry, and government stakeholders

Key Highlight on Jurisdiction: In 2019, PSA headed a panel formed to resolve overlaps between NITI Aayog and MEITY's plans for AI. Panel announced its ruling in December 2020



Ministry of Education: Structure Overview



Key S&T Vertical

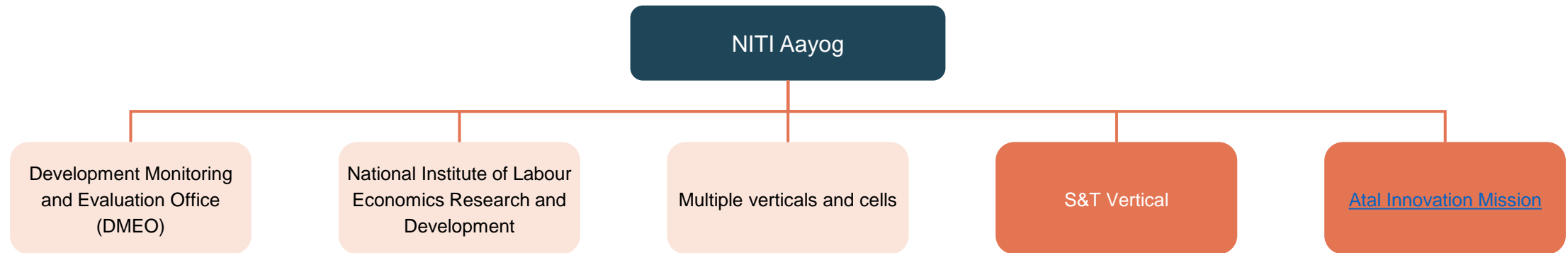
| | |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Department of Higher Education</p> | <p>Department responsible for institutes such as IITs, IIITs, IISERs, IISc. Also deals with all matters pertaining to UGC, central universities and open universities like IGNOU</p> |
| <p>Department of School Education and Literacy</p> | <p>Department responsible for school education including government schools such as Kendriya Vidyalaya, National Institute of Open Schooling (NIOS), organisations such as NCERT and CBSE</p> |

Budget for S&T Institutes of National Importance⁽¹⁾: **INR 11.1K crore** % of Total FY22-23 Ministry Budget: **27.3%**



1. Includes budget allocation for IITs, IIITs, IISER, IISc

NITI Aayog: Structure Overview



Key S&T Vertical

S&T Vertical

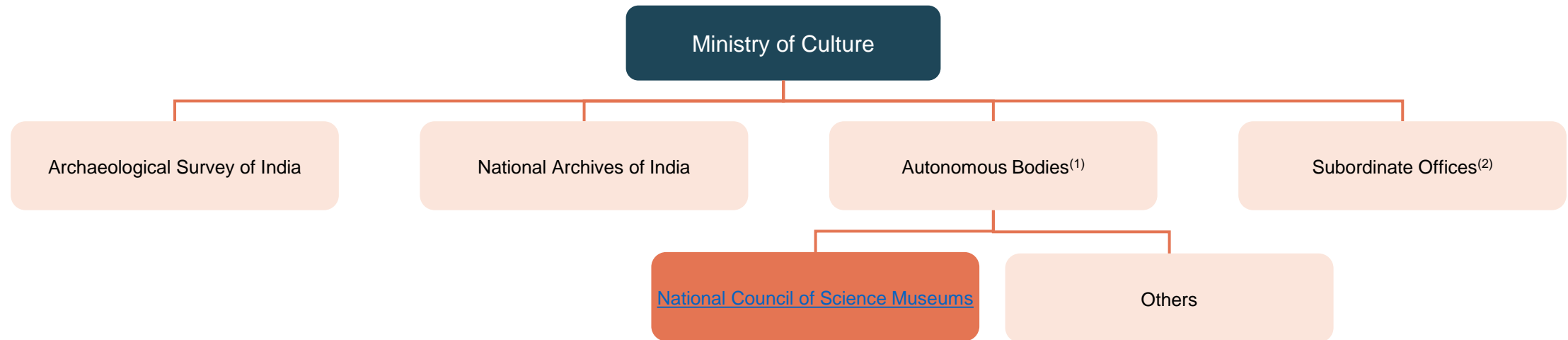
Seeks to strengthen science, technology and innovation in India in association with central scientific departments / agencies through plans, programmes and policy interventions. As the nodal division for S&T, it also examines and appraises programmes run by S&T departments / agencies. It is also involved in policy interventions such as 'Digital India', 'Make in India', National Research Foundation.

Atal Innovation Mission

Government of India's flagship initiative to create and promote culture of innovation and entrepreneurship in the country. It focuses on development of new programmes and policies to foster innovation in various sectors of the Indian economy and create an umbrella structure for innovation in India.



Ministry of Culture: Structure Overview



Key S&T Vertical

National Council of Science Museums

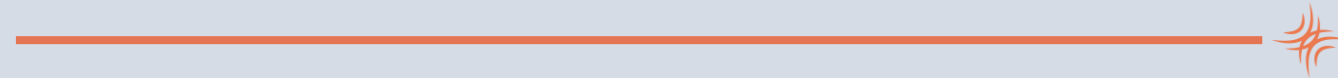
With a network of 25 national museums in India, NCSM strives to communicate science and educate masses through its science centres, and museums. It is involved in spread of science through outreach programs such as mobile science exhibitions, lectures and demonstrations, training and workshops, publications.



1. Includes Akademies, Buddhist Institutes, Libraries, Museums, Zonal Cultural Centres and others
 2. Includes 7 institutes such as National Library (Kolkata), National Museum (Delhi)



