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विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF SCIENCE & TECHNOLOGY

Azadi Ka Amrit Mahotsav

COMPENDIUM

on

State Level STI Ecosystem

EMERGING SCIENCE TECHNOLOGY AND INNOVATION (STI) ECOSYSTEMS & ITS CONTRIBUTION TOWARDS ATMANIRBHAR BHARAT

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Azadi Ka Amrit Mahotsav

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स्वच्छ भारत
एक कदम स्वच्छता की ओर

आज़ादी का अमृत महोत्सव

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Department of Science and Technology

26th August 2022

FOREWORD

Department of Science and Technology (DST), Government of India (GoI) has established a unique Centre-State cooperation mechanism through the network of 29 State Science & Technology Councils. These S&T Councils act as the nucleus for nurturing and strengthening the Science Technology and Innovation (STI) ecosystem at the state level for the achievement of the development goals at the State and National level. This compendium has been prepared to capture the state-wise STI ecosystem.

Hon'ble Prime Minister during the 76th Independence Day envisaged making India a developed nation in the next 25 years. Strengthening the Science Technology and Innovation (STI) ecosystem of the nation is fundamental to achieve this. India is advancing in this direction which is evident from the Global Innovation Index ranking where India has moved up from 81st in 2015 to 46th in 2021.

I am delighted to know that the components of the STI ecosystem at the state level depicted in this compendium were identified through the deliberations with the network of State S&T Councils vide the virtual platform of the year-long "Vigyan Utsav" programme initiated by the DST as a part of "*Azadi Ka Amrit Mahotsava*".

It is my pleasure to see the first-of-its-kind effort to come up with this compendium. My compliments to the State Science &Technology Programme (SSTP) Division of DST, Government of India and each of the State Science and Technology Councils for their pioneering contribution in bringing out this compendium which will be the foundation for the catalysing the STI ecosystem in the states to pave the way for *Atmanirbhar Bharat.*

(S. Chandrashekhar)

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PREFACE

Science Technology and Innovation (STI) is instrumental in the development of any nation. The cooperative interaction among Central, State governments, and other stakeholders is key in this development journey. An initiative to strengthen the Centre-State partnership was taken in 1971 by Shri C. Subramaniam then Minister for S&T and Chairman, National Committee for Science & Technology (NCST) through the establishment of State Science & Technology Councils. Currently, we have a strong network of 29 State/UT S&T Councils.

The role of the State S&T Councils is evolving to catalyse the STI ecosystem through strategic partnerships by assessing and implementing solutions for state specific needs through appropriate delivery mechanism. As S&T development leads to overall enlargement of socio-economic environment, this unique mechanism benefits in the National development process and thus covering the entire population of the State.

In order to identify the components of STI ecosystem, a year-long programme "Vigyan Utsav"was initiated in virtual mode as a part of the *Azadi ka Amrit Mahotsav*. A long deliberations with more than 6 Lakhs stakeholders under the programmes organised by State S&T Councils during the September 2021 to August 2022 led to the identification of six components of the STI ecosystem viz. Research & Development, Institutional & Human Capacity Building, Innovation, Technology Deployment for Socio-economic development and State policies. Vigyan Utsav gave the opportunity to explore the state-wise strength, gaps and way forward in terms of the components of the STI ecosystem.

It gives me immense pleasure to state that the first of its kind Compendium on the STI ecosystem at the state level has captured the state wise and component-wise status that will be helpful in framing the strategies for catalysing the STI ecosystem in the states. I take this opportunity to congratulate each of the State S&T Councils, my colleagues at SSTP, DST, Government of India for their active support, coordination and collaboration in bringing out this nationally important Compendium.

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Adviser & Head [SEED-SSTP]

26th August 2022

Acknowledgement

Azadi Ka Amrit Mahotsav is an initiative of the Government of India to celebrate and commemorate 75 years of independence and the glorious history of its people, culture and achievements. Taking note of this, the Department of Science and Technology (DST), Government of India in consultation and association with State S&T councils organised yearlong webinars to describe, consolidate and way forward for Science, Technology and Innovation ecosystem for self-reliance through twelve identified themes starting from September 2021 to August 2022.

The outcome of these webinars is brought out in the form of compendium by State Science & Technology program (SSTP), DST, Government of India in collaboration with all the State S&T Councils titled "Emerging Science Technology and Innovation (STI) ecosystems & its contribution towards Atmanirbhar Bharat". This compendium documents the emerging Science, Technology and Innovation (STI) ecosystem and way forward for each state and its contribution towards Atmanirbharata. This compendium also documents all the major scientific, technological, innovative programmes, outputs and success stories of all the State S&T Councils.

In consultation with DST-GoI, Karnataka State Council for Science and Technology (KSCST) compiled and designed this compendium in association with Gujarat S&T Council, Madhya Pradesh S&T Council, Punjab S&T Council and Uttarakhand S&T council. These five councils were tasked with consolidating data and information received from other State S&T Councils.

I thank each one of the Heads of State S&T Councils for providing information to bring out this compendium and appeal to them our inability to accommodate all the material provided by them due to space constraint and not for any other reason.

I extend my heartfelt gratitude to Dr. Srivari Chandrasekhar, Secretary, Department of Science & Technology, Government of India for entrusting this assignment to KSCST. I am thankful to Dr. Debapriya Dutta, Head, SEED and SSTP Division; Dr Rashmi Sharma, Scientist-F and Mr Ravi Kant Prajapati, Scientist 'B' for their suggestions, support/guidance in bringing out this compendium.

I am grateful to Prof. Ashok M. Raichur, Secretary, KSCST and Professor, Department of Materials Engineering, Indian Institute of Science for his guidance and support in bringing out this compendium. I thank all my colleagues at KSCST in bringing out this compendium specially, Ms. Anjani, Ms. Priyanka, Mr. M Nagaraj Rao, Ms. M K Ramyashree and Mr. M G Nagarjun.

H Hemanth Kumar
Executive Secretary, KSCST

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About the Compendium

Science, Technology and Innovation (STI) are the key drivers for economic growth and human development. For India to march ahead on a sustainable development pathway to include economic development, social inclusion and environmental sustainability for achieving an "Atmanirbhar Bharat'', a greater emphasis is given to promote new ideas, technologies, products & services apart from supporting traditional knowledge system, developing indigenous technologies and encouraging grass root innovation. The emergence of disruptive and impactful technologies poses new challenges and simultaneously greater opportunities. India's development process has also transformed the societal aspiration across the nation.

The emerging vibrant Science, technology and Innovation (STI) ecosystem across India has the responsibility to address this transformative societal need in a sustainable and inclusive manner. Science Technology and Innovation (STI) is the key to the development process of any nation. In this context, Central and State Science & Technology (S&T) Councils are major actors. Department of Science and Technology, Government of India through its state Science and Technology Programme (SSTP) is strengthening the STI ecosystem at state and national level through state S&T councils. Many state S&T Councils over the years, have translated a number of technologies from research and demonstration phase to the implementation and operational phase. State Councils are also providing to support to the State Government in formulation of S&T based policies and in creating awareness & capacity building on specific domains, conducting scientific surveys, project implementation, evaluation, co-ordination & monitoring, vibrant IPR ecosystem and organization of scientific meets and awareness campaigns. Although, SSTCs are doing commendable work over the year in creating scientific awareness and strengthening the S&T infrastructure at state level, they need to take up lead role in assessing and implementing socially acceptable, commercially viable and environmentally sustainable solutions for state specific needs through appropriate delivery mechanism. This structural change would lead to adaptation of new technologies, increase the resources efficiently and makes country self-reliant. Over the years, the focus remained on scientific awareness creation at the bottom of the pyramid of the society. However, with the augmented role of STI in the nation building, the focus should also be on research and development capacity building and catalysing innovation ecosystem at the State level.

The State S&T Councils assists to address the transformative strengths and weaknesses of the Indian R&D ecosystem in order to create a purposeful and accountable research ecosystem that addresses the socio-economic need of the country and at the same time make the country globally competitive apart from enhancing capacity development for inculcating and promoting scientific temper across the country's people through equity, gender parity and inclusiveness catering to the diverse needs of the country.

Department of Science and Technology, Government of India on the occasion of 75th year of Indian independence associated with state S&T councils to showcase the emerging Science Technology and Innovation (STI) ecosystems and its contribution towards Atmanirbhar Bharat through a year-long program on specific themes for each month. The webinars on identified themes started in the month of September 2021 and conclude in August 2022. One Month One Theme initiative and the themes are listed below.

1. STI Institutions at the State level
2. Human Resource Development
3. R&D Infrastructure
4. Indigenous Technologies
5. Innovation & Start-ups
6. Science Communication & Popularisation
7. Women in S&T and S&T for Women
8. Science & Society
9. Future Technologies
10. Basic Science for Atmanirbharata
11. Atmanirbharata & Industry
12. Intellectual Property Rights

Each state S&T Council were tasked with identifying objectives, deliverables and way forward for each theme. The primary objective of the webinars is to deliberate on science and technologies for current, futuristic needs based on geolocation, sustainable development goals, skill development, creation of wealth, creation of career opportunities and the overall development of the country for self-sustenance through building robust STI ecosystem.

The primary objectives of these themes are listed below.

- To showcase emerging Science Technology and Innovation (STI) ecosystems at States/UTs and its contribution towards Atmanirbhar Bharat
- The role of government in human capacity development and its policies, human development centric programs and its implications
- To interpret R& D stages, infrastructure, fellowship in various organization, opportunity and limitations in identifying a research problem, challenges faced in the course of research
- To showcase the local indigenous technologies of the state with special focus on Agriculture, Health System (Human & Animals), Artisans and Buildings/Structures.
- To highlight the cross sectoral use of these technologies and its potential for up gradation, identify S&T component of these technologies and its proficiency towards Atmanirbhar Bharat.
- To interpret the strategical investment and policy interventions for the commercialization of technologies.
- To encourage innovator to create direct and indirect employment through innovation and creativity
- To highlight scientific temperament, logical thinking, science communication and popularisation network among STI institution and stakeholders
- Role of the women in STI and role of S&T in empowering women community
- To motivates young women to take up science as a profession

- Impact of S&T and its need for the societal development
- to interpret the development of technology for sustainable development/practices, generation career opportunities and for better life
- To understand the need and joy of doing basic science
- To stimulate the role of Atmanirbhar Bharat through basic science in physics, chemistry, mathematics & Biology in particular state
- To provide insights about states-industrial strengths for Atmanirbharta and related technological advancements.
- To gives perception of industry – academia programmes and industrial R&D projects.
- Insights about IPR strengths of states for strengthening innovation ecosystem for technological self-reliance

The twelve themes are divided as six Component of STI ecosystem those are:

Sl. No	Component of STI ecosystem/Themes of Compendium	Sub-themes
1.	Research & Development	Basic Science, Technology Development, Indigenous Technologies, Future Technologies
2.	Institutional & Human Capacity Building	STI Institutions, R&D Infrastructure, Human Resource Development, Women in S&T
3.	Innovation	Innovation & Start-ups, IPR, and Industry
4.	Technology Deployment for Socio-economic development	Science & Society, S&T for Women
5.	Science Communication & Popularization	Science Communication & Popularisation, Basic science for Atmanirbharata
6.	State Policies	States STI Policies

Every state S&T Councils organised webinars on one month one theme initiative by inviting experts from academia, R&D institutions, subject experts, researchers, industry, entrepreneurs, innovators and start-ups. The webinars delved on present and futuristic needs for each theme and proposed possible STI interventions for local specific issues. On an average more than 100 persons participated in each webinar. It is remarkable that all the state S&T councils organised webinars every month with good number of participants listening to experts.

For more information on the webinars, please visit https://sstp.dst.gov.in/vigyanotsav.jsp

1. Research & Development

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1.1 Basic Sciences and Technology Development

1.1.1 Overview of the Basic Science R&D ecosystem in the country

In the past few years, India has been steadily climbing the summit of innovation, by marching ahead by developing technology solutions such as AI (Artificial Intelligence), cloud mobility, green technology and health technology. In addition, the digital revolution has opened the doors for new opportunities around mission-driven research, innovation and technology development along with exploration of new talent creation.

Globally, India is considered as the third most attractive destination for technology investment. This has enhanced the enterprise's confidence in the Indian R&D to develop and deliver products for the global, regional and local markets. The attention towards the Indian tech ecosystem is now highlighting the technical finesse that lays down the foundation of future technology development.

Nearly 0.7 per cent of the GDP was spent every year on research and development, including strengthening of science and technology infrastructure, during 2014-15 to 2018-19. However, the R&D investment from the private sector is very low. Basic science and technology development is at the heart of any innovation or product development.

The R&D Infrastructure Division of the Department of Science and Technology, Govt. of India aims to strengthen the S & T infrastructure of the country by fostering well-equipped R&D labs in the academic/ research institutes/ universities as well as a strong culture of research collaboration between institutions and across disciplines. With schemes like FIST (Fund for Improvement of S & T Infrastructure in Universities and Higher Educational Institutions), PURSE (Promotion of University Research and Scientific Excellence), SAIF (Sophisticated Analytical Instrument Facilities), SATHI (Sophisticated Analytical & Technical Help Institutes) and STUTI (Synergistic Training program Utilizing the Scientific and Technological Infrastructure), India is marching towards self-reliance through establishment of R&D labs, centres and upgradation of research facilities.

The present scenario of the institutional infrastructure that supports basic science across various states in India is as follows:

Institutional Infrastructure:

Name of the state	Central Govt. Institutes pertaining to Basic Sciences	State Govt. Institutes pertaining to Basic Sciences	Private Sector Institutes
Assam	2	11	6
Arunachal Pradesh	7	2	6
Goa	4	2	22
Gujarat	13	53	18
Kerala	24	41	3
Karnataka	14	12	11
Madhya Pradesh	28	45	37
Maharashtra	7	4	4
Manipur	12	7	3
Mizoram	3	5	0
Punjab	2	4	11
Tamilnadu	NA	4	9
Telangana	10	12	3
Uttarakhand	33	23	17

Table-1: State-wise institutional infrastructure supports to basic sciences

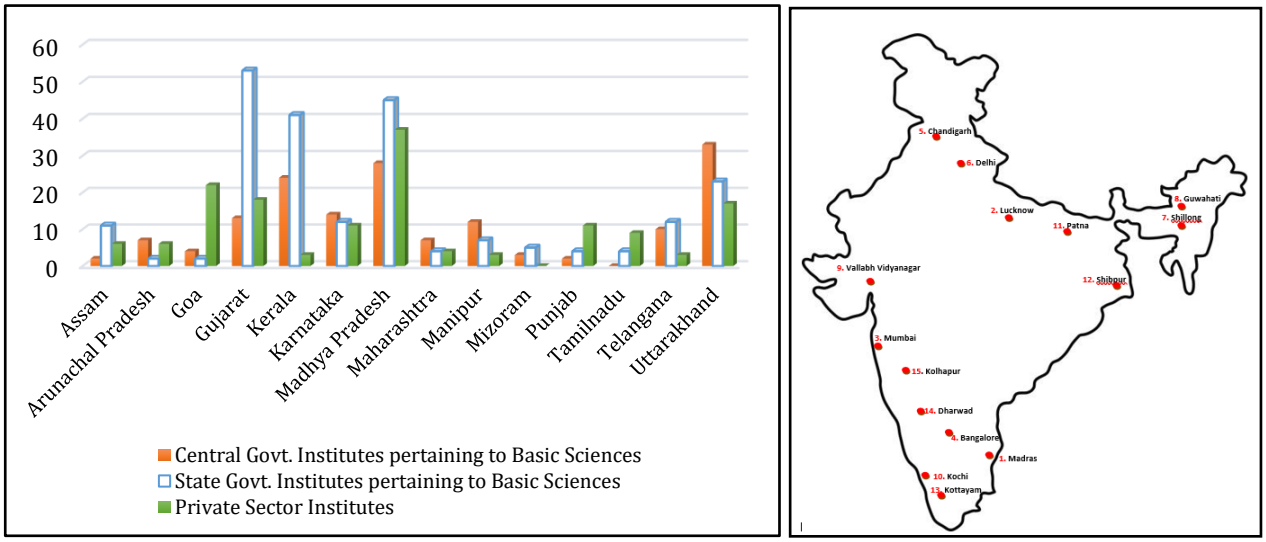

Figure-1: State-wise institutional infrastructure supports to basic sciences

Pan India, there are 15 SAIF labs across the country, which are state-of the art and are benefitting a multitude of researchers across the country. The central zone however, lacks the sophisticated infrastructure and can be equipped in the coming years.

Under the PURSE Scheme, well performing universities have been provided with research facilities that strengthen the R&D ecosystem of the country. More than 1000 crore investment has been made under this scheme for the well performing universities.

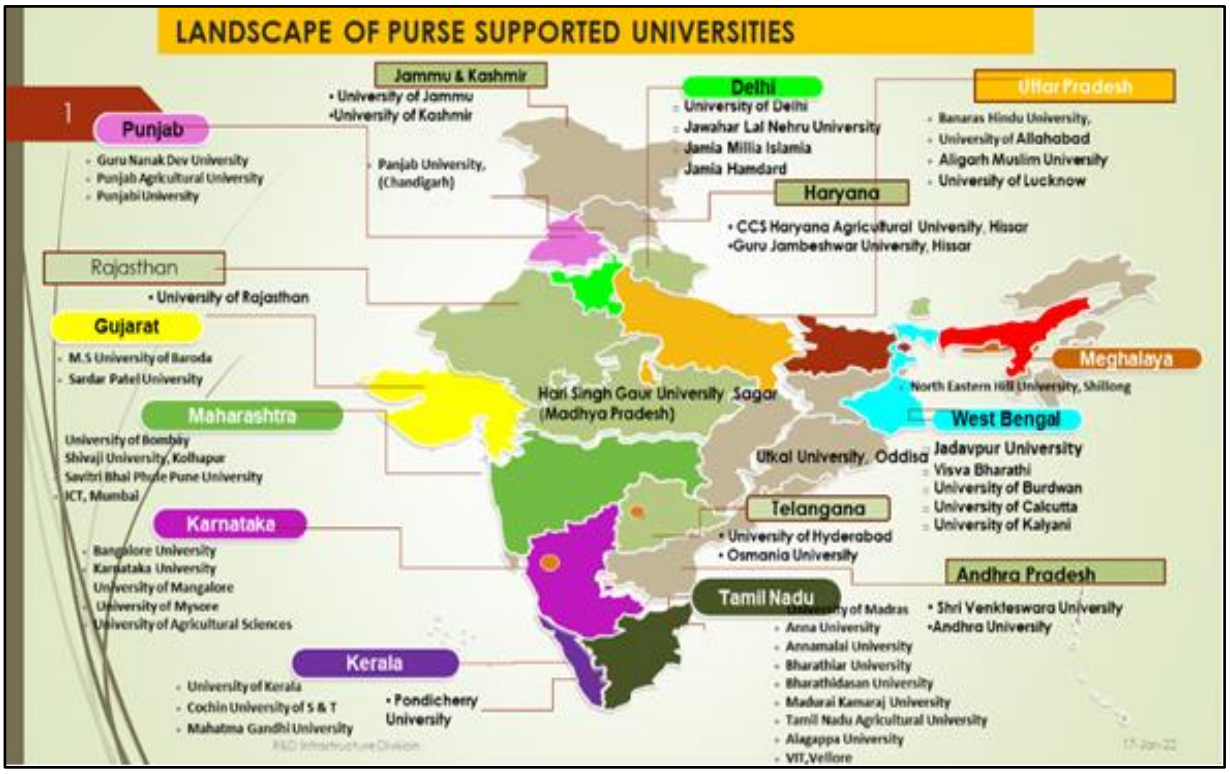

Figure-2: PURSE (Promotion of University Research and Scientific Excellence) supported universities

1.1.2 Growth of R&D ecosystem in India: First mover advantage

The Decade of Innovation witnessed India's tenacity in the international innovation landscape. India has strong rooted its position as a global innovator.

It is thus essential to maintain our position as a global leader and encourage free market economic model wherein a thriving ecosystem is created with the inclusion of private firms. In addition our R&D ecosystem should be such that it should reflect the changing landscape of R&D. The focus on short term action plan with long term deliverables has brought about a significant change in implementing innovations that are benefitting the society in the present day.

1.1.3 Baseline study of R&D of developed countries

It is observed that the funds for R&D in developing countries are more redirected towards applied research. Basic science research is not encouraged because it has long term goals and is expensive. It is imperative to promote the frontier research area like those of the study of the Universe, Earth, Climate, life sciences, Genetics, Health, Nutrition, Materials and Computational Science. Such initiatives encourage indigenous researchers to do basic science and prevent brain drain. Such steps help to assess the scientific questions of our own land and to contribute to the universal quest for knowledge. It offers an opportunity for our scientists to stand on their own feet.

Global priority areas and technologies

Priority areas
Technology, Climate change, Ocean Resources, Biodiversity, Cyber Security, Industry & Corporate Governance, and Geopolitical & Geo-economic Cooperation.
Emerging technologies
Artificial Intelligence (AI), Internet of Things (IoT), Advanced Materials, Smart Grids, Autonomous Vehicles, Drones, Big Data Analysis, Precision Medicine, Genomics.

1.1.4 Benchmarking of India with respect to developed countries

For country like India, it is necessary to solve national problems by providing clean and potable water, enhancing food productivity and nutritional values, providing affordable healthcare solutions, energy security, tackling climate change and national security through S & T interventions.

Such measures are necessary, particularly because the mere development of technologies and technology solutions are not adequate and it is important to put them to use to solve major national problems. With our present base of good pharmaceutical industry and the present national scenario, it is important to focus on the research in the Healthcare sector. In terms of comparison with global R & D expenditure, India lags investment in sectors such as Technology Hardware & Equipment, Electronic & Electrical Equipment, Aerospace & Defence and Health Care Equipment & Services. India has worked on improving the existing R&D infrastructure, but we also need to concentrate efforts on the development of new game changing technologies.

1.1.5 Available R&D infra in India

Total R&D personnel per million inhabitants (TRDP-PMI): India 408 as compared to 3150 of Organization for Economic Co-operation and Development (OECD) countries. Applied research plays an important role in bringing innovations to market, whereas basic research expands the knowledge base needed for breakthrough scientific progress. Thus it becomes important to invest in training skilled R&D man power for future research endeavours. With establishment of world class institutes and facilities like Indian Space Research Organization (ISRO), Physical Research Laboratory (PRL), Bhabha Atomic Research Centre (BARC), Tata Institute of Fundamental Research (TIFR), Inter-University Centre for Astronomy and Astrophysics (IUCAA), Indian Institute of Science (IISc), Indian Institute of Technology (IITs), Central Universities, Institutes of National Importance etc. supported by various Govt. Departments and guided by senior scientists and policy makers, will result in creation of a robust ecosystem that supports Basic Research.

Broad area of the project	Name of the state	Number of projects
Life Science, Physics, Health and Medicine, Electronics and Communication, Chemical Science, Information technology, Agriculture	Assam	18
R&D and outreach for societal upliftment's, Basic and translational R&D, Livelihood (Health, water, medicinal), Forestry, Agriculture Engineering	Arunachal Pradesh	96
Nanotechnology, Waste Treatment and Management Solutions, Sustainable Habitat, Artificial Intelligence and Robotics, Internet of Things, Energy Storage Solutions, Nutrition Sensitive Research, Pollution Abatement, Polymers and Special Materials	Gujarat	76
Agroforestry, Health, Environment, Biotech, Veterinary, Physical Sciences, Material Science, Microbial Technology, Dairy Technology, Animal Genetics & Breeding	Haryana	241
Health, Nanoscience, Physical Sciences, Veterinary, Food, Energy, Pharmaceuticals, Agriculture,	Kerala	99
Agriculture, Health and traditional medicine, Biochemistry, Water research, Veterinary Epidemiology And Disease Informatics, Animal Nutrition and Physiology	Karnataka	117
Physical sciences, Computer science, Environmental science	Madhya Pradesh	25
Sericulture, Medical, Health, Agriculture	Manipur	89
Biotechnology, Zoology, Physics, Environmental Science, Geology, Mathematics, Chemistry	Mizoram	44
Physics, biology, Chemistry, Mathematics	Punjab	100
Basic Sciences, Bioinformatics, Nanotechnology, material science, biotechnology	Tamilnadu	229
Pharma Sciences, Health, Physical Science, Agriculture, Environment	Telangana	27
Medical Sciences, Biotechnology, Computer Science, Basic Sciences	Uttarakhand	94

Table-2: R&D Projects supported in Basic Sciences

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Area of Technology Development	Name of the state	Number of technology developed
Agriculture, Mechanical, Food Engineering, Animal Biotechnology, Chemical sciences, Physics, IT, Computer Science & IT	Assam	57
Agriculture	Arunachal Pradesh	13
Agriculture, Environment, water	Gujarat	9
Automobile, Hybrid vehicles, Industrial Boilers, Electronic storage, Electric power distribution, Agriculture	Haryana	41
Health, Agriculture, Assistive technologies, Robotics, Disaster managements, Automobile, Electronics, Building technology, Industrial Boilers, Optic technologies, Hybrid vehicles	Kerala	33
Health, Agriculture	Karnataka	77
Agriculture, Civil, Biosciences and Biomedical Engineering	Madhya Pradesh	15
Agriculture	Maharashtra	4
Biotechnology, Agri-Biotechnology, Chemistry, Food processing, Healthcare, Manufacturing, IT, Livestock	Punjab	179
Agriculture, Health care, Automation, Energy Storage Devices, IT, Food Technology, Water	Tamilnadu	35
Health, Agriculture, IT	Telangana	10
Artificial- Intelligence, IoT, Health, Water Harvesting, Biofuel from Polymer Waste	Uttarakhand	40

Table-3: Technologies developed

1.1.6 Planning for future

A mechanism for strong internal linkages amongst the Indian science sector as well as with relevant socioeconomic ministries of both the central and the state governments should be established for the whole ecosystem to work in unison.

Investment in the University R&D will bring out trained researchers and hence the future scientists. Public sector research should be connected to the local industries for harnessing the technological benefits and thus paving the way for self-reliance.

More focus on the commercialization of patents is necessary as it reflects the effectiveness of the R&D. The semiconductor industry needs to be promoted on the basis of the present day requirement. For this, a good deal of investment in the basic research on semiconductors needs to be carried out.

Various schemes have been launched by the Department of Science and Technology as well as schemes like the Ramalingaswami fellowship by the Department of Biotechnology to bring researchers back to India. More such initiatives to mitigate brain drain should be initiated.

1.1.7 Conclusions and Inferences

For a sustainable ecosystem to materialize there is a need for handholding and a Launchpad based approach by the government to give the private players a head start in this field and it is high time for the policy makers to start looking at instruments that can strengthen the R&D ecosystem.

The workforce is largely concentrated within the government-run R&D enterprises. More collaboration between the private and the higher education sector, through a mixed funding model would help in better absorption of the researchers into the private sectors. In addition, the option of tax credits for R&D activities undertaken should be given.

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1.2 Institutes promoting Traditional Technical Knowledge:

1.2.1 Requirement

Technology is very vital for the overall socioeconomic growth of the nation. Indigenization means to produce goods in our own country for which we relied on imports from other countries. Indigenous technology refers to the technological knowledge, skills and resources passed on from the past indigenous people to the present ones to meet their needs and wants by means of investigating, designing, developing, evaluating products and processes.

India is home to more than 700 indigenous tribes. Indigenous people know a lot about preserving natural resources, growing food in sustainable ways and living in harmony with nature. Today, when we are amidst the climate change crisis, indigenous knowledge will be a guiding light for sustainable management of water, land and food security. The applications of indigenous technologies and knowledge such as agroforestry, the groves to conserve water, land and biodiversity resources, are potential solutions for reducing greenhouse gas emissions, water shortages, land degradation and pollution.

1.2.2 Justification

Nowadays, projection studies of climate hotspot predictions are being carried out. This helps to identify the future hotspots and enable us to decide on mitigation actions in the present day. Indigenous knowledge can provide hand holding wherein conventional measures for climate action are limited.

The reduction in forest cover, reduction of mangroves, increasing global temperature, plastic pollution, reduction in ground water are some of the imperative issues that need immediate action and wherein the indigenous knowledge can come handy without the reliance of other countries.

1.2.3 Enhancing traditional techniques using modern knowledge

Blending traditional knowledge with modern science is the need of the hour. The Ayurveda, for example, is our traditional medicinal system. Linking it with modern manufacturing and processing techniques can boost the spread of the Ayurveda. Traditional water harvesting practices, bamboo drip irrigation, vernacular housing, traditional agricultural practices, animal husbandry etc. This linkage will promote the use of natural resources in a sustainable manner through linking of innovation, enterprise and investment.

It thus becomes necessary to integrate traditional ecological knowledge, traditional technical knowledge and traditional institution and values for social and economic sustainability.

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1.2.4 Lessons from past: Leading to future knowledge and hence self-reliance

Awareness for traditional knowledge should be created highlighting the benefits. Traditional knowledge reflects the symbiotic relationship of humans and nature of a particular country. It helps in the conservation of biological diversity. It has the potential value for the management of natural resources and can be useful in conservation education as well as in development planning and environmental assessment. This in turn reduces dependency on the international community and leads us on the path of a clean green self-reliant and sustainable economy.

Traditional hermeneutics- the branch of knowledge that deals with interpretation of traditional knowledge should be promoted. Academic and research institutions aligned with field work should be set-up and the existing ones should be revved up. The Ministry of Ayush has been doing a commendable job and similar actions should be promoted.

Following is the state wise list of institutes engaged in education and spread of traditional knowledge.

Name of the state	Central Govt. Institutes	State Govt. Institutes	Private Sector Institutes	NGO
Assam	3	8	NA	1
Arunachal Pradesh	2	NA	NA	NA
Goa	2	3	NA	NA
Gujarat	NA	8	NA	NA
Haryana	NA	1	1	NA
Kerala	7	10	NA	4
Karnataka	NA	1	NA	NA
Madhya Pradesh	5	7	NA	8
Maharashtra	NA	NA	NA	NA
Manipur	NA	NA	NA	1
Mizoram	2	1	NA	NA
Punjab	6	3	NA	2
Tamilnadu	NA	1	4	NA
Telangana	4	10	NA	4
Uttarakhand	5	8	11	3

Table-4: State-wise list of institutes engaged in education and spread of traditional knowledge

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Indigenous Developed Technology:

Following is the list of state wise engagement of various institutes involved in the development of indigenous technology.

Name of the state	Traditional Technology Developed	Central Govt. Institutes	State Govt. Institutes	Private Sector Institutes	NGO
Assam	Herbal Science, Food Engineering, Veterinary Science, Botany, Health, Water Management, Agronomy, Biotechnology, Tourism, Chemical Engineering	NA	18	NA	NA
Arunachal Pradesh	Agriculture	13	NA	NA	NA
Gujarat	Environment, Health, Agriculture	NA	4	NA	1
Haryana	Biotechnology, Pharmacy, Physiotherapy, Health	NA	9	NA	NA
Kerala	Agroproducts, Assisstive technology, Rural technology, Biogas, Organic Dyeing, Water purification technology, Handloom technology, Value added products	7	8	6	8
Karnataka	Defence	17	NA	NA	NA
Madhya Pradesh	Health, Natural Resources, Agriculture, Geographical Distribution, Climate, Natural Habitat, Tribal Knowledge, Biodiversity	3	15	NA	NA
Maharashtra	Health, Agriculture, Education	2	5	NA	NA
Tamilnadu	Health, Agriculture, Skill development, Textiles, Metallurgy	3	1	8	NA
Telangana	Agriculture, medicinal herbs and forestry, Handicrafts, Health, Rural Technologies	2	20	1	NA
Uttarakhand	Energy, Bio fuel, Agriculture, Veterinary Sciences	12	25	NA	NA

Table-5: State-wise engagement of various institutes involved in the development of indigenous technology

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1.2.5 Intellectual Property Rights

Nowadays, the awareness and consciousness towards one's own IP rights has increased. Although, the data for patents pertaining to indigenous technologies is not available. It is important to conserve our traditional knowledge systems.