SECTION 3

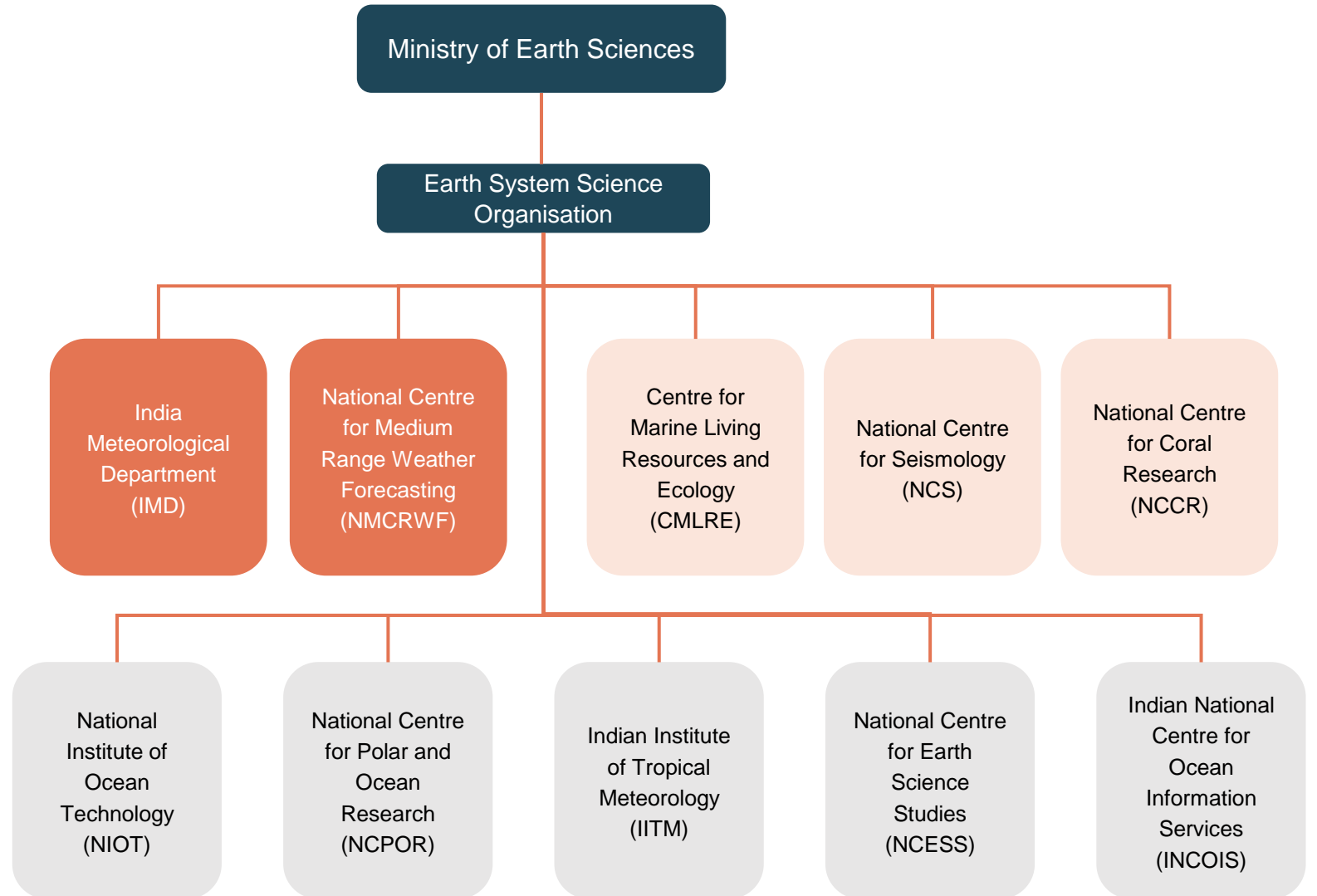


S&T Ecosystem in India: Horizontals + Verticals

Ministry of Earth Sciences

Earth Sciences:

Structure Overview



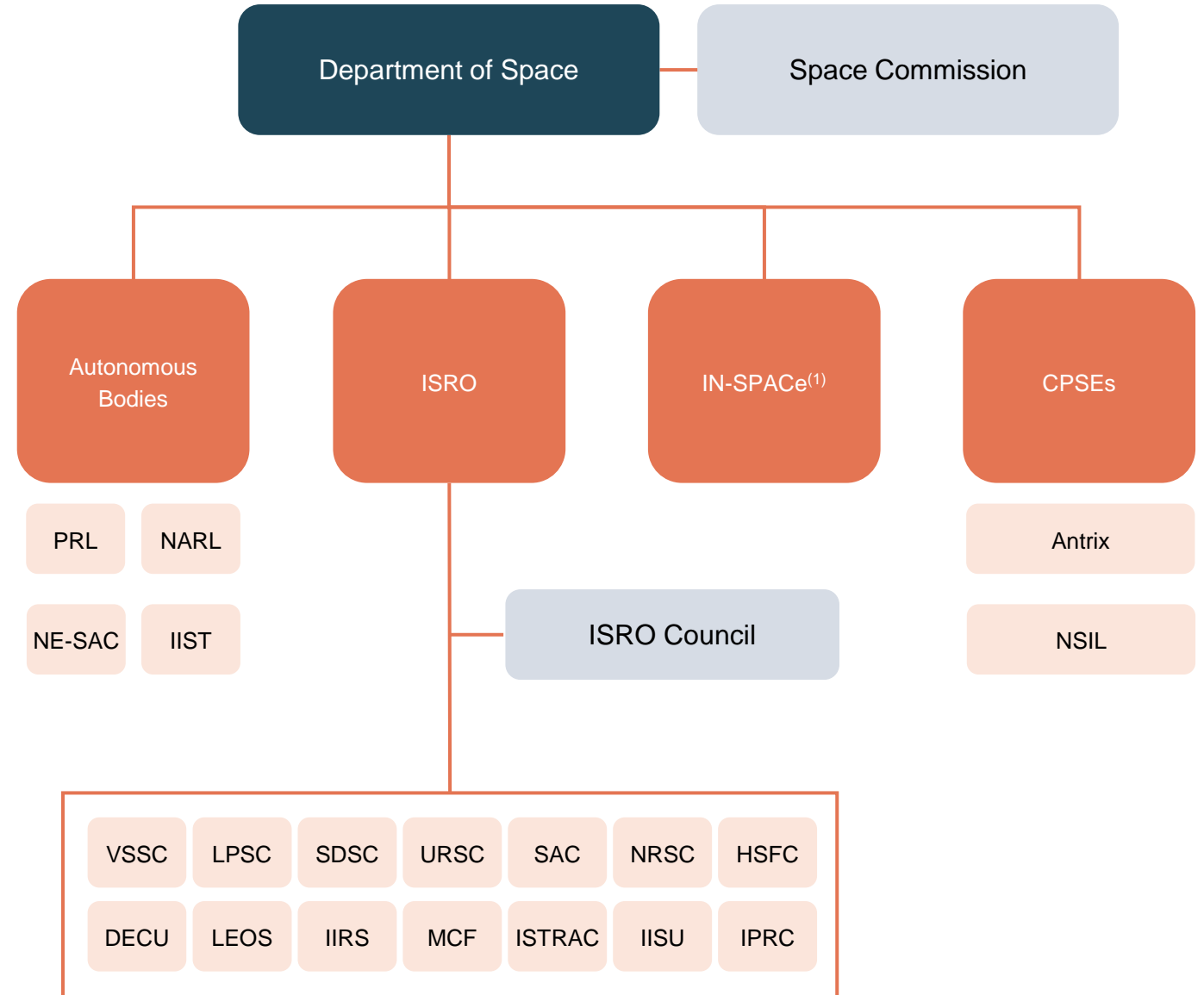
Ministry of Earth Sciences: Key S&T Verticals