It is important to protect the traditional forms of creativity and innovation as our intellectual property specific to our Indian community at large as it would enable indigenous and local communities as well as governments to have a say over the use of their traditional knowledge by others. This said, will make it possible, to protect traditional remedies and indigenous art, music and other contemporary sciences against embezzlement, enable communities to control and benefit collectively from their commercial exploitation.

1.3 Programs and Initiatives pertaining to Future Technologies:

1.3.1 Showcasing the canvas of the future India

Technology trends keep on evolving in today's scenario. The new thing in today, becomes outdated tomorrow. With the emergence of new technologies, our expectations for futuristic technologies have no bounds. From automated aerial vehicles, quantum computing, regenerative medicine, space shuttling, brain reading robots, metaverse, there is a multitude of possibilities that we can imagine for our future.

At this point we need to analyse on how many imaginations can be converted to realizable objectives. This has to be correlated with the growing population and needs of the nation.

1.3.2 India beyond 2030

Looking into the present R&D scenario, we may expect to see around hydrogen cars, cleaner sources of technology, high-tech satellites and monitoring systems, data trusts, 5G technology, the internet of experiences.

Over and above these technological advances, agriculture has an important role to play. Agriculture is indubitably the bedrock of national prosperity. As the food demand increases and to keep up with the Sustainable Development Goals (SDGs) to end poverty, it is essential to modernize agriculture to double production as well as income. Digital technologies such as remote sensing will be mainstreamed for sustainable farming. Real time and accurate weather prediction and smart irrigation techniques will largely reduce the uncertainty and losses in the agri-sector.

In addition, key initiatives have been started to realize the dream of Digital India. In order to promote the use of Artificial Intelligence (AI) in multiple walks of life, the following programs have been initiated:

1. US-India AI Initiative:

The Indo-US Science and Technology Forum (IUSSTF) launched the US-India Artificial Intelligence Initiative on 18th March 2021 to nurture AI based innovation by sharing ideas and experiences, recognising new opportunities in research and development and bilateral collaboration.

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2. Applied AI Research Centre in Telangana

In October 2020, the Telangana government collaborated with Intel India, International Institute of Information Technology, Hyderabad (IIIT-H) and Public Health Foundation of India (PHFI) to launch INAI (Intel AI), an applied AI research centre in Hyderabad. The centre will focus on solving challenges in India's healthcare and smart mobility segment.

3. Responsible AI for Youth

Responsible AI for Youth is a national programme for government schools to empower the young generation to become AI-ready and reduce the skill gap in India. Established by the National e-Governance Division of Ministry of Electronics and Information Technology (MeitY), the platform aims to help the students develop a new-age tech mindset and relevant skill-sets.

4. MCA 3.0 portal

The Ministry of Corporate Affairs (MCA) recently launched a new version of its portal, version 3.0, MCA 21, which will leverage data analytics, AI and Machine Learning (ML), to simplify regulatory filings for companies. The idea behind the revamp is to promote ease of doing business and compliance monitoring.

5. AI portal

Jointly developed by MeitY and National Association of Software and Services Companies (NASSCOM) in June 2020, the Indian government launched a dedicated artificial intelligence (AI) portal, India AI is slated as a central hub for everything. The portal will act as a one-stop-shop for all AI-related developments and initiatives in India.

6. National Research Foundation

NRF, an autonomous body under the new National Education Policy (NEP) 2020, has been established to boost research across segments, including AI. On 3rd March 2021, while addressing a webinar on effective implementation of Union Budget 2021 provisions, Prime Minister Narendra Modi said, "Fifty thousand crore rupees have been allocated for this. This will strengthen the governance structure of the research related institutions and will improve linkages between R&D, academia and industry."

7. Promoting AI in schools

The National Council of Educational Research and Training (NCERT) is preparing a new National Curriculum Framework for School Education in pursuance of the National Education Policy 2020. This will also aim at introducing a basic course on AI at the secondary level.

In addition, the Govt. of India is taking another step towards realising the vision of an Aatmanirbhar Bharat and has approved the Production-Linked Incentive (PLI) scheme for drones and drone components.

Drones offer numerous benefits to almost all sectors of the economy. These include– agriculture, mining, infrastructure, surveillance, emergency response, transportation, geo-spatial mapping, defence and law enforcement to name a few. Drones can be significant creators of employment and economic growth due to their reach, versatility and ease of use, especially in India's remote and inaccessible areas.

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Given its traditional strengths in innovation, information technology, frugal engineering and its huge domestic demand, India has the potential of becoming a global drone hub by 2030.

To name a few, the following list describes where in India, the drones are put to use for a greater good.

1. Urban development

a. The Andhra Pradesh Government is using drones to monitor the development activities of the capital city region, i.e. Amaravati, through drone-based outputs.

b. As a pilot project, the Karnataka Government is using drones for property tax estimation and creation of base map of a city/town for detailed planning and sustainable governance.

c. The Chandigarh Administration has deployed drones as part of pilot project to get an aerial view of all properties in Chandigarh.

2. Transport

a. Indian Railways has used drones for monitoring the 25-km long Seawoods-Belapur-Uran15 corridor.

b. The National Highways Authority of India (NHAI) has deployed drones in the Salem-Chennai green corridor expressway project to ensure accuracy with respect to the extent of land required for the project.

c. As a pilot project, the Government of Maharashtra has deployed two drones to monitor weekend rush hour traffic and accidents on the 95-km stretch between the Lonavala Exit and Khalapur Toll Plaza and on the six-lane Mumbai-Pune Expressway.

3. Agriculture

a. A general insurance company deployed drones in a particular district in Maharashtra for assessment of crop damage due to floods in 2016.

b. The Maharashtra Government has used drones over fields in the Marathwada region for carrying out crop loss assessment due to deficit rainfall.

c. The individual farmers of Andhra Pradesh's capital region are deploying drones to spray crop pesticide/ fertiliser in limited crop areas.

4. Disaster Management

a. The National Disaster Management Authority (NDMA) deployed four drones to scan areas where search and rescue teams could not access in flood-hit Uttarakhand.

b. The National Disaster Relief Force used drones in Mandi, Himachal Pradesh, to trace 24 engineering students from Hyderabad who were swept away by the Beas River.

c. During the Nepal earthquake, several agencies deployed drones for search and rescue operations and to map toppled monuments, ruined heritage sites and devastated homes.

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5. Mining

a. The Andhra Pradesh Government used a drone for monitoring of stockpile storage, 3D mapping and volumetric analysis of limestone over a period of time.

b. The Karnataka Police Department has procured and deployed 12 drones equipped with 18.2 MP cameras and night vision capability which fly at an altitude of 1 km for about 30 minutes to detect illegal sand mining from 5 km away.

c. In Jharkhand, drones are deployed for boundary and safety zone inspection of coal and iron mines, counting of vegetation in reclaimed areas and profiling of quarry and dump for volume calculations.

After the announcement of the National Green Hydrogen Mission by Prime Minister Narendra Modi in August 2021, there has been a serious push on both policy and industry on green hydrogen. The Green Hydrogen Policy, through various schemes and incentives, shall boost the renewable energy production in the country.

Nowadays, government is creating key infrastructure services that enable the smart city services. These smart city initiatives have Information Communication Technology at their heart. In order to overcome as well as mitigate security threats, a strong cyber physical security system is the need of the future. Science and Engineering Research Board (SERB) has thus initiated the National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS). The Mission aims to create a strong foundation and a seamless ecosystem for CPS technologies by coordinating and integrating nationwide efforts encompassing knowledge generation, human resource development, research, technology and product development, innovation and commercialization.

With the current lookout for new drugs and vaccines, India is emerging as Biotech Hub. Biotechnology Industry Research Assistance Council (BIRAC) and Biotech based start-ups are changing the face of Pharmaceuticals and Agriculture sectors. Many states have dedicated research centers along with dedicated Biotech Policy to pave the roadmap for the future.

Name of the state	Central Govt. Initiatives	State Govt. Initiatives	Private sector initiatives	International Initiatives	Collaborations
Assam	2	1	NA	NA	NA
Arunachal	NA	NA	NA	NA	30
Gujarat	8	21	NA	NA	2
Haryana	11	4	5	11	32
Kerala	1	NA	NA	NA	NA
Karnataka	11	5	2	NA	12
Madhya	7	5	2	4	13
Maharashtra	NA	3	NA	NA	NA
Mizoram	1	NA	NA	NA	NA
Punjab	10	3	5	1	3
Tamilnadu	23	12	7	14	48
Telangana	4	7	2	3	7
Uttarakhand	10	6	3	6	14

1.3.3 Achievement of SDG

The NITI Aayog's SDG India Index has become a policy tool and a ready reckoner for gauging progress of States and UTs on the expansive nature of the Goals, including Health, Education, Gender, Economic Growth, Institutions, Climate Change and Environment. The SDG India Index 2020–21, developed in collaboration with the United Nations in India, tracks progress of all States and UTs on 115 indicators that are aligned to Ministry of Statistics and Programme Implementation (MoSPI's) and National Indicator Framework (NIF).

India has steadily progressed towards achieving the United Nations' Sustainable Development Goals (SDGs) in areas of health, energy and infrastructure, as per NITI Aayog's latest SDG India Index. India's overall score across SDGs improved by 6 points; from 60 in 2019 to 66 in 2020-21. There has been nation-wide improvement in 'clean water and sanitation' and 'affordable and clean energy'. Kerala achieved the highest overall score in the Index followed by Himachal Pradesh, Tamil Nadu, Andhra Pradesh and Goa. The third edition of the Index highlighted the significance of partnerships in achieving the larger 2030 Agenda.

Incorporation and implementation of SDGs is imperative for India to achieve Sustainable Development. There are 28 states and 9 Union territories in India, they are different in the terms of physical resources availability and size of domestic production. State-wise mapping of SDG is essential because many of the Indian states are larger than European nation in term of population and area occupied, such as Uttar Pradesh is 6th largest administrative unit in the world in term of population (Khan and Ansari, 2017). SDGs are novel to India and there is dearth of academic literature related to SDGs in India. Literature specifically related to current state of sustainable development in India and issue promoting sustainable development (SD) could not be found and this is the research gap.

Various schemes of Indian government such as Swatch-Bharat, Mission Indhradhanush, and PM-JAY can be mapped to the various goals which have been determined by the United Nations Organisation (UNO). Research Gap Incorporation and implementation of SDGs is imperative for India to achieve Sustainable Development. There are 28 states and 9 Union territories in India, they are different in the terms of physical resources availability and size of domestic production. State-wise mapping of SDG is essential because many of the Indian states are larger than European nation in term of population and area occupied, such as Uttar Pradesh is 6th largest administrative unit in the world in term of population. SDGs are novel to India and there is dearth of academic literature related to SDGs in India. Literature specifically related to current state of sustainable development in India and issue promoting SD could not be found and this is the research gap. It is thus important to depict the current scenario of SD performance of each state of India and identify the issues which contribute to the better achievement of SDGs.

Goal wise details are as follows:

SDG 1 (No Poverty) **-** To achieve SDG1, several government schemes such as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), National Rural and Urban livelihood missions, Pradhan Mantri Jan Dhan Yojana, Deendayal Antyodaya Yojana, PM-JAY etc. has been playing a vital role. This is evident from the rapidly declining rates of people living below the poverty line. While the people living below the poverty line were 21.9% in 2011-12, the goal is to minimize the segment to 10.95% by 2030.

SDG 2 (Zero Hunger) - Several governmental schemes such as provision of Mid-day meal in schools, poshan Abhiyan, a restructured and improved public distribution system, improved agricultural infrastructure and extension services by innovative interventions such as "Pradhan-Mantree Fasal Bima Yojana" and "Pradhan Mantri Krishi Sinchayee Yojana" have been facilitated in achieving this goal. However, while in 2018, the composite index was 48, it has deteriorated to 35. The reduction in poverty index along with the hunger index is a serious problem. It has to be mentioned here that out of 117 countries the rank of India was 102 in the recently published global hunger Index.

SDG 3 (Good health & Well-being) - Goal 3 is one of the goals where India has improved its performance from 2018 to 2019. The composite index was 52 in 2018 which has improved to 61 in 2019. A reduced infant and maternal mortality rate coupled with the provision of affordable health insurance scheme under PM-Jay has resulted in the improved. However, the large gap between performing and non-performing states in this parameter is a big concern.

SDG 4 (Quality Education) - On this parameter the performance of India has been constant as for both 2018 and 2019, the composite index has been 58. Some of the major challenges in achievement of this goal have been poor teacher-student ratio, absenteeism, enrollment being a focal point rather than learning, high dropout rates and gender-discrimination. However, the government is making an attempt to improve the quality of education by the help of programmes such as "Samagra Shiksha Abhiyan" which has merged the three programmes namely; Sarv-Shiksha Abhiyan, Rashtriya Madhyamik Shiksha Abhiyan and Teacher's education. The flagship scheme of Beti-Bachao, Beti-padhao is creating an environment to promote gender parity in the field of education.

SDG 5 (Gender Equality) - Gender disparity has been a major area of concern for the country. Traditionally, Indian society is considered to be patriarchal with less involvement of women in day to the day decision-making process. Majority of the females are home-makers which is considered a non-economic activity. Incidents such as dowry, rape, sexual harassment and female foeticides are still prevalent. These factors are evident from the abysmal labour workforce participation rate of 32%, with most of this 32% coming from regressive sectors such as tea plantation and agricultural labour. The problem is visible in SDG index of both 2018 and 2019 with only two states (Kerala and Sikkim in 2018 & Kerala and Himachal Pradesh in 2019) having an index of 50. The composite index is also worrisome with an index of 36 in 2018 and 42 in 2019. However, the improvement in the index is a relief with the government investing heavily in programmes such as Pradhan Mantri Ujjwala Yojana, Beti-Bachao Beti-Padhao, Sukanya Samriddhi etc.

SDG 6 (Clean Water & Sanitation) - Since 2014, the Government of India under the leadership of Prime minister Mr. Narendra Modi has created a significant mass movement of cleanliness, hygiene and sanitation with the help of the ambitious Swatch Bharat Abhiyan. The movement has led to mobilization and awareness of cleanliness and its benefits to the ordinary citizens as well as civil societies. As a result, India has been doing exceptionally well in proceeding towards the achievement of this goal. The provision of safe drinking water, the abolition of open defecation has resulted in the magnificent composite index for both 2018 and 2019. In 2018 the composite index was 63 which shot up to 88 by 2019.

The growth in the index is evident from the data that 100% rural household and 97.2% urban household have toilets.

SDG 7 (Affordable & Clean Energy) - This goal has also witnessed significant growth over the last two years. The composite index in this parameter has seen a massive jump from 51 in 2018 to 70 in 2019. Under the flagship programme of the government of India, "Pradhan Mantri Sahaj Bijli Har Ghar Yojana- Saubhagya", a focus has been given by the government to ensure universal electrification with a special emphasises on rural electrification. The next step is to improve distribution as the existing electricity supply channel is erratic and interrupted. Schemes such as Deendayal-Gram Jyoti Yojana, integrated power development scheme etc. have been made functional to achieve the same. The government has also been working extensively in the field of energy conservation and environmental protection with the help of providing LED bulb at a subsidized rate to common people. The pradhan Mantri Ujjwala Yojana, which provides LPG gas to the poor household, has also contributed to a significant reduction in CO_2 emission.

SDG 8 (Decent Work and Economic Growth) - The growth in this parameter over the last two years has been stagnant. In 2018, the composite index was 65 whereas, in 2019, it has been 64. The decline in GDP rate along with a reduction in manufacturing activities can be attributed to this stagnation.

SDG 9 (Industry, Innovation and Infrastructure) - The composite index of this goal has jumped from 44 in 2018 to 65 in 2019. This growth is also visible in the Global Innovation Index in which India has increased its rank from 57 to 52. To achieve this objective, the government of India has been striving hard for institutional and structural reforms. Provision of Goods and Services Tax, Liberalization in foreign direct and foreign institutional investment policy and the attempts to increase the ease of doing business in India are some examples of the attempt of the Indian government to boost industrial motivation. In the field of research and development, new efforts have been made to boost innovation by enhancing the role and importance of the office of comptroller-general of Patents, Design & Trademarks.