| | |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| National Centre for Polar and Ocean Research (NCPOR) | <p>Involved in the country's research activities in the Polar and Southern Ocean realms, geoscientific surveys, management role in implementing all scientific and logistics activities and management of the ministry's research vessel ORV Sagar Kanya as well as the other research vessel chartered by the Ministry</p> |
| Indian National Centre for Ocean Information Services (INCOIS) | <p>Provide ocean data, information and advisory services to society, industry, the government and the scientific community through sustained ocean observations and constant improvements through systematic and focused research in information management and ocean modelling</p> |
| Indian Institute of Tropical Meteorology (IITM) | <p>Involved in multiple areas such as forecasting research, climatology and hydrometeorology, physical meteorology and aerology, instruments and observational techniques, boundary layer and land surface processes studies, theoretical studies, climate and global modelling</p> |
| National Centre for Earth Science Studies (NCESS) | <p>Foster multidisciplinary research in emerging areas of solid earth science, provide services by utilizing this knowledge for earth science applications and generate leadership capabilities in the selected areas</p> |
| National Centre for Medium Range Weather Forecasting (NCMRWF) | <p>Continuously develop advanced numerical weather prediction systems, with increased reliability and accuracy over India and neighboring regions through research, development and demonstration of new and novel applications, maintaining highest level of knowledge, skills and technical bases</p> |
| National Institute of Ocean Technology (NIOT) | <p>Develop world class technologies and their applications for sustainable utilization of ocean resources, to provide competitive, value added technical services and solutions to organisations working in the ocean, to develop a knowledge base and institutional capabilities for management of ocean resources and environment</p> |
| India Meteorological Department (IMD) | <p>Provide weather forecast for optimum operation of weather sensitive activities (such as agriculture, irrigation, shipping aviation), detect earthquakes and evaluate seismicity in different parts of country</p> |

Total FY22-23 Budget: INR 2.7K crore



Department of Space: Structure Overview



1. Akin to a space regulator that facilitates link between ISRO and private entities for space activities

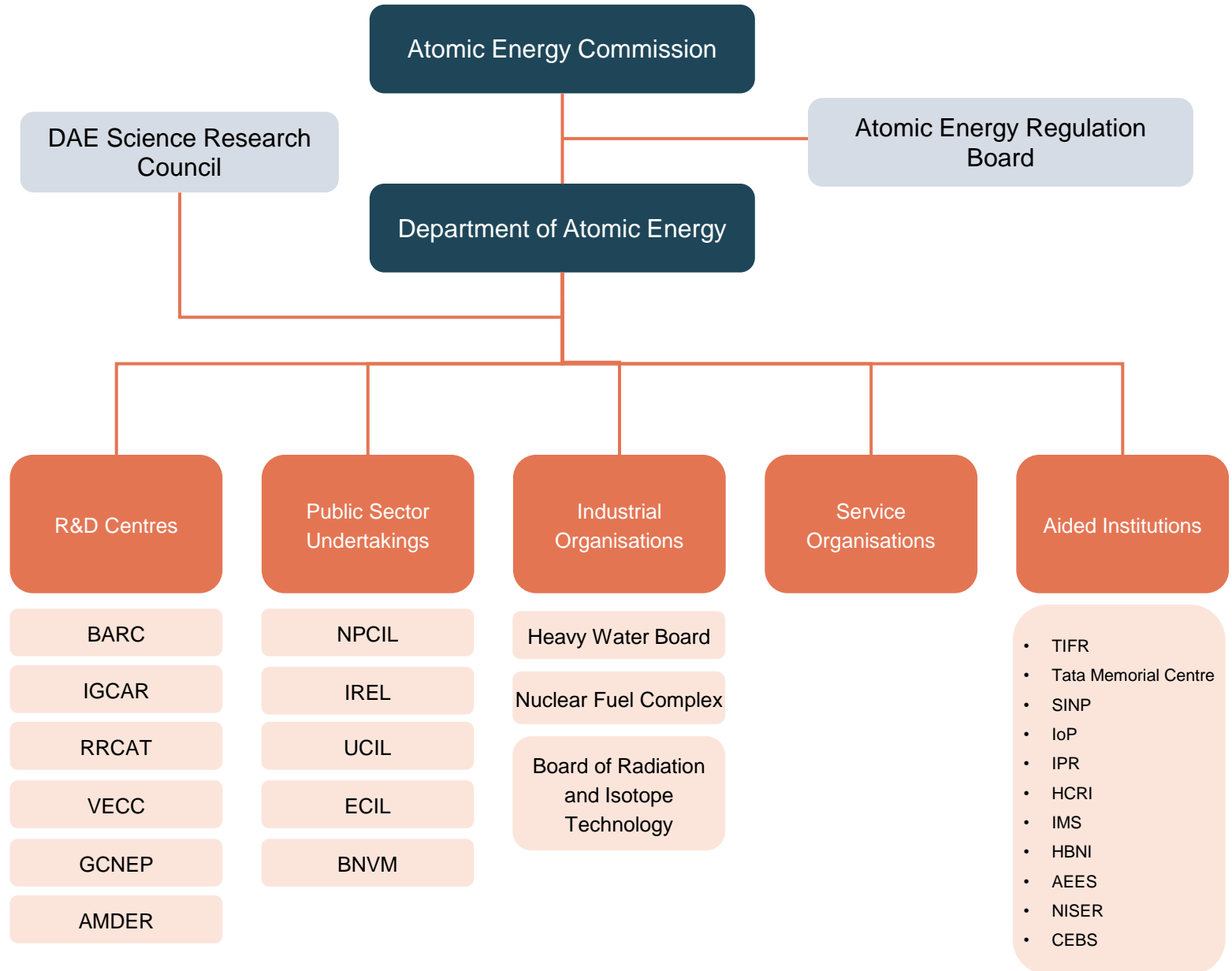
Department of Space: Key S&T Verticals

| | |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Antrix Corporation Limited (ACL) | <p>Commercial and marketing arm of ISRO that provides end-to-end solution for many of the space products ranging from supply of hardware and software including simple subsystems to a complex spacecraft for varied applications covering communications, earth observation and scientific missions; space related services including remote sensing data service</p> |
| Indian Space Research Organisation (ISRO) | <p>Involved in tasks related to space based application, space exploration and development of related technologies along with full launch capabilities, and rapid fleets of artificial satellites</p> |
| Indian Institute of Remote Sensing (IIRS) | <p>Concerned with designing and development of satellites for enhancing observation, communication, navigation, space science. Also contributes to societal development through space-based applications</p> |
| Indian Institute of Space Science Technology (IIST) | <p>Offers educational services in space program (space science, space technology, space applications) to undergraduate, graduate, doctoral and post doctoral levels</p> |
| <p>Indian National Space Promotion and Authorization Centre (IN-SPACe)</p> | <p>Autonomous body that facilitates a link between ISRO and other private entities in India for space activities</p> |
| New Space India Limited (NSIL) | <p>Acts as a commercial arm of ISRO that is involved in increasing industry participation in Indian space programs through transferring small satellite technology and knowledge to constituent units in India</p> |

Total capital outlay on R&D in FY22-23: **INR 7.5K crore** % of Total FY22-23 Ministry Budget: **54.5%**



Department of Atomic Energy: Structure Overview



Department of Atomic Energy: Key S&T Verticals

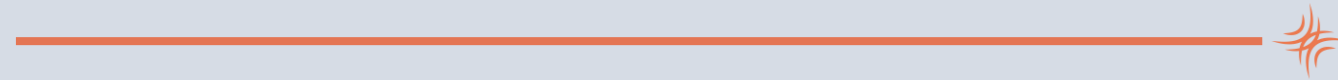
| | |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bhabha Atomic Research Centre (BARC) | <p>Engaged in research with the goal of developing knowledge and techniques for nuclear power generation, nuclear scientific progress, radioisotope application in industry, health, and agriculture, and research in frontier areas of science and technology</p> |
| Indira Gandhi Centre for Atomic Research (IGCAR) | <p>Major goal is to carry out broad-based interdisciplinary scientific research and advanced engineering program</p> |
| Variable Energy Cyclotron Centre (VECC) | <p>Its mission is to do cutting-edge research and development in the disciplines of accelerator science and technology, nuclear science, material science, computer science and technology, and related topics.</p> |
| Atomic Minerals Directorate for Exploration and Research (AMDER) | <p>Conducts geological investigation and discovers mineral reserves necessary for India's nuclear power development.</p> |
| Raja Ramanna Centre for Advanced Technology (RRCAT) | <p>Involved in non-nuclear front-line research in the fields of lasers, particle accelerators, and related technologies.</p> |
| Tata Institute of Fundamental Research (TIFR) | <p>Conducts research primarily in the natural sciences, mathematics, the biological sciences and theoretical computer science.</p> |
| Global centre for Nuclear Energy Partnership (GCNEP) | <p>Development of enhanced nuclear safeguards to effectively and efficiently monitor nuclear materials and facilities; promoting the development of advanced, more proliferation resistant nuclear power reactors; Involved in radiological, nuclear forensics</p> |

Capital outlay on atomic energy research in FY22-23: **INR 2.7K crore** % of Total FY22-23 Ministry Budget: **11.8%**



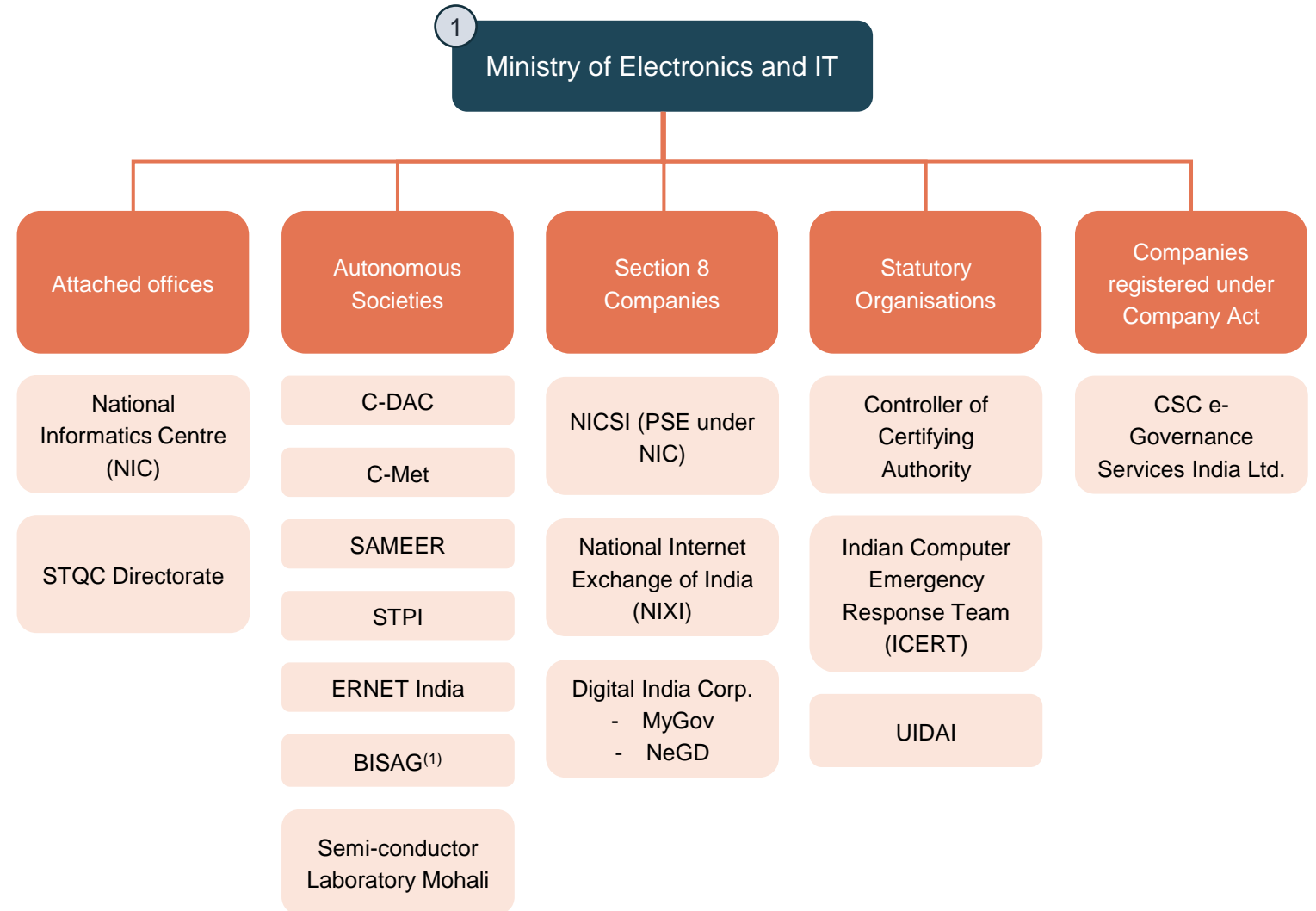


SECTION 4



Additional Line Ministries with an S&T Focus

Ministry of Electronics and IT (MeitY): Structure Overview



Ministry of Electronics and IT: Key S&T Verticals

[National Informatics Centre \(NIC\)](#)

Associated with contributing infrastructure, IT consultancy, varied IT services and implementation of IT systems to both central and state governments and ensuring timely government services to citizens

[Centre for Development of Advanced Computing \(CDAC\)](#)

Focus areas for CDAC include: (a) High Performance Computing/ Supercomputing and Grid Computing, (b) Indian Language Technologies, (c) Cyber Security, (d) Professional Electronics covering VLSI Technologies, Power Systems Technologies, Intelligent Transport Systems, (e) Health Informatics, (f) Software Technologies covering Free & Open Source Technologies and e-Governance Applications, and (g) Education Technologies covering e-Learning and intelligent Class Rooms

[Centre for Materials for Electronics Technology \(CMET\)](#)

Focus on building a knowledge base in electronic materials and processing technologies, as well as to become a supplier of key electronic materials, know-how, and technical services for industry and other sectors