SDG 10 (Reduced Inequalities) - The composite index of this goal represents a decline over the last two years. While in 2018 the composite index was 71, it has been reduced to 64 in 2019. It represents the wide-ranging inequalities in India between rich and poor, male and female, etc. Although 46.4% of seats of the Panchayati Raj institutions belong to women, the functioning of these institutions is still patriarchal and it is a male relative of the female legislature who usually dominates the proceedings. Government of India has tried to bridge the income gap by making provision in 2019 to allow 10% reservation to economically weaker sections of the society irrespective of their caste, creed and religion. To strengthen the progress of SC and ST Citizens of India the parliament of India has passed the 126th amendment of the constitution and has extended the period of the reservation to 10 years.

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SDG 11 (Sustainable Cities and Communities) - India, like several other developing countries, has been witnessing a period of massive urbanization. As larger areas have been urbanized, a need is there for planned development and provision of several amenities such as Transportation, Water and Sanitation, Facilitation of Educational Institutions, Healthcare facilities etc. Unfortunately, India has been performing very poorly in this regard. India scored only 39 in SDG 2018 Index and even in 2019, India has been able to score only 53 with several states and union territories still scoring below 50. Provision of affordable houses is very important in this regard, the unavailability of affordable houses in Metropolitan cities have resulted in the creation of large slums which are often devoid of even the basic infrastructural needs. In this regard, the government of India is accelerating the scheme of Pradhan Mantri Awas Yojana, as of 2019, around 31% of the household under this scheme has been completed.

SDG 15 (Life on Land) - The performance of India to achieve this goal has deteriorated in the last two years. While in 2018, the composite index was 90, in 2019 it has been decreased drastically to 66.

There are several challenges to pursue this goal, In a developing country such as India, the focus is on Industrialization, The liberal policies of the government has resulted in industrialization of Tier III and Tier IV cities also. The large population of India also pressurizes the agriculture production which has resulted in excessive use of chemical fertilizers. Also, 57 of the fauna species in India are on the verge of extinction. All these factors are contributing to the abysmal performance of India in this regard.

SDG 16 (Peace, Justice and Strong Institutions) - As per the SDG Index report for 2018 as well as 2019, India has been doing reasonably well in this regard. It has achieved scores of 71 and 72 in 2018 and 2019 respectively. A reduction in crime rate by 16% after 2015, accessibility of judicial procedures and provision of legal identity in the form of Aadhar card have been attributed for achieving this goal.

State-wise Analysis

One of the major concerns about the progress of achievement of sustainable development goals is the wide gap between performing and non- performing states. As per the report of 2019, Kerala which is the top-performing state has a composite score of 70 whereas Bihar which is at the bottom is having a score of 50. One thing which is clear from analysing both top-performing and worst-performing states is that states of southern India is certainly performing better and the situation is bleak in eastern parts of India. In the other SDGs, the best performers were Tamil Nadu for 'no poverty'; Goa for 'zero hunger'; Kerala for 'good health'; Himachal Pradesh for 'quality education'; Himachal again for 'gender equality '; Andhra Pradesh for 'clean water and sanitation'; Sikkim for 'affordable and clean energy'; Telangana for 'decent work & economic growth'; Gujarat for 'industry, innovation and infrastructure; Telangana for 'reduced inequalities'; Goa for 'sustainable cities and communities'; Nagaland for 'sustainable consumption and production; Karnataka for 'climate action'; Manipur for 'life and land'; and Andhra Pradesh and Gujarat for 'peace, justice, strong institutions.

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2. Institutional & Human Capacity Building

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(a) Science and Technology in India

Over a period of time, India has progressively and perceptibly paved way for development in the field of Science and Technology.

The 21st century in India is apparently marked as the beginning towards advancement in terms of technology and enrichment of knowledge base in the fields of Science.

At present, India holds a strong position in terms of advanced technology. India also serves as a knowledge warehouse with the existence of its many institutions catering to Science and Technology which come with qualified and trained manpower.

For the organized growth and development of Science and Technology in India, different specialized research and development agencies and organization are being set up.

Every organization specializes in a particular field to develop an advanced type of knowledge-based technology; for example, atomic industry is accountable to develop nuclear technology to fulfill the growing demands of energy.

The Department of Science & Technology (DST) plays a pivotal role in the promotion of Science and Technology in India. DST has a huge responsibility; such as, at one end, it promotes high end research & development of cutting edge technologies; on the other hand, it provides technical skill sets and basic technologies to the common people. The DST performed catalytic role in establishing State Science & Technology Councils. Over the years, state S & T Councils have been working extensively towards S & T interventions for state-specific problems, creating scientific temperament and culture of innovation at the grassroots level.

(b) Background: The Concept of Institutional and Human Capacity Building (IHCB)

The Institutional and Human Capacity Building (IHCB) framework has been always recognized as being central for achieving a sustainable future.

The institutional capacity of a country is vital to the promotion, protection and participation into a sustainable economic, societal and environmental development. Along financial capital, social capital and natural capital, the institutional capital is the glue that holds together the sustainable future we want. It is manifested in the governance, rule of law, international engagement capacity. It emphasizes the importance of the normative and rule-making aspects of development. The concept of three mutually reinforcing pillars of sustainable development needs to be recognized and incorporated into the Institutional Framework for Sustainable Development. Specifically capacity building encompasses the country's human, scientific, technological, organizational, institutional and resource capabilities.

2.1 STI Institutions

Science and technology (S&T) is widely recognized as an important tool for fostering and strengthening the economic and social development of the country. India has made significant progress in various spheres of science and technology over the years and can now take pride in having a strong network of S&T institutions, trained manpower and an innovative knowledge base. Scientific knowledge and expertise, high technology industrial infrastructure and skilled work force are the strengths of a country in the knowledge era. Following sustained efforts over period since independence and a more focused thrust during the recent period in higher education, scientific research, and technology development, the country has now attained a recognized potential to emerge as a Global player in the knowledge era. These STI institutions can be primarily divided into 7 groups based on the category of the institute:

1. Central Government Institutes
2. Central Public Sector
3. State Government Institutes
4. State Public Sector
5. Universities/ Deemed Universities/ Institute of National Importance
6. Scientific and Industrial Research Organization
7. DSIR Registered / CMIE Database Private Sector

These groups include universities, research labs, research centres, and enterprises/companies from the public and private sectors. (Annexures: 1 -17)

The central and state institutions are under GOI and State government respectively, and private institutions are under conglomerates/Companies or are independent. The current informative data (in numbers) of various institutes in different states is enlisted in Table-1.

Sl. No.	State/UTs	STI INSTITUTIONS						
		Central Govt. Institutes	Central Public Sector	State Govt. Institutes	State Public Sector	Universities/ Deemed Universities/ Institute of National Importance/ Women S &T Universities	Private Institutions in the State	
							Scientific and Industrial Research Organisation (SIROs)	DSIR Registered / CMIE Database Private Sector
1.	Andhra Pradesh	11	3	66	1	29	20	47
2.	Arunachal Pradesh	7	-	4	-	11	4	-
3.	Bihar	7	-	38	-	30	3	2
4.	Goa	4	1	2	-	4	1	22
5.	Gujarat	1	9	24	7	39	17	163
6.	Haryana	24	6	16	3	57	7	212
7.	Karnataka	53	9	26	36	48	62	366
8.	Kerala	27	4	82	9	16	25	49
9.	Madhya Pradesh	29	8	64	33	81	10	66
10.	Maharashtra	65	13	104	3	48	100	606
11.	Manipur	12	-	7	-	3	3	1
12.	Meghalaya	4	1	5	2	12	-	-
13.	Mizoram	12	2	8	-	3	3	-
14.	Nagaland	7	2	15	3	7	-	-
15.	Punjab	10	-	24	-	40	12	65
16.	Tamilnadu	46	6	96	4	48	24	18
17.	Telangana	33	9	55	30	34	54	90
18.	Uttarakhand	28	3	23	15	26	5	18

Table-6: State wise STI Institutions (in numbers)

Source: State S&T Councils; R & D Directory

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Another essential mechanism for strengthening STI ecosystem is Collaboration Development. The goal is to foster collaboration, provide opportunity for global experience, and to facilitate advancement of knowledge on the basis of reciprocity, best effort, networking and funding opportunities, mutual benefit, and frequent interactions. Different levels of collaborations are as follows-

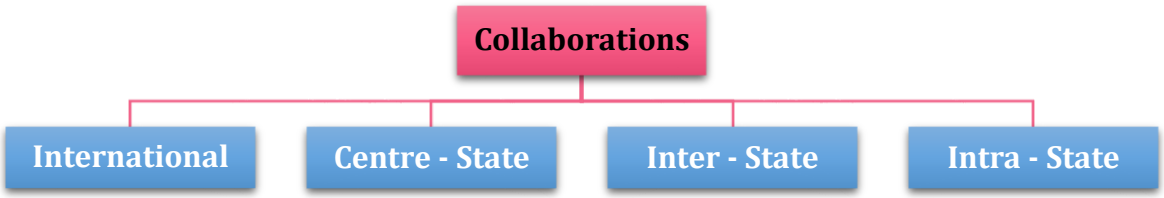

Figure-3: Type of Collaborations

Sl. No.	State/UTs	Collaborations - Scientific & Knowledge Exchange			
		International	Centre - State	Inter - State	Intra - State
1.	Andhra Pradesh	-	-	-	-
2.	Arunachal Pradesh	01	16	21	02
3.	Bihar	-	-	-	-
4.	Goa	03	03	-	03
5.	Gujarat	-	-	-	-
6.	Haryana	13	06	12	13
7.	Karnataka	01	-	-	-
8.	Kerala	-	-	-	-
9.	Madhya Pradesh	39	10	08	20
10.	Maharashtra	-	-	-	-
11.	Manipur	-	-	-	-
12.	Meghalaya	-	-	-	-
13.	Mizoram	10	07	10	07
14.	Nagaland	-	07	03	01

Source: State S&T Councils

Table-7: State wise contribution -Collaborative linkages for scientific and knowledge exchange (in numbers)

With the globalization of the job market, higher education is undergoing structural changes and education scenario worldwide is experiencing dramatic and accelerating changes in patterns of creation of new knowledge. Similar activities are being witnessed in India as regards to the production of highly qualified S&T personnel in different disciplines. Education is the only proven tool that brings change within a generation and opportunities to people and to the backward or under developed states. One of the areas of weakness of Indian science (in few states), in the past has been the lack of effective technology transfer mechanisms. Although we have a few success stories in Atomic Energy, Space, CSIR, etc. where there was successful interaction between academia (including both the university system and the national laboratory system) and industry, in general this has been lacking.

2.2 Institutional and Human Resources

Institutional and Human resources in Science and Technology are major driving forces for India's emergence as a knowledge super power. Strategic and sustained support with higher investment in Science and Technology education and training in schools, colleges, universities, research institutions and industry is essential to generate effective leaders and competent scientific workforce and teachers for accomplishing this vision. For this purpose there is a need to build critical mass of well-trained scientists, engineers, professionals, technicians, graduates and domain experts with scientific training and skills. Significant component of the workforce with skills is required to learn and deploy emerging knowledge in the changing economic scenario and fulfilment of aspirations of the people. Institutional and Human Resources can be divided into the following:

2.1 R & D Infrastructure and Human Resources
2.2 Human Capacity Building

2.2.1 R & D Infrastructure and Human Resources

The R&D Infrastructure Division aims to strengthen the S&T infrastructure of the country by fostering well-equipped R&D labs in the academic/ research institutes/ universities as well as a strong culture of research collaboration between institutions and across disciplines. The objectives of different schemes are establishment of R&D labs, centres, up-gradation of research facilities orienting towards creating a self- reliant India.

Universities/ Academic and Research Institutes are cradles of innovation and knowledge creation. Research in universities has three-tier effects concerned with quality of under-graduate and postgraduate education and value of research. They are the source of generating high caliber human resource and repositories of national intellectual wealth in Science & Technology (S&T) sector, which if channelized properly, may lead to overall socio- economic development of the country.

Indian R&D ecosystem is primarily situated in higher education institutes of the country. This can be divided as follows:

2.1.1 Human Resources
2.1.2 Central Initiatives for R&D Infrastructure Development
2.1.3 State Initiatives for R&D Infrastructure Development

Human Resources

Sl. No.	State/UTs	Human Resources- R & D (2017-18 onwards)- I									
		Number of Ph. D. Enrolled				Number of Ph. D. Awarded				Number of Post Doc Associated	
		Full Time		Part Time		Full Time		Part Time			
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1.	Arunachal Pradesh	357	325	126	40	91	88	63	17	-	-
2.	Gujarat	169170				23765	17048	-	-	-	-
3.	Haryana	262	355	164	222	133	175	84	77	28	31
4.	Madhya Pradesh	5389	4151	255		1531	1158	68		25	14
5.	Manipur	410				122				10	
6.	Meghalaya	1433	1569	-	-	-	-	-	-	-	-
7.	Mizoram	608	545	69	31	188	179	8	5	1	2
8.	Nagaland	75	144	10	15	20	31	-	-	2	3
9.	Punjab	11547	13424	-	-	1393	1665	-	-	-	-
10.	Tamilnadu	1686	2279	572	864	498	655	551	548	146	268
11.	Telangana	20959	12774	-	-	-	-	-	-	-	-
12.	Uttarakhand	6352	3778	-	-	533	361	-	-	-	-

Source: State S&T Councils; AISHE Report

Table-8: Human Resources- R & D (Part- I)

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Sl. No.	State/UTs	Human Resources- R & D (2017-18 onwards)- II											
		Number of Students Completed the Post-Graduation		Number of Students Completed the Graduation		Number of Scientists in the Public/ Private sector		Number of Professors		Number of Associate Professors		Number of Assistant Professors	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1.	Arunachal Pradesh	301	222	597	255	-	-	96	13	75	18	348	178
2.	Gujarat	147428		2309286	2404015	1000		2552	872	3859	2009	16955	10665
3.	Haryana	4810	6622	13669	23303	19	14	228	113	90	81	299	301
4.	Madhya Pradesh	65603	87727	396873	376920	925	186	9247	4951	7598	4394	47859	33245
5.	Manipur	1502		1875		-	-	581		352		966	
6.	Meghalaya	12441	16863	-	-	-	-	-	-	-	-	-	-
7.	Mizoram	2222	2680	3323		64	46	91	17	124	60	251	130
8.	Nagaland	2300	3325	6100	7200	10	15	-	-	-	-	-	-
9.	Punjab	44214	99991	174231	282619	-	-	6829	3852	6406	6053	44172	63853
10.	Tamilnadu	11265	23538	28543	29307	3	24	222	85	452	318	847	1341
11.	Telangana	574673	544190	3416358	3272694	-	-	2092	434	3350	1666	12975	8437
12.	Uttarakhand	-	-	-	-	-	-	759	268	645	402	3880	3056

Source: State S&T Councils; AISHE Report

Table-9: Human Resources- R & D (Part- II)

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Central Initiatives for R&D Infrastructure development