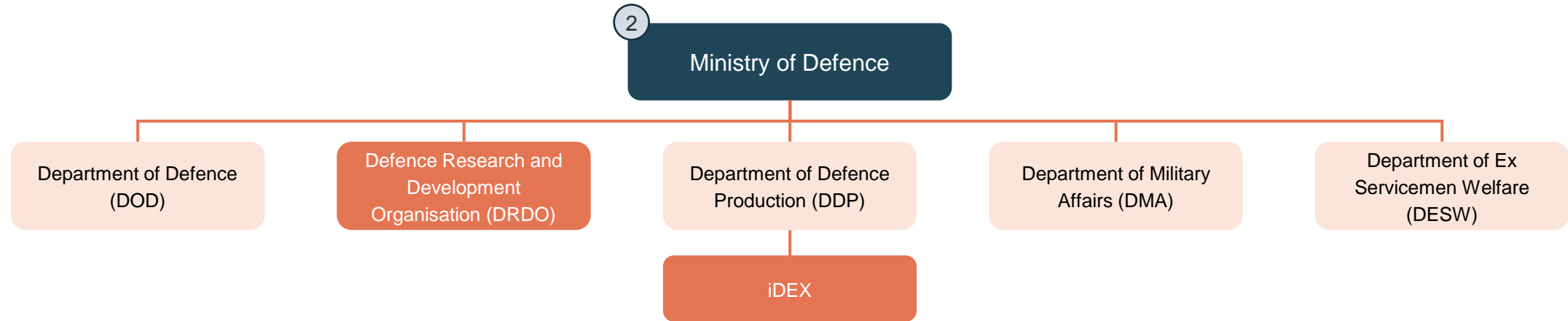
[Society for Applied Microwave Electronics Engineering and Research \(SAMEER\)](#)

SAMEER's goal and mission is to be a leader in application-oriented research in the fields of microwave/RF electronics and electromagnetism

Total FY22-23 Budget: **INR 14.3K crore**



Ministry of Defence: Key S&T Verticals



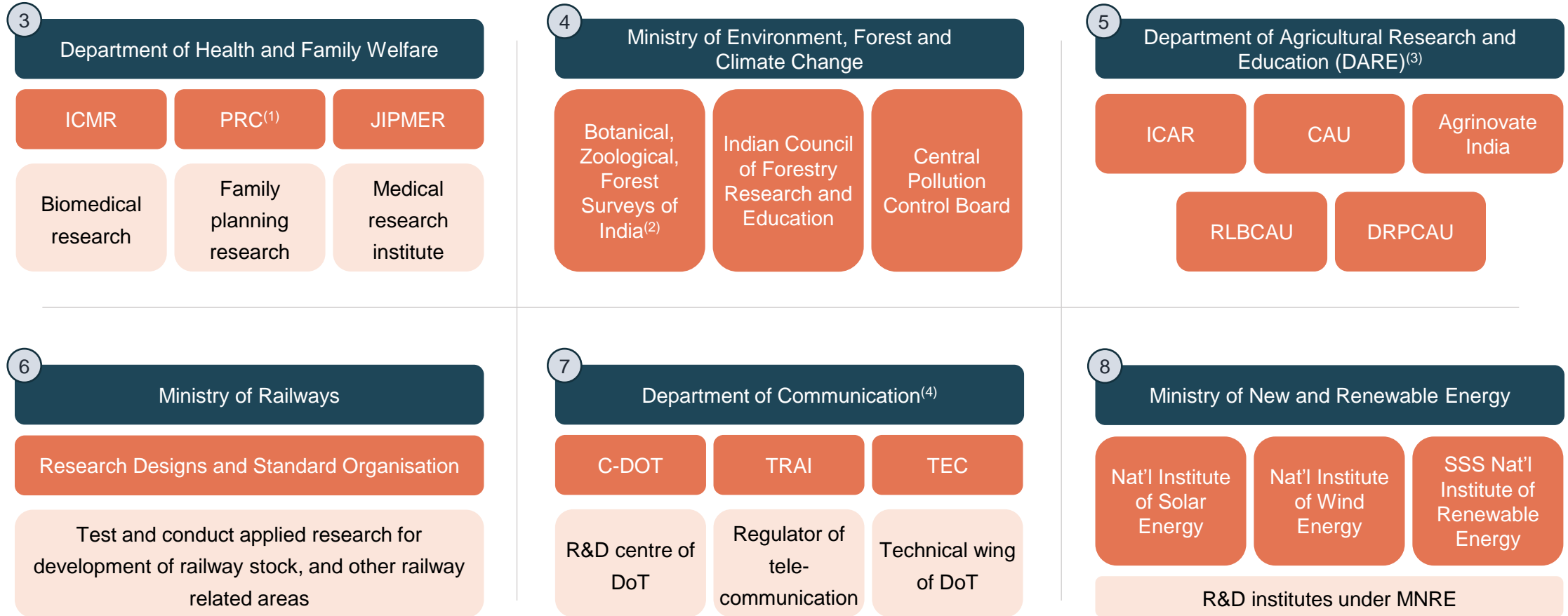
Key R&D Vertical

| | |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Defence Research and Development Organisation (DRDO) | R&D wing of Ministry of Defence with a view to entrust India with leading defence technologies and self reliance in critical defence technologies and systems. It aims to design, develop, and provide technological solutions and cater to infrastructural needs for a strong indigenous technology base |
| iDEX | Launched in 2018 with the aim of achieving self reliance and fostering innovation and technology development in defence and aerospace through engagement with industry (MSMEs, start-ups), R&D institutes, academia, innovators |

Total capital outlay on R&D in FY22-23: **INR 12.0K crore** % of Total FY22-23 Ministry Budget: **2.3%**



Other Line Ministries With S&T Focus: Key Verticals



1. Population Research Centre
2. Operate as 3 different subordinate offices under MoEFCC
3. Department under Ministry of Agriculture & Farmers Welfare. Agrinovate India: registered company to promote ICAR R&D; CAU / RLBCAU / DRPCAU: agricultural universities under DARE
4. Department of Communication under Ministry of Communication

- Verticals with significance to S&T
- Role played by identified verticals

Other Line Ministries With S&T Focus: Key Verticals (cont'd)

9 Ministry of Mines

- Geological Survey of India
- Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC)
- National Institute of Rock Mechanics (NIRM)

10 Ministry of AYUSH

- Central Council for Research in Ayurvedic Sciences (CCRAS)
- Central Council for Research in Unani Medicine (CCRUM)
- Central Council for Research in Siddha
- Central Council for Research in Homoeo-pathy (CCRH)
- Central Council for Research in Yoga & Naturopathy (CCRYN)





SECTION 5

R&D Funding: Who To Approach?