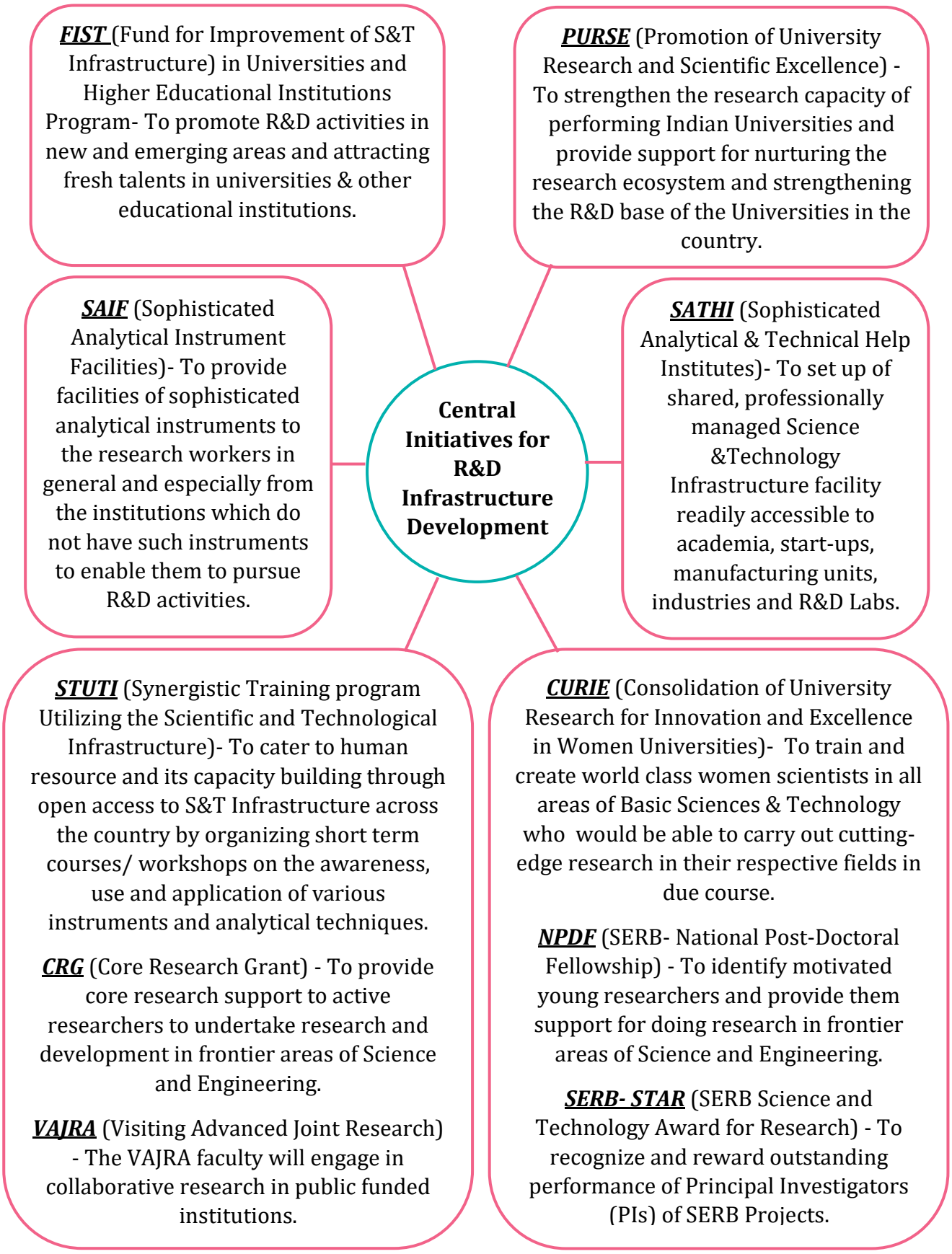

Figure-4: Central initiatives for R&D infrastructure development

State Initiatives for R&D Infrastructure Development

Sl. No.	State	State Initiatives for R & D Infrastructure Development
1.	Arunachal Pradesh	1. Setting up of Bamboo Treatment Plant at Namsai- To provide training and entrepreneurial skills to the local bamboo artisan and craftsman. 2. Establishment of Centre of Excellence for Science Technology Innovation and Research (CoE-STIR) at Itanagar- To provide cutting edge technology for students, researchers and promote entrepreneurship culture among the people of state. 3. Setting up of Orchidarium at Namsai- To promote Orchid farming and to tap the entrepreneurial skills related to orchid farming.
2.	Gujarat	1. Research Support Scheme for Research & Development- To create R&D ecosystem in Gujarat State.
3.	Haryana	1. Livestock waste utilization through establishment of Vermi-compost unit- To work out economics in production of Vermi-compost and fodder. 2. Quantification of Management Practices for Livestock and Poultry- Studies on feed and nutrient utilization, feed conversion efficiency and evaluation of nutrition requirements for different functions in various categories of buffalo. 3. Conservation and Genetic Improvement of Indigenous Livestock Breeds- To conserve and improve the indigenous breeds through selective breeding and to disseminate superior germplasm to farmers. 4. Milk Processing Demonstration at Farmer's Doorstep (Doodh Ki Chakki) - To demonstrate the milk at the farmer's doorstep. To increase awareness among farmers about processing of milk and the benefits associated with the same. 5. Strengthening and upgradation of facilities and services for diagnostic imaging in different diseases of Animals - Application of facilities and equipment for early and appropriate diagnosis and treatment of different disease conditions in animals.
4.	Karnataka	1. Centre of Excellence in Science, Engineering and Medicine (CESEM) - The grant will be provided to encourage a theme-based research and developmental activities in the field of Science, Engineering and Medicine. 2. Centre of Innovative Science, Engineering and Education (CISEE) - Provides funding for improving facilities needed for conducting innovative research and to increase the quality of teaching in Science & Engineering. 3. Karnataka Fund grants for Infrastructure Strengthening in Science & Technology (K-FIST L1 and K-FIST L2)- Provides financial support to higher educational institutions or research centres in the State towards creating the S&T based infrastructure or upgrading the existing infrastructure facilities to uplift the level of education and research.

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		4. Research Grants for Scientist / Faculty (RGS/F) - To encourage young researchers to initiate their research career in their respective institutions by providing a one-time research grant as a seed money. 5. Award for Research Publications (ARP) - Encourages and reward outstanding researchers and faculty members, who have published their research work in reputed and peer-reviewed scientific journals through a cash award. 6. Grant will be provided for conducting workshop for faculty members to increase their knowledge and skill about the recent technologies needed for industries, which will in turn enable them to transmit the same to the students.
5.	Madhya Pradesh	1. R & D Programme-Research Grant- MPCST- The objective of this scheme is to create and update the research capabilities of the researchers and scientists of the various Institutes of the state. 2. Seminars / Symposium/ Workshops- MPCST- The basic objective of the scheme is to bring together academicians and experts and to create a scientific atmosphere among educational and research institutes. The scheme provides opportunities to state scientists for discussion and interaction with National/ International Scientist. 3. M.P. Young Scientist Congress, MPCST- M. P. Council of Science & Technology is promoting the young talents of the State by organizing Young Scientist Congress every year. The Congress aims at identifying budding scientists and providing encouragement to their research plans and programmes. 4. Fellowship of Training of Young Scientist (FTYS), MPCST- Financial Assistance provides to young talent to work with the latest equipments for expansion of their research plans and to work with distinguish scientists of the Country. It is believed that such an exposure will equip the FTYS trainees to initiate independently advanced research programmes in their respective Institutions. 5. International Travel Grant- One of the most effective ways to provide international exposure is by increasing opportunities of attending and participating in significant international conferences/seminars/symposiums etc. held abroad. The Council provides Financial Assistance to scientists and researchers of the State for participating and presenting their research work abroad and to provide international exposure. 6. Internship/Dissertation /Training Programs by MPCST- This training module has been assigned to give a detailed exposure in various aspects of sciences like Lab visits to the reputed institutes with good instrumentation facility, lectures and demonstration of analytical techniques, hands on training on sophisticated instrumentation.
6.	Maharashtra	1. Assistance for S&T Applications- to catalyze application of innovations and to create knowledge based society for sustained economic progress. 2. Science and Innovation Centre- To provide a facility for students to undertake innovative activities in Science. 3. Assistance for S&T Applications through University System- To spread R&D project activity and extend research culture to smaller institutions. 4. TIFAC-RGSTC MSME Scheme- To develop a linkage between academia and industries by providing research and development inputs and technical support to industries.

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7.	Mizoram	1. Up-gradation & strengthening of tissue culture lab of FRCBR funded by Mizoram Bamboo Mission- Research Infrastructure Development.
8.	Nagaland	1. Bio Control Laboratory, Medziphema (Deptt. of Agri) - Utilization of biofertilizers in implementation of departmental schemes, for demonstrations, Researches and training programmes. 2. State Agriculture Research Station (SARS) - To conduct research on selection and standardization of both upland & lowland paddy, germ plasm conservation, agriculture research. 3. Tissue Culture Laboratory (Deptt. of Horticulture) - To produce quality and disease- free planting material for farmers. 4. Botanical garden (Deptt. of Environment, Forest & Climate Change)- Research catering, training and awareness programs, Conservation of biodiversity and propagation of some rare and endangered species by adopting means of in- situ and ex-situ conservation. 5. Silviculture Range Nursery, Kohima and Rangapahar Nursery, Dimapur. (Department of Environment, Forest & Climate Change)- To produce high quality seedlings of various indigenous economic species ranging from timber, medicinal herbs, aesthetic species etc.
9.	Punjab	1. Centres of Excellence for vegetables and Potato at Jalandhar- To focus on quality seed potato, suitable farm mechanization and proper disease management technologies.
10.	Tamilnadu	1. Adi Dravidar Fellowship to SC Research Scholar- To provide research degrees.

Table-10: State Initiative in R & D Infrastructure Development

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International/ Centre- State/ Inter- State/ Intra- State Collaborations (for R & D Infrastructure- 2017-18 onwards)

Table-6 shows collaborative linkages (2017-2018 onwards) of different states/institutes for R & D Infrastructural Development at different levels to encourage the development of joint research programmes, to **e**nhance, widen and intensify co-operation related to scientific activities to stimulate scientific research cooperation in areas of mutual interest and benefit.

Sl. No.	State/UTs	Collaborations (R & D Infrastructure)			
		International	Centre- State	Inter- State	Intra- State
1.	Andhra Pradesh	-	-	-	-
2.	Arunachal	-	-	-	-
3.	Bihar	-	-	-	-
4.	Goa	-	-	-	-
5.	Gujarat	-	04	-	02
6.	Haryana	04	03	08	07
7.	Karnataka	-	-	-	-
8.	Kerala	-	-	-	-
9.	Madhya Pradesh	32	09	08	25
10.	Maharashtra	-	-	-	-
11.	Manipur	-	-	-	-
12.	Meghalaya	-	-	-	-
13.	Mizoram	01	04	01	01
14.	Nagaland	-	01	03	-
15.	Punjab	01	-	01	01
16.	Tamilnadu	40	09	04	05
17.	Telangana	-	-	-	-
18.	Uttarakhand	-	-	-	-

Source: State S&T Councils

Table-11: State wise contribution -Collaborative linkages for R & D Infrastructure (in numbers)

In the fast-growing Indian economy, there is an increasing demand for scientific inputs for problems in a variety of socio-economic, industrial and strategic sectors. It is high time that India, as a fast-growing nation, converts those challenges into opportunities. To achieve this, several S&T interventions are required. Some of the emerging challenges being faced by the S&T sector include low investment in R&D; inadequate linkages amongst the academia, the researchers and the industry; weak innovation ecosystem to convert ideas into useful acceptable products and processes; poor coupling between technology and trade; low base of full-time equivalent scientists per million populations, etc. Research and Development (R&D) institutions must be strengthened with adequate human resources and infrastructure needs in STI.

2.2.2 Human Capacity Building

Capacity-building is defined as the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in a fast-changing world. Human resource development aims at building future S&T capabilities through focused programs in basic and higher education. Many schemes offer scholarships for S&T undergraduate degrees, scholarships and research fellowships at the graduate level. These schemes also involve science and mathematics competitions to motivate members of the academe and promote a culture of achievement.

Human Capacity Building can be divided into the following:

2.2.1 Capacity building in Education.
2.2.2 Capacity building in Skill development.

Capacity building in Education.

Capacity building for education is targeted at students and teachers at various levels of education (schools, colleges, faculty, and researchers). Its objectives are to up-skill students and teachers with the latest advancement, developments, and techniques worldwide. This type of Capacity building happens in educational institutions.

Capacity building in Skill development (Training programmes in S&T)

The concept of skill development has gained great importance due to growing population of young and employable youths of India. Mere offering education for the sake of award of degree to youths may not carry due importance. It is equally necessary that the educational inputs should be transferred into meaningful employable skills.

Capacity building of people specially youths/women/backward class through skill development has become a major challenge. Its objectives are to up-skill the youth, especially women, to develop or study favourable skills for employment. These programs also help disseminate practical S&T innovation and information among the general population, predominantly indigenous technology. Various initiatives related to Capacity Building in Education and Skill Development are as follows:

I: International initiatives- The goal of the international initiatives in educational sector is to enhance the educational programs offered by academic institutions, strengthen the scientific and technical manpower base, transfer knowledge and technology to the academic community, and support a growing national commitment to science education such as SERB overseas post-doctoral fellowships, Indo-U.S. Fellowship for Women in STEMM, International travel grants for Seminars, ORISE and Shastri Mobility Fellowships etc. for personal enrichment and professional development, Technical Education Quality Improvement Program (TEQIP) to improve the quality of education in the technical institutions of India and Skills Acquisition and Knowledge Awareness for Livelihood Programme (SANKALP) To improve short term skill training qualitatively and quantitatively.

National Initiatives- Capacity Building in Education

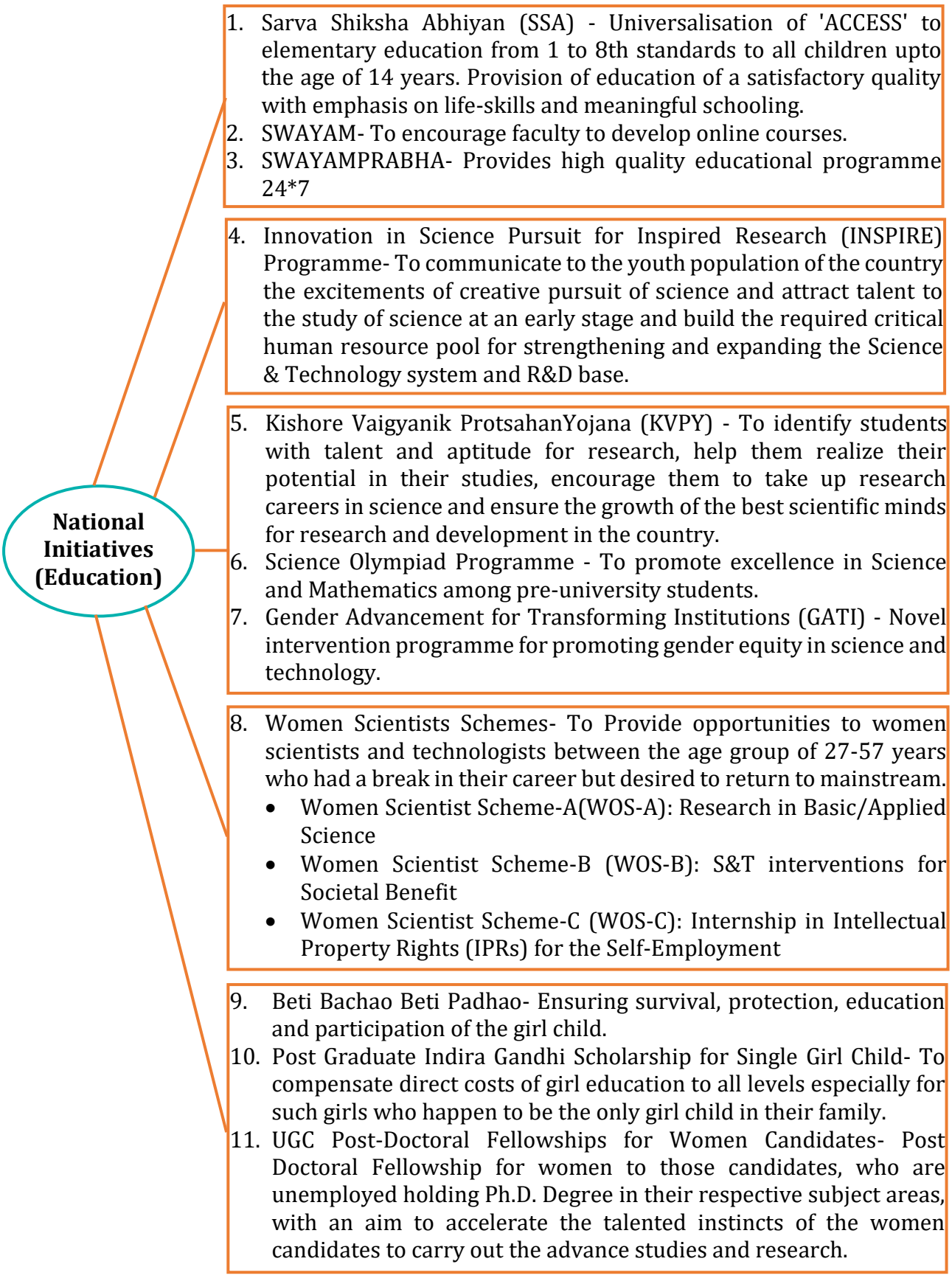

Figure-5: National initiatives for capacity building- Education

National Initiatives- Capacity Building in Skill Development

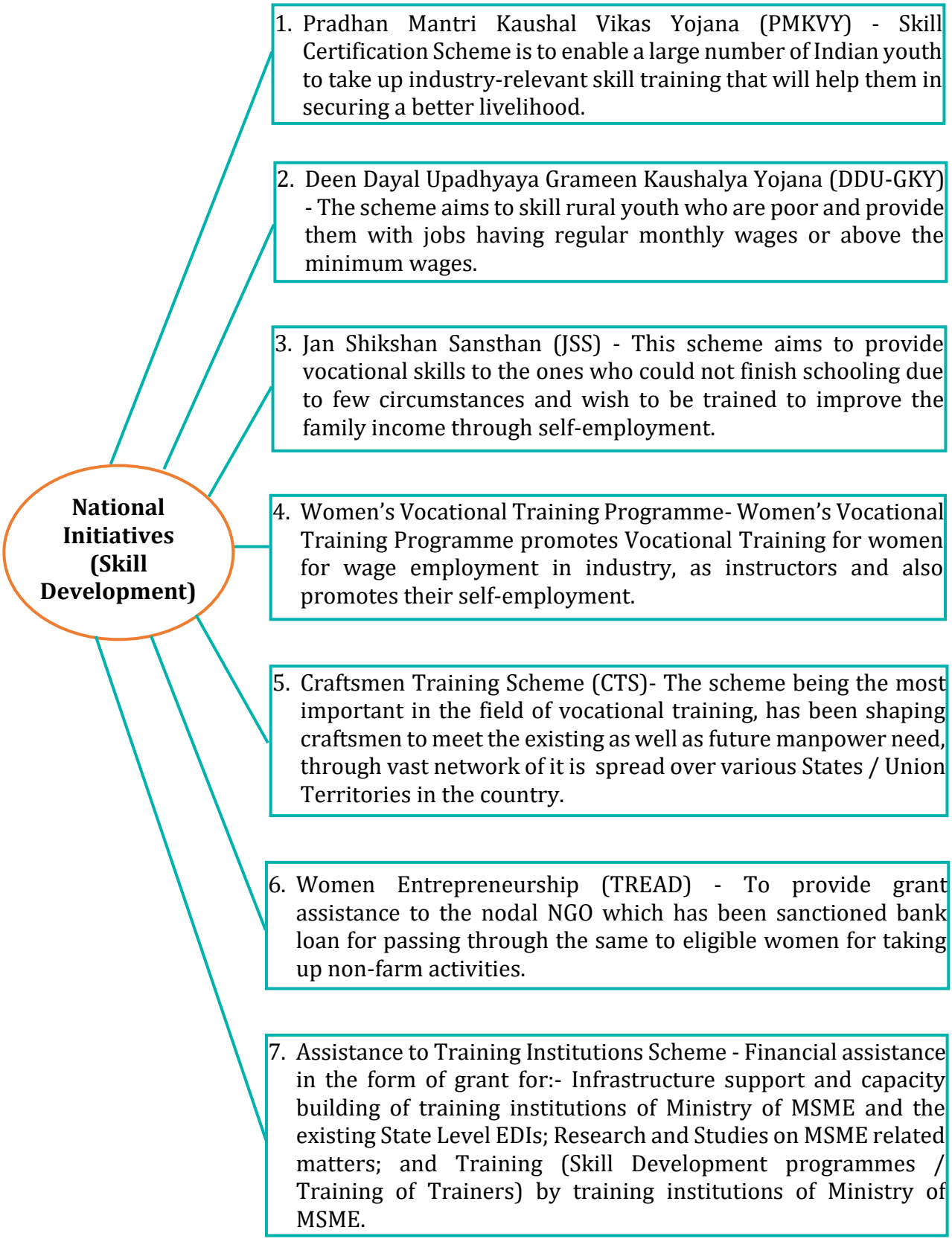

Figure-6: National initiatives for capacity building- Skill Development

State Initiatives

Sl. No.	State	State Initiatives in Capacity Building-Education	State Initiatives in Capacity Building-Skill Development
1.	Arunachal Pradesh	1. Faculty Development Training Programme –Hands on Experimental Chemistry.	1. Student Solar Ambassador Workshop- To create awareness about solar energy and clean environment and provide hands on training on use of multi-meter, soldering and assembling of solar lamp.
2.	Bihar	1. State Science & Technology Centre of Excellence- To make students market ready with the knowledge of emerging fields such as Artificial Intelligence, IoT, Machine Learning, DATA Science, Food Processing Technology etc.	2. Bihar Skill Development Mission- To establish a wide network of training centres and to provide employment opportunities to the youth.
3.	Goa	1. Training networking and capacity building- Capacity building of teachers.	---
4.	Gujarat	1. Chief Minister Scholarship scheme- To educate students who are not able to pay fees & go to school. 2. Mukhyamantri Yuva Swavalamban Yojana- To educate students who are scholars or brilliant in schooling period but are not able to study in colleges due to financial problems. 3. Vahli Dikri Yojana- This scheme aims to improve girl child ratio and also promotes girls education in the state. This scheme is implemented in both rural and urban areas.	1. Robofest Programme- to Create Hands on learning environment and to empower Creativity & Innovation. 2. Gujarat STEM Bootcamp- students explored different technologies and its benefits like Artificial Intelligence, Robotics, Machine Learning, Cyber Security, Immersive Reality, and Automation and so on.
5.	Haryana	1. Intellectual Property Rights and Fostering Innovation in the University-To sensitize the targeted participants about IPR and to identify Innovations. 2. Comprehensive training on Junior Research Fellowship (Veterinary Sciences) – ICAR- To prepare UG students for competitive exams.	1. Skill development and training on milk processing- For skill development of progressive farmers 2. Vocational Dairy Farming Training- To promote the skill development of farmers. 3. Training on Meat and meat products processing to SC Youth- For skill development of SC Youth.

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6.	Karnataka	1. Student and Faculty Project Programme- To enrich collegiate education through finding solutions to real life problems and develop to support products and services development specifically meant to address local specific issues and innovation. 2. The Centre of Excellence in Aerospace & Defense- To provide Skill Enhancement for Engineering Graduates / Students largely in Aerospace and Defense (A&D). 3. Centre of Excellence in Cyber Security-to promote cyber safe and conducive environment for all stakeholders. The centre is pursuing industry collaboration, skilling programs, funding to R&D projects, support to startup& innovation in this emerging technology field of Cyber Security	1. Chief Minister's Kaushalya Karnataka Yojana (CMKKY)- To develop a new strategic framework for Skill Development for the school drop-outs and existing workers, especially in the Informal Sector in close consultation with Industry, Micro Enterprises in the Informal Sector, State Governments, Experts and Academia. 2. Rajiv Gandhi Chaitanya Yojana (RGCY) - Trained and encouraged for self-employment. 3. Crafts Instructor Training Scheme (CITS)- Transferring hands-on skills, to train skilled manpower for the industry.
7.	Kerala	1. Student Programme For Excellence in Experimental Design" (SPEED) - A science enrichment programme for Prathibha Scholars to nurture and motivate them for higher studies and career in Science. 2. Prathibha Scholarship Programme- Scholarships are awarded to students of Kerala origin who have qualified meritoriously in the Higher Secondary Examination, for pursuing Undergraduate and Postgraduate degree courses in Basic/ Natural Science in Institutions/ Universities in India.	---
8.	Madhya Pradesh	1. Mukhyamantri Janakalyan (Shiksha Protsahan Yojana) - To provide education to the children of workers in the unorganized sector. 2. Mukhyamantri Medhavi Vidyarthi Yojana- To provide assistance to poor category students for higher education. 3. Ladli Laxmi Yojana- To lay a firm foundation of girls' future through improvement in their educational and economic status.	1. Mukhyamantri Kaushal Samvardhan Yojana- To provide skill training to the youth and to increase employment opportunities in the state for the youth. 2. Mukhyamantri Swarojgar Yojana- To improve economic condition of the state by making the citizens of the state to become self-reliant. 3. Mukhyamantri Yuva Udyami Yojana- To provide financial assistance to entrepreneurs.

			4. Mukhyamantri Kaushalya Yojana- To provide skill training to the women of the state.
9.	Meghalaya	---	1. Skill Training on Appropriate Technology- To empower the community especially the poor and marginalised section and to uplift the livelihood by providing opportunities like skill training programme. 2. S&T Oriented Entrepreneurship Development Programme- To add value to bamboo by imparting training on making of bamboo utilities and handicrafts, To build up the skill of poultry rearers, food processing technology etc.
10.	Mizoram	1. Mission Organic Mizoram- Internship to students in organic farming. 2. Establishment of Network of Laboratories for managing epidemics and natural calamities- For timely diagnosis and viruses during outbreak of epidemic, generation of data for facilitating quick deployment of resources and measures to save human lives.	1. State Agricultural Management and Extension Training Institute (SAMETI) - Providing capacity building support in Extension Management related areas to the extension functionaries both from public and private sector.
11.	Nagaland	---	1. Sanitary Napking production Units- to empower the rural women and also to uplift the rural economic and also to improve rural health. 2. Women in Agriculture- Women empowerment through knowledge and expertise.
12.	Punjab	1. Punjab Skill Development Mission- To create constant opportunities for the youth of Punjab in education to support them with the means of creating sustainable livelihoods.	1. Punjab Skill Development Mission- To create constant opportunities for the youth of Punjab in skill development to be able to acquire skills of choice and to support them with the means of creating sustainable livelihoods.
13.	Tamilnadu	1. ICT Applications in Academics- To promote Faculty Development.	1. Recognition of Prior Learning (RPL)-Establishing an outcome-driven implementation framework which evaluates and recognizes skills and

		2. National Conference on molecular modelling and simulation methods- To progress the principles involved in development of theoretical methods.	knowledge acquired outside the classroom (informal learning or learning through work). 2. Tamilnadu Adi Dravidar Housing & Development Corporation (TAHDCO)- Entrepreneurship Development Programme (EDP)- To Develop the entrepreneurial abilities and the skills that are required to run a business.
14.	Telangana	1. Science Awareness- To promote Science education among students. 2. WE-Hub- To encourage Women Empowerment and Entrepreneurship.	1. Skill Developments through Telangana Academy Skill Knowledge, TASK- To promote Skill Development Training. 2. Employment Generation and Market Mission- Skill Development Training.
15.	Uttarakhand	1. Financial Assistant to Meritorious Students- To provide financial support to meritorious students. 2. Nanda Devi Kanya Yojana- To provide financial security for the future education of girl child and also stopping female foeticide. 3. Dishayen (Career Counselling of Adolescent girls) - Adolescent girls of remote districts being made aware by providing information about various career options in various arenas through professional institutions.	1. Crafts Instructor Training Scheme (CITS) - To train instructors in techniques of transferring the hands-on skills. 2. National Apprenticeship Promotion Scheme- To utilize the facilities available in the industry for imparting practical training with a view to meeting the requirements of skilled manpower for industry.

Table-12: State Initiatives for Capacity Building - Education and Skill Development

International/ Centre- State/ Inter- State/ Intra- State Collaborations (for Skill Development- 2017-18 onwards)

Table- 8 shows State wise contribution of collaborative linkages (2017-2018 onwards) of different Sectors/ Institutes to provide a boost to the growth of local industries and artisans, accelerating socio-economic development and joint exploration of training business opportunities for acquiring national and international projects and assignments.

Source: State S&T Councils

Sl. No.	State/UTs	Collaborations (Skill Development)			
		International	Centre- State	Inter- State	Intra- State
1.	Andhra Pradesh	-	-	-	-
2.	Arunachal	-	05	02	03
3.	Bihar	-	-	-	-
4.	Goa	-	-	-	-
5.	Gujarat	01	01	-	01
6.	Haryana	04	04	02	10
7.	Karnataka	12	01	08	04
8.	Kerala	-	-	-	-
9.	Madhya Pradesh	01	03	02	05
10.	Maharashtra	-	-	-	-
11.	Manipur	-	-	-	-
12.	Meghalaya	-	02	01	01
13.	Mizoram	01	03	01	01
14.	Nagaland	-	02	-	01
15.	Punjab	-	02	-	02
16.	Tamilnadu	04	14	11	52
17.	Telangana	09	-	-	-
18.	Uttarakhand	-	-	-	-

Table-13: State wise contribution -Collaborative linkages for Skill Development (in numbers)

Strategic and sustained support with higher investment in Science and Technology education and training in schools, colleges, universities, research institutions and industry is essential to generate effective leaders and competent scientific workforce and teachers for realizing this vision. For this purpose knowledge driven countries need to build critical mass of well-trained scientists, engineers, professionals, technicians, graduates and domain experts with scientific training and skills. Significant component of the workforce must be equipped with skills to learn and deploy emerging knowledge to address the challenges in the changing economic scenario and fulfillment of aspirations of the people.

The details of STI institutions is shown in annexure 1 to 17.

3. Innovation

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3.1 Innovation & Start-ups

India is one of economically fastest growing country in the world, the innovation plays one of the crucial roles in achieving this. As world changes, the innovative idea needs to meet the challenges also forecast future requirements. The evolution of human existence can be traced back to simple yet innovative endeavours such as invention of the wheel, to modern techniques such as rearranging of DNA. The innovation with better knowledge and human capital promotes the economic growth. At the same time, improved in economic growth foster quality of human life. So, the innovation and economic development are interlinked.

India is emerging as an R&D centre through public sector investment, academic collaboration and foreign direct investment (FDI). As per the global innovation index 2021 ranking, India is the top innovative country in central and south Asia and holds the record for over-performing on innovation. The biggest problem in the nation is lot of unemployed people which is the economic and social disaster. So, the India need to be an engine of growth, especially when the is slowing down elsewhere, our nation needs growth for its own sake as well. The factor affect innovation are: research and development, firm size, labour market, demographic dividend, marketing demand, venture capital, delay in acquiring patents.

According to the NITI Aayog's second edition of India Innovation Index India's performance on the Global Innovation Index is:

Year	GII Score	GII Rank	Total Countries
2017	35.5	60	127
2018	35.2	57	126
2019	36.58	52	129
2020	35.6	48	131
2021	36.4	46	132

Table-14: Global Innovation Index

India Innovation Index provides the methodology to assess the innovation and performance of Indian states. The index framework gives the constant evaluation of innovation ecosystem of states and UT. The following functions are accomplished by the innovation index:

- Based on the index score ranking of all states and UT.
- Recognize the opportunities and the challenges in the state
- Assist in modifying government policies to foster innovation.