R&D Funding: Who to Approach?(1)

| | | |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Department of Science and Technology (DST) | Department of Scientific and Industrial Research (DSIR) | Department of Biotechnology (DBT) |
| Defence Research and Development Organization (DRDO) | Ministry of Earth Sciences (MoES) | Ministry of Education |
| Ministry of Electronics and Information Technology (MEITY) | Indian Space Research Organisation (ISRO) | Department of Atomic Energy (DAE) |
| Council of Scientific and Industrial Research (CSIR) | University Grants Commission (UGC) | All India Council for Technical Education (AICTE) |
| Ministry of Coal (MOC) | Indian Council of Medical Research (ICMR) | Ministry of Environment, Forest, and Climate Change (MOEFCC) |
| Ministry of Food Processing Industries (MFPI) | Ministry of New and Renewable Energy (MNRE) | Central Power Research Institute (CPRI) |
| | Ministry of Water Resources | |





APPENDIX A



Ministry of S&T: List of Laboratories

DST: List of Institutes

| S.No | Lab | Sub Area |
|-----------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Autonomous Institutes | | |
| 1 | Agharkar Research Institute (ARI) | Animal sciences, microbial sciences, plant sciences |
| 2 | Aryabhata Research Institute of Observational Sciences (ARIES) | Astronomy & astrophysics |
| 3 | Birbal Sahni Institute of Palaeobotany (BSIP) | Palaeobotany, geology, fossil fuels |
| 4 | Bose Institute (BI) | Plant research, molecular medicine, environmental sciences |
| 5 | Centre for Nano and Soft Matter Sciences (CeNS) | Metal and semiconductor nanostructures, liquid crystals, gels, membranes and hybrid materials |
| 6 | Indian Association for the Cultivation of Science (IACS) | Chemistry |
| 7 | Indian Institute of Astrophysics (IIA) | Physics, chemistry, biological sciences, mathematical and computational sciences, materials sciences and various interdisciplinary areas |
| 8 | Indian Institute of Geomagnetism (IIGM) | Geophysics, space physics, plasma physics, geomagnetism |
| 9 | International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI) | Nano material, surface engineering, ceramics, laser processing, automotive energy |
| 10 | Institute of Nano Science and Technology (INST) | Nanoscience and nanotechnology |



DST: List of Institutes

| S.No | Lab | Sub Area |
|-----------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Autonomous Institutes | | |
| 11 | National Innovation Foundation (NIF) | Sustainable technologies |
| 12 | Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) | Material science, chemistry, theoretical science, neuroscience, molecular biology, genetics, evolutionary biology |
| 13 | Raman Research Institute (RRI) | Stochastic processes, active matter systems, soft and hard condensed matter, atomic and optical systems |
| 14 | Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST) | Cardiac and neurological disorders, biomedical devices and materials and public health training |
| 15 | SN Bose National Centre for Basic Sciences (SNBNCBS) | Astrophysics, cosmology, condensed matter physics, macro molecular sciences |
| 16 | Technology Information, Forecasting and Assessment Council (TIFAC) | Sustainable Mobility, Renewable powered EV charging infrastructure, Electric Mobility |
| 17 | The Institute of Advanced Study in Science and Technology (IASST) | Material sciences, life sciences, resource management, mathematical and environmental sciences |
| 18 | North East Centre for Technology Application and Reach (NECTAR) | Watershed management, telemedicine, horticulture, infrastructure planning & development |
| 19 | Wadia Institute of Himalayan Geology (WIHG) | Geodynamic processes, climate variability, natural resources |
| 20 | Vigyan Prasar (VP) | Building communication strategy with STEM and STEAM institutions |



DST: List of Institutes

| S.No | Lab | Sub Area |
|---------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 21 | Indian Academy of Sciences, Bangalore | Promoting progress and upholding the cause of science |
| 22 | Indian National Academy of Engineering, New Delhi | engineering & technology development |
| 23 | Indian National Science Academy, New Delhi | promoting science in India and harnessing scientific knowledge for the cause of humanity and national welfare |
| 24 | Indian Science Congress Association, Kolkata | To advance and promote the cause of science in India by holding an annual meeting for scientists across the country |
| 25 | National Academy of Sciences, Allahabad | publication of research work carried out by Indian scientists and to provide opportunities for exchange of views among them |
| Attached Institutes | | |
| 1 | National Atlas and Thematic Mapping organisation (NATMO) | Thematic cartography and geographical research |
| 2 | Survey of India (SI) | Advancement of theory, practice, collection and applications of geospatial data, and promotion of an active exchange of information and technological innovations amongst the data producers and users |
| Statutory Board | | |
| 1 | Science and Engineering Research Board (SERB) | Support basic research in emerging areas of science and engineering |
| 2 | Technology Development Board (TDB) | Technology development and commercialisation |



DSIR: List of CSIR Labs

| S.No | Lab | Sub Area |
|---------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Biological Sciences | | |
| 1 | Centre for Cellular and Molecular Biology (CCMB) | Development, structural, cell and stem biology |
| 2 | Central Drug Research Institute (CDRI) | Informatics, evolutionary bioinformatics, computational structural biology, rational drug design |
| 3 | Central Institute of Medicinal & Aromatic Plants (CIMAP) | Technology and services to farmers and entrepreneurs of medicinal and aromatic plants |
| 4 | Central Food Technological Research Institute (CFTRI) | Food protection and food safety technology |
| 5 | Institute of Genomics & Integrative Biology (IGIB) | Modern biotechnology, genomics and genome informatics |
| 6 | Institute of Himalayan Bioresource Technology (IHBT) | Bioresources for catalyzing bio economy sustainably |
| 7 | Indian Institute of Chemical Biology (IICB) | Cancer biology and inflammatory disorder, cell biology and physiology, molecular genetics, organic and medical chemistry |
| 8 | Indian Institute of Integrative Medicine (IIIM) | Medicinal chemistry, biotechnology of plants and microbial secondary metabolites, phyto-pharmaceutical drug discovery |
| 9 | Institute of Microbial Technology (IMTECH) | Molecular biology, Microbial genetics, Immunology, Fermentation technology, Applied Microbiology |
| 10 | Indian Institute of Toxicology Research (IITR) | Environmental toxicology, food, drug and chemical toxicology, regulatory toxicology, toxico-informatics and industrial research |



DSIR: List of CSIR Labs

| S.No | Lab | Sub Area |
|-------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 11 | National Botanical Research Institute (NBRI) | Various aspects of plant science such as prospection and genetic improvement for sustainable development and human welfare |
| Chemical Sciences | | |
| 1 | Central Electrochemical Research Institute (CECRI) | Corrosion science and engineering, electrochemical materials, functional materials and nanoscale electrochemistry, etc. |
| 2 | Central Leather Research Institute (CLRI) | Enzyme technology, in vivo and in vitro studies on connective tissue metabolism, development of low molecular weight peptides and plant products |
| 3 | Central Institute of Mining and Fuel Research (CIMFR) | Coal mining and coal-based energy chain encompassing exploration, mining, exploitation |
| 4 | Central Salt & Marine Chemicals Research Institute (CSMCRI) | Membrane based water purification, desalination & separations, marine micro and macro algae and halophytes |
| 5 | Indian Institute of Chemical Technology (IICT) | Medicinal chemistry, drug discovery, chemical biology, chemo-informatics, and biochemistry |
| 6 | Indian Institute of Petroleum (IIP) | Thermal conversion, fluid catalytic cracking, hydro-processing and advanced gas separation |
| 7 | National Chemical Laboratory (NCL) | Chemistry, biology and chemical engineering |
| 8 | North-East Institute of Science & Technology (NEIST) | Agrotechnology, biological and oil field chemicals, beneficiation chemicals, ecology and environmental studies |
| 9 | National Institute for Inter-disciplinary Science and Technology (NIIST) | Agro-processing, microbial process, chemical science, material science and environmental technology |