The Indian Innovation Index measures innovation inputs through 'Enablers' and output as 'Performance'. The enablers are human capacity, investment, knowledge workers, business environment, safety and legal environment. Also, performance pillars are knowledge output and knowledge diffusion. In NITI Aayog's second edition of India Innovation Index, states and UTs categorised as three groups such as Major States, NE and Hill States, UT and City States:

Sl. No	Major States	Rank
1	Karnataka	42.50
2	Maharashtra	38.03
3	Tamil Nadu	37.91
4	Telangana	33.23
5	Kerala	30.58
6	Haryana	25.81
7	Andhra Pradesh	24.19
8	Gujarat	23.63
9	Uttar Pradesh	22.85
10	Punjab	22.54
11	West Bengal	21.69
12	Rajasthan	20.83
13	Madhya Pradesh	20.82
14	Odisha	18.94
15	Jharkhand	17.12
16	Chhattisgarh	15.77
17	Bihar	14.48

Table-15: India Innovation Index (Major States)

Sl. No	NE and Hill States	Rank
1	Himachal Pradesh	25.06
2	Uttarakhand	23.50
3	Manipur	22.78
4	Sikkim	20.28
5	Mizoram	16.93
6	Assam	16.38
7	Arunachal Pradesh	14.90
8	Nagaland	14.11
9	Tripura	12.84
10	Meghalaya	12.15

Table-16: India Innovation Index (NE and Hill States)

Sl. No	UT and City States	Rank
1	Delhi	46.60
2	Chandigarh	38.57
3	Daman & Diu	26.76
4	Puducherry	25.23
5	Goa	24.92
6	Dadra & Nagar Haveli	22.74
7	Andaman & Nicobar Islands	18.89
8	Jammu & Kashmir 1	18.62
9	Lakshadweep	11.71

Table-17: India Innovation Index (UT and City States)

Source: https://www.niti.gov.in/sites/default/files/202101/IndiaInnovationReport2020Book.pdf

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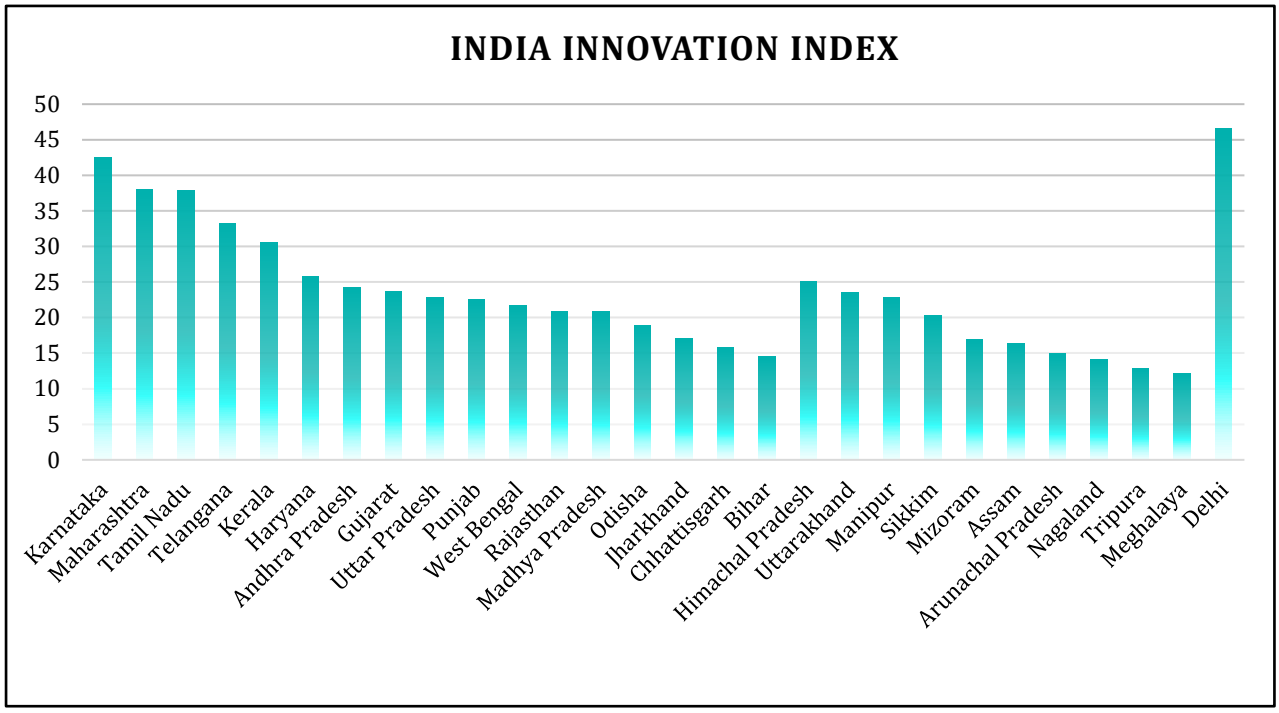

Figure-7: India Innovation Index

Startups are the companies that focus on the single product or the services to bring to the market. These companies don't have fully developed business model and lack of capital to run the company to the next phase. It is the company with less than 100 people.

India has the 3rd largest startup ecosystem in the world. Startup India is the initiative of Government of India to catalyse and build strong startup culture and ecosystem. Startup India started several programmes with an objective of motivating to be entrepreneur to create jobs instead of job seeker. The States' Startup Ranking Framework is an ever-evolving tool with collaboration at its core. With learnings from previous years and consultation with States and Union Territories, three new Reform Areas were introduced to the framework:

1. Capacity Building of Enablers – This Reform Area focuses on holistic development through sensitization programs and trainings conducted for key stakeholders of the State startup ecosystem.
2. Mentorship Support – This Reform Area focuses on creating a large and accessible mentorship network within the State and the guidance provided by the State-supported mentors to the startups.
3. Fostering Innovation and Entrepreneurship – This Reform Area captures grassroots innovation, disruptive policies for startups, and the entrepreneurial spirit of the students.

Sl.No	State	Startup ranking
1	Karnataka	Best Performer category A
2	Gujarat	Best Performer category A
3	Meghalaya	Best Performer category B
4	Kerala	Top performer category A
5	Maharastra	Top performer category A
6	Odisha	Top performer category A
7	Telangana	Top performer category A
8	Jammu and Kashmir	Top performer category B
9	Uttarakhand	Leader category A
10	Assam	Leader category A
11	Tamil Nadu	Leader category A
12	Uttar Pradesh	Leader category A
13	Andaman and Nicobar Islands	Leader category B
14	Arunachal Pradesh	Leader category B
15	Punjab	Leader category A
16	Goa	Leader category B
17	Rajasthan	Aspiring leader category A
18	Chattisgarh	Aspiring leader category A
19	Himachal Pradesh	Aspiring leader category B
20	Madya Pradesh	Aspiring leader category A
21	Delhi	Aspiring leader category A
22	Chandigarh	Aspiring leader category B
23	Nagaland	Aspiring leader category B
24	Dadra and Nagar Haveli and Daman and Diu	Aspiring leader category B
25	Manipur	Aspiring leader category B
26	Tripura	Aspiring leader category B
27	Puducherry	Aspiring leader category B
28	Bihar	Emerging startup ecosystem category A
29	Andhra Pradesh	Emerging startup ecosystem category A
30	Mizoram	Emerging startup ecosystem category B
31	Ladakh	Emerging startup ecosystem category B

Table-18: States start-up ranking 2021

Source: https://www.startupindia.gov.in/srf/result-2021.html

The state specific analysis is as follows:

Karnataka:

The state is recognised as the best performer in developing a strong startup ecosystem. The state is also recognised as an institutional champion, innovative leader, procurement forerunner, capacity building pioneer, funding leader. The Government of Karnataka has taken initiatives, which are:

- Launching Engineering Research and Development Policy to attract sector-focused incentives
- Creating Regulatory Sandboxes for startups to avail exemptions from state and municipal laws
- Developing modernistic policies to support innovation in disruptive sectors

Gujarat:

The state is recognised as the best performer in developing a strong startup ecosystem. The state is also recognised as an institutional champion, capacity building pioneer, procurement forerunner, incubation hub, funding leader. The government of Gujarat has taken initiatives, which are:

- Building a proactive mechanism to provide holistic and comprehensive institutional support
- Launching herSTART, a focused program to enable the growth in the number of women entrepreneurs
- Creating Gujarat State Biotechnology Technology Mission (GSBTM) fund for biotechnology startups

Meghalaya:

The state is recognised as the best performer in developing a strong startup ecosystem. The government of Meghalaya has taken the following initiatives:

- Creating robust programs such as “From Idea to Execution” for capacity building for Higher Education Institutes and promoting the entrepreneurial spirit amongst students.
- Supporting Women and Grassroot Entrepreneurs through the PRIME Kickstart Grant and Innovation Scaleup Loan.
- Providing comprehensive mentorship through PRIME Acceleration Coaching.

Kerala:

The state is recognised as the top performer in developing a strong startup ecosystem. The state also recognised as an institutional champion, capacity building pioneer, procurement forerunner. The government of Kerala has taken initiative which are:

- Providing institutional support to startups through knowledge dissemination in regional languages
- Developing Kerala Startup Mission Digital Hub as a one-stop facility for all product design and development activities
- Supporting various government departments in the form of capacity building programs and building tailored incentives and schemes

Maharashtra:

The state is recognised as the top performer in developing a strong startup ecosystem. The state is also recognised as an institutional champion, capacity building pioneer, innovative leader. The government of Maharashtra has taken initiative namely:

- Facilitating the Maharashtra Startup Week to provide startups with a platform to showcase their innovative solutions
- Structuring a holistic startup portal by offering single window solutions for all startup ecosystem stakeholders
- Establishing a Women Incubation Centre to increase women's representation in startups and entrepreneurship

Odisha:

The state is recognised as the top performer in developing a strong startup ecosystem. The state also recognised as an institutional champion, capacity building pioneer, procurement forerunner. The government of Odisha has taken initiative which are:

- Building a robust State startup portal functioning in two different languages
- Launching the Odisha Startup Growth Fund (OSGF), a Funds-of-Funds model for startups with a budget allocation of INR 100 Cr.
- Developing holistic policies and schemes to develop entrepreneurs among Women, SC/ST, and especially abled persons

Telangana:

The state is recognised as the top performer in developing a strong startup ecosystem. The state also recognised as an institutional champion, capacity building pioneer, incubation hub, and innovative leader. The government of Telangana has taken initiative which are:

- Launching the Research and Innovation Circle Hyderabad (RICH) incubator to boost science, research, and innovation through a collaborative environment
- Setting up the Telangana Innovation Fund (T-Fund) – an early stage investing vehicle formed in collaboration with leading global investors
- Devising the Grassroot Innovation Framework to promote inclusive and sustainable growth in the startup ecosystem to develop bottom-up solutions

Jammu and Kashmir:

The Union Territory is recognised as the top performer in developing a strong startup ecosystem. The Union Territory of Jammu and Kashmir has taken initiatives which are:

- Promoting Women-Led Startups through special incentives
- Building a comprehensive grievance redressal mechanism for startups
- Establishing Entrepreneurship Knowledge cells at Higher Educational Institutes to promote entrepreneurial spirit and support student entrepreneurs

Uttarakhand:

The state is recognised as the leader in developing a strong startup ecosystem. The state also recognised as an institutional champion and capacity building pioneer. The government of Uttarakhand has taken initiative which are:

- Formulating a startup policy to foster an ecosystem for nurturing the spirit of entrepreneurship
- Launching UDYAM - a Pre-Incubation Programme to provide aspiring entrepreneurs a platform to develop their ideas
- Developing initiatives to support startups in the disruptive sector by amending regulations and introducing new policies

Assam:

The state is recognised as the leader in developing a strong startup ecosystem. The state also recognised as a mentorship champion. The government of Assam has taken initiatives which are:

- Facilitating the launch of THE NEST - State-of-the-art incubator to nurture entrepreneurship
- Providing incentives and financial assistance to women entrepreneurs
- Conducting a high number of outreach programs with academia, investors and other key ecosystem players
- Building a large mentorship network for startups

Tamil Nadu:

The state is recognised as the leader in developing a strong startup ecosystem. The state also recognised as an institutional champion. The government of Tamil Nadu has taken initiatives which are:

- Setting up Tamil Nadu Startup and Innovation Council (TANSIL) - an agency overlooking the startup ecosystem in the State
- Launching the Tamil Nadu Electric Vehicle Policy - a disruptive policy to provide capital subsidy for manufacturing of EV component or charging infrastructure
- Launching TANSEED to support startups with a Seed Grant upto INR 10 Lakh

Uttar Pradesh:

The state is recognised as the leader in developing a strong startup ecosystem. The government of Uttar Pradesh has taken initiatives which are:

- Building an interactive portal for all enablers of the ecosystem including incubators, accelerators, mentors, and startups.
- Establishing Uttar Pradesh Startup Fund (UPSF) which provides access to finance exclusively to UP based startups
- Creating an effective mechanism for awareness and outreach in Higher Education Institutes

Andaman and Nicobar Islands:

The Union Territory is recognised as the leader in developing a strong startup ecosystem. The Union Territory of Andaman and Nicobar Islands has taken initiatives which are:

- Building a culture of innovation by providing mentorship support
- Creating an effective grievance redressal mechanism for startups

Arunachal Pradesh:

The state is recognized as the leader in developing a strong startup ecosystem. The government of Arunachal Pradesh has taken initiative which are:

- Establishing a Seed Fund and Innovation Fund mechanism for startups.
- Providing advisory support and capacity building of enablers to create Entrepreneurship Cells in Higher Education Institutes.

Punjab:

The state is recognised as the leader in developing a strong startup ecosystem. The government of Punjab has taken initiatives which are:

- Creating the Startup Punjab Cell - the key point of contact for knowledge dissemination
- Formulating clear guidelines for startups to avail seed funding grant
- Facilitating the launch of Punjab Biotechnology Incubator to promote growth of the startup ecosystem

Goa:

The state is recognised as the leader in developing a strong startup ecosystem. The government of Goa has taken initiatives which are:

- Creating a one-stop portal for startups in the State with a dedicated helpline and clear state level approvals and clearances.
- Conducting knowledge sessions in Higher Educational Institutes to promote entrepreneurial spirit and support student entrepreneurs

Rajasthan:

The state is recognised as the aspiring leader in developing a strong startup ecosystem. The government of Rajasthan has taken initiatives which are:

- Initiating iStart Rajasthan – a single window resource for startups, investors, incubators, accelerators and mentors
- Providing financial assistance to startups under Techno Fund
- Conducting comprehensive training programs for ecosystem enablers to impart knowledge on entrepreneurship

Chhattisgarh:

The state is recognised as the aspiring leader in developing a strong startup ecosystem. The state of Chhattisgarh has taken initiatives which are:

- Establishing a Startup Policy outlining tax benefits and subsidies for startups
- Setting up and upgrading Incubators to provide services like co-working space, mentorship, funding, and technological support.

Himachal Pradesh:

The state is recognised as the aspiring leader in developing a strong startup ecosystem. The government of Himachal Pradesh has taken initiatives which are:

- Building a comprehensive and inclusive Startup Policy
- Outlining easier public procurement norms for startups
- Launching Him Startup Yojana (HIMSUP) - A venture fund with allocated budget of INR 10 Crore to promote and encourage new entrepreneurs

Madhya Pradesh:

The state is recognised as the aspiring leader in developing a strong startup ecosystem. The government of Madhya Pradesh has taken initiatives which are:

- Conducting awareness programs and workshops with Higher Education Institutions to sensitize and support budding student entrepreneurs
- Launching the Madhya Pradesh Venture Finance Limited (MPVFL) a venture fund set up for funding the startups

Delhi:

The Union Territory is recognised as the aspiring leader in developing a strong startup ecosystem. The Union Territory of Delhi has taken initiatives which are:

- Fostering capacities of ecosystem enablers through exposure and knowledge sessions
- Building a wide network of incubators for the growth of startups

Chandigarh:

The Union Territory is recognised as the aspiring leader in developing a strong startup ecosystem. The Union Territory of Chandigarh has taken initiatives which are:

- Building the Society for Promotion of IT in Chandigarh and providing incubation support to startups
- Promotion of entrepreneurship through mentorship support

Nagaland:

The state is recognised as the aspiring leader in developing a strong startup ecosystem. The government of Nagaland has taken initiatives which are:

- Introducing focused capacity building programs for women entrepreneurs
- Launching the Lockdown Challenge 2020 to ignite young innovative minds
- Building a one-stop portal to access information for all startups

Daman and Diu:

The Union Territory is recognised as the aspiring leader in developing a strong startup ecosystem. The Union Territory of Daman and Diu has taken initiatives which are:

- Facilitating Access to Market for startups
- Providing dedicated support through mentorship
- A mechanism to create awareness about startup ecosystem through brochure & events

Manipur:

The state is recognised as the aspiring leader in developing a strong startup ecosystem. The government of Manipur has taken initiatives which are:

- Building the Centre for Entrepreneurship and Skill Development Manipur to conduct incubation training workshops
- Building a one-stop portal for access to information for all startups

Tripura:

The state is recognised as the aspiring leader in developing a strong startup ecosystem. The government of Tripura has taken initiatives which are:

- Promoting the entrepreneurial spirit amongst students
- Providing funding support to startups through the Tripura Startup Scheme
- Building a one-stop portal for access to information for all startups in the State

Puducherry:

The Union Territory is recognised as the aspiring leader in developing a strong startup ecosystem. The Union Territory of Puducherry has taken initiatives which are:

- Providing Access to Market to startups
- Building an incubation ecosystem in the State through the Atal Incubation Centre-Pondicherry College of Engineering Foundation (AIC-PECF)