DSIR: List of CSIR Labs

| S.No | Lab | Sub Area |
|----------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Engineering Sciences | | |
| 1 | Advanced Materials and Processes Research Institute (AMPRI) | Mineral processing, water resource modelling and problems related to agriculture, mining, and thermal power plant machinery components |
| 2 | Central Building Research Institute (CBRI) | Green and energy efficient buildings, industrialised building systems, use of recycled and environment friendly building materials |
| 3 | Central Glass and Ceramic Research Institute (CGCRI) | Glass, ceramics, mica, refractories related research |
| 4 | Central Mechanical Engineering Research Institute (CMERI) | Industrial and technical consultancy, manufacturing and material processing, engineering designs and analysis, energy and environment |
| 5 | Central Road Research Institute (CRR) | Design, construction and maintenance of roads and runways, traffic and transportation planning of mega and medium cities |
| 6 | Institute of Minerals and Materials Technology (IMMT) | Address the R&D problems of mining, mineral and metals industries and ensure their sustainable development |
| 7 | National Aerospace Laboratories (NAL) | Computational fluid dynamics, experimental aerodynamics, meteorological modelling |
| 8 | National Environmental Engineering Research Institute (NEERI) | Air pollution monitoring and control, water technology and management, climate change, cleaner technology, etc. |
| 9 | National Metallurgical Laboratory (NML) | Minerals, metals and materials research |
| 10 | Structural Engineering Research Centre (SERC) | Advanced materials for sustainable structure, disaster mitigation, structural health monitoring and life extension |



DSIR: List of CSIR Labs

| S.No | Lab | Sub Area |
|----------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Information Sciences | | |
| 1 | National Institute of Science Communication and Policy Research (NISCPR) | Promote STI policy studies, act as a bridge at the interface of science, technology, industry and society |
| 2 | CSIR Fourth Paradigm Institute (FPI) | Develop reliable knowledge products for decision support in earth, engineering and information sciences |
| Physical Sciences | | |
| 1 | Central Electronics Engineering Research Institute (CEERI) | Electronics, allied engineering, microwave tubes, plasma devices, nano structure |
| 2 | Central Scientific Instruments Organisation (CSIO) | instrumentation and skill development program; research, design and development of scientific and industrial instruments. |
| 3 | National Geophysical Research Institute (NGRI) | Earth science research (electrical geophysics, geochemistry, geology, seismology) |
| 4 | National Institute of Oceanography (NIO) | Oceanography: biological, chemical, geological/geophysical, and physical – as well as ocean engineering, marine instrumentation and marine archaeology |
| 5 | National Physical Laboratory (NPL) | Solar cells, bio-medical, and quantum information processing |
| Regional Campus | | |
| 1 | Madras Complex | Five laboratories with regional centres in Madras Complex (CECRI, CEERI, CSIO, NEERI, NML) |



DBT: List of Institutes

| S.No | Lab | Sub Area |
|-----------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Autonomous Institutes | | |
| 1 | National Institute of Immunology (NII) | Immunology (infection and immunity, molecular design, gene regulation and reproduction and development), anticancer agents |
| 2 | National Centre for Cell Science (NCCS) | Biology of cancer and chronic diseases, stem cells, macromolecular structure, genome architecture |
| 3 | National Brain Research Centre (NBRC) | Neuroscience |
| 4 | Center for DNA Fingerprinting and Diagnostics (CDFD) | Bacterial genetics, computational biology, genome architecture |
| 5 | National Institute of Plant Genome Research (NIPGR) | Genome mining, molecular mapping, stress biology and nutritional genomics for crop improvement |
| 6 | Institute of Life Sciences (ILS) | Pathogen biology, immune-regulation and protective immunity and inflammatory processes at cellular and molecular levels |
| 7 | Institute of Bioresources and Sustainable Development (IBSD) | Medicinal and aromatic plants, orchids and bamboo, ethnobiological studies, natural product chemistry, microbial diversity |
| 8 | Rajiv Gandhi Centre for Biotechnology (RGCB) | Molecular Medicine, structural Biology, agricultural biotechnology |
| 9 | Institute for Stem Cell Science and Regenerative Medicine (ICSRM) | Stem cell and regenerative medicine |
| 10 | Translational Health Science and Technology Institute (THSTI) | Immunology, maternal and child health |



DBT: List of Institutes

| S.No | Lab | Sub Area |
|-----------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Autonomous Institutes | | |
| 11 | National Institute of Biomedical Genomics (NIBMG) | Genetic, pathogenesis, computational genomics |
| 12 | Regional Centre for Biotechnology (RCB) | Cancer biology & therapeutics, systems & synthetic biology, molecular medicine |
| 13 | National Agri-Food Biotechnology Institute (NABI) | Agri biotechnology, food and nutritional biotechnology |
| 14 | National Institute of Animal Biotechnology (NIAB) | Animal genetics and genomics, transgenic technology, reproductive biotechnology, infectious diseases, bioinformatics and nutrition enrichment |
| 15 | CIAB (formerly Bio-Processing Unit) | Valorization of crop waste, nutritionals, nutraceuticals, and upgradation of value or of use of primary processing bioproducts |
| 16 | International Centre for Genetic Engineering and Biotechnology | Advanced experimental research in the development of biotechnology development |
| PSUs | | |
| 1 | Bharat Immunological & Biological Corporation | Biotechnology, pharmaceutical products |
| 2 | Indian Vaccine Corporation Ltd (IVCOL) | |
| 3 | Biotechnology Industry Research Assistance Council (BIRAC) | Biotechnology in academia-industry partnerships |





APPENDIX B

Glossary



Glossary: Key Terms

| | Term | Definition |
|----|--------|----------------------------------------------------|
| 1 | DST | Department of Science and Technology |
| 2 | DBT | Department of Biotechnology |
| 3 | DSIR | Department of Science and Industrial Research |
| 4 | PSA | Principal Scientific Advisor |
| 5 | CSIR | Council Of Scientific And Industrial Research |
| 6 | SERB | Science and Engineering Research Board |
| 7 | BIRAC | Biotechnology Industry Research Assistance Council |
| 8 | PSE | Public Sector Enterprise |
| 9 | PRL | Physical Research Laboratory |
| 10 | NARL | National Atmospheric Research Laboratory |
| 11 | NE-SAC | North Eastern Space Application Centre |
| 12 | IIST | Indian Institute of Space Science and Technology |
| 13 | VSSC | Vikram Sarabhai Space Centre |
| 14 | LPSC | Liquid Propulsion Systems Centre |
| 15 | SDSC | Satish Dhawan Space Centre |
| 16 | URSC | U R Rao Satellite Centre |

| | Term | Definition |
|----|--------|----------------------------------------------------|
| 17 | SAC | Space Applications Centre |
| 18 | NRSC | National Remote Sensing Centre |
| 19 | HSFC | Human Space Flight Centre |
| 20 | DECU | Development and Educational Communication Unit |
| 21 | LEOS | Laboratory for Electro-Optics Systems |
| 22 | IIRS | Indian Institute of Remote Sensing |
| 23 | MCF | Master Control Facility |
| 24 | ISTRAC | ISRO Telemetry, Tracking and Command Network |
| 25 | MeiTY | Ministry of Electronics and Information Technology |
| 26 | IISU | ISRO Inertial Systems Unit |
| 27 | HSFC | Human Space Flight Centre |
| 28 | IPRC | ISRO Propulsion Complex |
| 29 | CPSE | Central Public Sector Enterprises |
| 30 | BARC | Bhabha Atomic Research Centre |
| 31 | IGCAR | Indira Gandhi Centre for Atomic Research |
| 32 | RRCAT | Raja Ramanna Centre for Advanced Technology |



Glossary: Key Terms

| | Term | Definition |
|----|-------|----------------------------------------------------------|
| 33 | VECC | Variable Energy Cyclotron Centre (VECC) |
| 34 | GCNEP | Global Centre for Nuclear Energy Partnership |
| 35 | AMDER | Atomic Minerals Directorate for Exploration and Research |
| 36 | NPCIL | Nuclear Power Corporation of India Limited |
| 37 | IREL | Indian Rare Earths Ltd. |
| 38 | UCIL | Uranium Corporation of India |
| 39 | ECIL | Electronics Corporation of India Limited |
| 40 | BNVM | Bharatiya Nabhikiya Vidyut Nigam |
| 41 | TIFR | Tata Institute Of Fundamental Research |
| 42 | SINP | Saha Institute Of Nuclear Physics |
| 43 | IoP | Institute Of Physics. |
| 44 | IPR | Institute For Plasma Research. |
| 45 | HCRI | Harish - Chandra Research Institute |
| 46 | IMS | Institute Of Mathematical Sciences |
| 47 | HBNI | Homi Bhabha National Institute |
| 48 | AEES | Atomic Energy Education Society |

| | Term | Definition |
|----|--------|------------------------------------------------------------------|
| 49 | NISER | National Institute Of Science Education & Research |
| 50 | CEBS | Centre For Excellence In Basic Sciences. |
| 51 | ERNET | The Education and Research Network |
| 52 | BISAG | Bhaskaracharya Institute for Space Applications & Geoinformatics |
| 53 | NICSI | National Informatics Centre Services Inc. |
| 54 | CSC | Common Services Centers |
| 55 | UIDAI | Unique Identification Authority of India |
| 56 | iDEX | Innovations for Defence Excellence |
| 57 | ICMR | Indian Council of Medical Research |
| 58 | PRC | Professional Regulation Commission |
| 59 | JIPMER | Jawaharlal Institute of Postgraduate Medical Edu. and Research |
| 60 | ICAR | Indian Council of Agricultural Research |
| 61 | CAU | Central Agricultural University |
| 62 | RLBCAU | Rani Lakshmi Bai Central Agricultural University |
| 63 | DRPCA | Dr. Rajendra Prasad Central Agricultural University |
| 64 | MoEFCC | Ministry of Environment, Forest and Climate Change |





APPENDIX C

Sources

Sources

1. Demand No. 89, Department of Science and Technology, Ministry of Science and Technology, <https://www.indiabudget.gov.in/doc/eb/sbe89.pdf>
2. Demand No. 90, Department of Biotechnology, Ministry of Science and Technology, <https://www.indiabudget.gov.in/doc/eb/sbe90.pdf>
3. Demand No. 91, Department of Scientific and Industrial Research, Ministry of Science and Technology, <https://www.indiabudget.gov.in/doc/eb/sbe91.pdf>
4. "Demand for Grants 2022-23 Analysis, Science and Technology", PRS Legislative Research, February 14, 2022, https://prsindia.org/files/budget/budget_parliament/2022/DFG%20Analysis_2022-23_Science%20and%20Technology.pdf
5. Demand No. 3, Department of Atomic Energy, <https://www.indiabudget.gov.in/doc/eb/sbe3.pdf>
6. Demand No. 19, Ministry of Defence (Civil), Ministry of Defence, <https://www.indiabudget.gov.in/doc/eb/sbe19.pdf>
7. Demand No. 20, Defence Services, Ministry of Defence, <https://www.indiabudget.gov.in/doc/eb/sbe20.pdf>
8. Demand No. 21, Capital Outlay on Defence Services, Ministry of Defence, <https://www.indiabudget.gov.in/doc/eb/sbe21.pdf>
9. Demand No. 22, Defence Pensions, Ministry of Defence, <https://www.indiabudget.gov.in/doc/eb/sbe22.pdf>
10. Demand No. 24, Ministry of Earth Sciences, <https://www.indiabudget.gov.in/doc/eb/sbe24.pdf>
11. Demand No. 26, Department of Higher Education, Ministry of Education, <https://www.indiabudget.gov.in/doc/eb/sbe26.pdf>
12. Demand No. 27, Ministry of Electronics and Information Technology, <https://www.indiabudget.gov.in/doc/eb/sbe27.pdf>
13. Demand No. 95, Department of Space, <https://www.indiabudget.gov.in/doc/eb/sbe95.pdf>
14. "MeitY to implement AI mission, while Niti Aayog will help in planning", The Economic Times, December 25, 2020, <https://economictimes.indiatimes.com/tech/tech-bytes/meity-to-implement-ai-mission-while-niti-aayog-will-help-in-planning/articleshow/79950502.cms>
15. DBT Organization Structure, <https://dbtindia.gov.in/about-us/organization-structure/autonomous-institution?page=1>
16. CSIR Labs, <https://www.csir.res.in/csir-labs>
17. DST Organization Structure, <https://dst.gov.in/about-us/organization-structure>
18. Ministry of Education, Organisation Chart, https://www.education.gov.in/en/organisation_chart_mhrd
19. Ministry of Earth Sciences, Organization Setup, https://moes.gov.in/about-us/organization-setup?language_content_entity=en
20. Department of Space, Organisation Structure, <https://www.isro.gov.in/about-isro/organisation-structure>
21. Ministry of Electronics and Information Technology, Organisation Structure, <https://www.meity.gov.in/about-meity/organization-chart>
22. Department of Atomic Energy, Organisation Structure, https://dae.gov.in/hi/node/writereaddata/daeorg_eng.pdf
23. Ministry of Defence, Organisation Chart, <https://www.mod.gov.in/launch/ORCHART.html>
24. Council of Ministers, <https://www.india.gov.in/my-government/whos-who/council-ministers>
25. Page 4, Annual Report 2021-22, NITI Aayog, https://www.niti.gov.in/sites/default/files/2022-02/Annual_Report_2021_2022_%28English%29_22022022.pdf
26. Government of India Atomic Energy Commission, <https://dae.gov.in/node/394>





FAST
INDIA

FOUNDATION FOR ADVANCING
SCIENCE AND TECHNOLOGY



Thank You!