- Creating a robust mentor network for startups

Bihar:

The state is recognized as an emerging startup ecosystem. The government of Bihar has taken initiative which are:

- Devising the Bihar Startup Policy to support the innovation potential of the ecosystem
- Launching specific initiatives for new and disruptive technology sectors
- Bihar Chief Minister Mahila Udyami Yojana to promote women entrepreneurship through financial assistance

Andhra Pradesh:

The state is recognised as an emerging startup ecosystem. The government of Andhra Pradesh has taken initiatives which are:

- Building a robust startup portal with access to information to all startups in the State
- Fostering capacities of enablers through exposure and knowledge sessions

Mizoram:

The state is recognised as an emerging startup ecosystem. The government of Mizoram has taken initiatives which are:

- Supporting Innovations to combat COVID-19
- Building a springboard for emerging and early-stage entrepreneurs
- Providing strong incubation support to the startups

Ladakh:

The Union Territory is recognised as an emerging startup ecosystem. The government of Ladakh has taken initiatives which are:

- Creating a mechanism to enable students, researchers and entrepreneurs, to access research
- Establishing a Student Startup Innovation Fund to encourage students and build the entrepreneurial spirit
- Providing dedicated support to startups through mentorship

Central Government initiatives for start-ups

S. No.	Name of the Scheme/programme	Objective	Funding Agency
1.	Start-up India	To reduce the regulatory burden on Startups, thereby allowing them to focus on their core business and keep compliance costs low.	DPIIT
2.	Atal Innovation Mission	To create and promote an ecosystem of innovation and entrepreneurship across the country at school, university, research institutions, MSME and industry levels.	NITI Aayog
3.	Pradhan Mantri mudra Yojana	Our basic purpose is to attain development in an inclusive and sustainable manner by supporting and promoting partner institutions and creating an ecosystem of growth for micro enterprises sector.	NBFC, All government Banks
4.	SAMRIDH Scheme	To promote e-Governance for empowering citizens, promoting the inclusive and sustainable growth of the Electronics, IT & ITeS industries, enhancing India's role in Internet Governance, adopting a multipronged approach that includes development of human resources, promoting R&D and innovation, enhancing efficiency through digital services and ensuring a secure cyber space.	Ministry of Electronic & Information technology
5.	NIDHI Prayas	• To promote and develop high-end entrepreneurship for S&T manpower as well as self-employment by utilising S&T infrastructure and by using S&T methods. • To facilitate and conduct various informational services relating to promotion of entrepreneurship. • To network agencies of the support system, academic institutions and Research & Development (R&D) organisations to foster entrepreneurship and self-employing using S&T with special focus on backward areas as well. • To act as a policy advisory body with regard to entrepreneurship.	Department of Science & Technology (DST), GOI, The National Science & Technology Entrepreneurship Development Board (NSTEDB)
6.	High Risk -High Reward Research	The Scheme for funding High Risk - High Reward Research aims at supporting proposals that are conceptually new and risky, and if successful, expected to have a paradigm shifting influence on the S&T	Science and Engineering Research Board (SERB) under Department of Science & Technology

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7.	ExtraMural Research or Core Research Grant	The scheme provides core research support to active researchers to undertake research and development in frontier areas of Science and Engineering.	Science and Engineering Research Board (SERB) under Department of Science & Technology
8.	NewGen Innovation and Entrepreneurship Development Centre	To catalyze and promote development of knowledge-based and innovation-driven enterprises and promote employment opportunities amongst youth specially students	Department of Science & Technology
9.	Drugs & Pharmaceutical Research	To stimulate skill development of human resources in R&D for drugs and pharmaceuticals; and to enhance the nation's self-reliance in drugs and pharmaceuticals especially in areas critical to national health requirements	Department of Science & Technology
10.	Biotechnology Ignition Grant (BIG)	Upscale and validate of proof of concept and encourage researchers to take technology closer to market through a start up	Biotechnology Industry Research Assistance Council (BIRAC)
11.	Small Business Innovation Research Initiative (SBIRI)	To support new indigenous technologies particularly those related to societal needs in the healthcare, food and nutrition, agriculture and other sectors	Biotechnology Industry Research Assistance Council (BIRAC)
12.	Biotechnology Industry Partnership Programme (BIPP)	Government partnership with Industries for support on a cost sharing basis for path-breaking research in frontier futuristic technology areas having major economic potential and making the Indian industry globally competitive	Biotechnology Industry Research Assistance Council (BIRAC)
13.	Promoting Innovations in Individuals, Start-ups and MSMEs (PRISM)	To support individual innovators which will enable to achieve the agenda of inclusive development - one of the thrust areas of XIIth five year plan	Department Of Science & Industrial Research
14.	Hardware Technology Park Scheme	To export their entire production of goods and services may be set up under the Electronic Hardware Technology Park (E.H.T.P.) Scheme. Such units may be engaged in manufacture and services.	Ministry of Electronics and Information Technology
15.	Software Technology Park Scheme	Export Oriented Scheme for the development and export of computer software, including export of professional services using communication links or physical media	Ministry of Electronics and Information Technology

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16.	Duty Exemption and Remission Scheme	Import of inputs required for export production. Duty exemption schemes consist of: a) Advance Authorisation scheme b) Duty Free Import Authorisation (DFIA) scheme A Duty Remission Scheme enables post export replenishment / remission of duty on inputs used in export product.	Ministry of Commerce and Industry
17.	Enhancement of Competitiveness in the Indian Capital Goods Sector	To encourage technology development through joint participation with Academia, Industry R&D institute and Government and facilitate transfer/acquiring the critical technologies	Department Of Heavy Industry
18.	Single Point Registration Scheme	The Government is the single largest buyer of a variety of goods.	Ministry of Micro Small & Medium Enterprises
19.	International Cooperation (IC) Scheme	Technology infusion and/or upgradation of Indian micro, small and medium enterprises (MSMEs) Promotion of the exports of MSMEs Modernisation of MSMEs	Ministry of Micro, Small & Medium Enterprises (MSME)
20.	Aspire - A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship	Create new jobs and reduce unemployment. Promote entrepreneurship culture in India. Grassroots economic development at district level	Ministry of MSME
21.	Revamped Scheme of Fund for Regeneration of Traditional Industries (SFURTI)	To organize the traditional industries and artisans into clusters to make them, competitive and provide support for their long term sustainability To provide sustained employment for traditional Industry artisans and rural entrepreneurs;	Khadi and Village Industries Commission under Ministry Of MSME
22.	Technology Business Incubator (Nidhi-TBI-NSTEDB)	NSTEDB aims to nurture Start-ups through incubation.	DST
23.	Technology Innovation and Incubation Centre (TIIC)	• Identifying ideas, Proof of Concepts (POC), prototypes and translating them into product development and MVP stages through TRL activities.	Technology Innovation and Incubation Centre (TIIC)

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		• Conducting Ideathons, Hackathons and Boot camps to engage and develop interest among all students, faculties and Innovators. • To create infrastructure for rapid prototyping, product development and MVP stage of Innovations. • To inculcate generation of IPR's among the faculty members, students and Innovators. • Effective implementation of Pre-Incubation Program.	
24.	Start-ups in Engineering Sciences, Computer Sciences and Information Technology.	Start-ups in Engineering Sciences, Computer Sciences and Information Technology.	Start-ups in Engineering Sciences, Computer Sciences and Information Technology.
25.	VandeMataram-A Salute to our Mother Earth	To provide self-sustainability to Women who are under educated and School dropouts mostly in rural and semi urban areas by training them in skill development programmes in the textile and apparel sectors	In association with ministry of textiles, under the integrated skill development scheme for textiles and apparel sector
26.	Dairy Entrepreneurship Development Scheme	• Generate self-employment and provide infrastructure for dairy sector. • Setting up modern dairy farms for production of clean milk. • Encourage heifer calf rearing for conservation and development of good breeding stock. • Bring structural changes in unorganized sector so that initial processing of milk can be taken up at village level. • Upgradation of traditional technology to handle milk on commercial scale. • Provide value addition to milk through processing and production of milk products.	Commercial Banks, Regional Rural and Urban Banks, State Cooperative Banks, State Cooperative Agricultural and Rural Development Banks, Other Institutions, which are eligible for refinance for NABARD

Table-19: Central Government initiatives for start-ups

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State Government initiatives for start-ups

Name of the state	Name of the Scheme/programme/centres	Objectives	Funding Agency
Arunachal Pradesh	Establishment of Arunachal Pradesh Innovation & Investment Park (AIIP)	As per the directions of Ease of Doing Business (EODB) Act, there is a mandate to establish Arunachal Pradesh Investment Agency for the purpose of Investment promotion, industrial facilitation, regulatory reforms, entrepreneurial development and obtaining invest or feedback. The APIIP will be empowered as the umbrella organization of all Arunachal Pradesh State sponsored incubators. APIIP shall predominantly facilitate incubation framework and activities; invest in equity for selected startups.	Government of Arunachal Pradesh
Bihar	Chief Minister SC/ST/EBC/Women/Youth Udyami Yojana	To provide employment opportunities to SC/ST/EBC/Women/Youth of Bihar and to encourage entrepreneurship and start up	Government of Bihar
Gujarat	Gujarat Start-up & Innovation Hub (I-Hub)	To develop an end-to-end innovation and entrepreneurial ecosystem in the State of Gujarat by creating pathways from "Mind-to-Market"	The Education Department, Government of Gujarat
Gujarat	Establishment of Innovation Club in various colleges which comes under state government	1. Creates Hands on learning environment. 2. Empower Creativity & Innovation	Commissionerate of Higher Education (CHE)
Gujarat	Robofest Programme	1. Creates Hands on learning environment. 2. Empower Creativity & Innovation.	GUJCOST
Karnataka	Elevate	Open challenge to crowdsource innovative solutions and products from startups working in the area of tourism.	Startup Karnataka
Karnataka	Idea2PoC	Early-stage funding to ideas or concepts which are yet to establish the proof of concept in the real world	Startup Karnataka
Karnataka	Amrita Startups	Supports start-ups led /co-lead by OBC and Minorities with a one-time grant of up to INR. 25 lakhs, to aid entrepreneurs in early-stage funding	Startup Karnataka

Karnataka	Semiconductor venture fund	Investment and development of Semiconductor industry with investments in units catering to semiconductors, Electronics system design and manufacturing (ESDM), embedded systems and such other allied sectors within the state of Karnataka.	Startup Karnataka
Karnataka	Bio venture fund	A fund that invests in companies/ enterprises engaged in the agricultural, pharmaceutical, industrial, IT and other services, related to Biotechnology and allied industries.	Startup Karnataka
Karnataka	AVGC venture fund	A fund focused on enterprises engaged in Animation, Visual Effects, Gaming and Comics (AVGC) sector and other related businesses.	Startup Karnataka
Karnataka	Seed Fund Scheme	To provide financial assistance to startups for proof of concept, prototype development, product trials, market entry and commercialization.	Government of Karnataka
Karnataka	BIRAC's initiative -Sustainable Entrepreneurship and Enterprise Development Fund (SEED Fund)	Capital assistance to startups with new and meritorious ideas, innovations and technologies.	BIRAC
Madhya Pradesh	Madhya Pradesh Start up Implementation Scheme	To boost innovation-driven entrepreneurial culture and to inculcate the spirit of innovation among the immensely talented youth of Madhya Pradesh, GoMP has been making efforts to create a conducive environment to promote entrepreneurship in the state.	Department of MSME, Government of Madhya Pradesh
Madhya Pradesh	Mukhyamantri Swarojgar Yojana	To improve economic condition of the state by making the citizens of the state to become self-reliant.	MSME, Government of Madhya Pradesh
Madhya Pradesh	Mukhyamantri Arthik Kalyan Yojana	The scheme is mainly focused on offering with financial help to the beneficiaries who come from the Minority groups and backward class of the society.	Government of Madhya Pradesh
Madhya Pradesh	Mukhyamantri Yuva Udyami Yojana	To provide financial assistance to entrepreneurs.	MSME, Government of Madhya Pradesh

Madhya Pradesh	Mukhyamantri Kaushal Samvardhan Yojana	To provide skill training to the youth and to increase employment opportunities in the state for the youth.	Directorate of Skill Development, Madhya Pradesh
Madhya Pradesh	Mukhyamantri Kaushalya Yojana	To provide skill training to the women of the state.	Directorate of Skill Development, Madhya Pradesh
Madhya Pradesh	Jeevan Shakti Yojana	Under this scheme, women entrepreneurs of urban areas can start the work of manufacturing masks by registering themselves on this portal. The masks manufactured by women will be purchased at the district level at the rate fixed by the Madhya Pradesh government. Necessary action will be taken at the district level for the sale of purchase material.	Department of Industry Policy and Investment Promotion, Madhya Pradesh
Mizoram	Entrepreneurship Development Scheme	• Spread awareness on entrepreneurship through entrepreneurship events and through media. • Institute the 'Mizoram Outstanding Entrepreneurs Award' and conduct it at regular intervals to promote entrepreneurs and inspire the youth. • Publish literature and manuals on entrepreneurship in the Mizo language. • Provide up-skilling through exposure/study tours, workshops and training programme. • Facilitate networking and mentoring through Master Trainer programme. • Institution building through setting up of entrepreneurship development centre and cells, incubation centre and providing need-based assistance to partner agencies. • Provide micro finance through competition to startups. Coordinate regulatory frameworks for ease of doing business in the State.	Government of Mizoram

Punjab	Punjab Startup Fund	100 Crore Corpus fund for scaling up of Start-ups.	IK Gujral Punjab Technical University & Govt. of Punjab
Punjab	Startup Facilitation Division under Mission Innovate	Promote Tech-Led Start-ups.	Punjab State Council for Science & Technology
Punjab	Innovation Mission	150 Crore Punjab Innovation Fund for investing in Early-Stage Start-ups.	Supported by Punjab Government
Punjab	STPI Mohali- NEURON	Promote and evaluate promising start-ups in the field of AI/Data Analytics, IoT and AVG.	Govt. of Punjab, ISB-Mohali, PTU and MeitY
Telangana	The Association of Lady Entrepreneurs of India's (ALEAP) WE HUB	Women Entrepreneurs trying to help each other on a common platform.	Atal Innovation Mission, NITI Aayog
Telangana	T-HUB	Enabling and empowering an ecosystem hungry for innovation.	Government of Telangana
Uttarakhand	Foundation for Innovation and Entrepreneurship Development scheme	Set to incubate the most promising startups of India in the domains of education, art & craft, tourism and hospitality.	Government of Uttarakhand
Uttarakhand	Rural Business Incubator scheme	• Support and empower aspiring entrepreneurs and help early-stage business entities to conceive their ideas. • Nurture fresh ideas, groom them to transform into sustainable businesses/start-ups. • From innovation assessment to mentoring, coaching, and marketing – provide a 360-degree support system. • Create employment opportunities for youth. • Prioritise socially disadvantaged groups (SCs/STs/Women/Minorities). • Provide a dynamic mentor pool. • Take up customised plans and strategies to make every potential business plan succeed.	Government of Uttarakhand

Table-20: State Government initiatives for start-ups

3.2 Intellectual Property Rights (IPRs)

Intellectual Property Rights means the property represented by the product or process emanating from creativity/creation from of the human mind, human intellect and creative ideas. It can be in the form of Invention, original Design, Trademarks, artistic creation etc. In earlier times, physical or tangible assets like movable and immovable properties fetched the maximum value and the owner had an exclusive right over it. With the passage of time, new ideas cropped in, new concepts and means for the progress of mankind were thought of & new inventions came to the forefront, which brought about industrial, economic and cultural development in the society.

These new activities acquired the form of intangible assets owing to the inherent and practical values associated with them. Therefore, another form of property right was generated which required safeguarding for the owners of those properties. The property right, pertaining to such intangible assets, is called Intellectual Property Rights, popularly known as IPR. It share many of the characteristics associated with conventional concept of the personal property.

The intellectual property is an asset and, as such, it can be bought, sold, mortgaged, licensed, exchanged or gratuitously given away like any other form of the property. Further, by acquiring a legal right over the property, the creator of the intellectual property seeks to ensure that he has exclusive right over it and that the property can be put to use by others only with his consent. Besides, ownership of Intellectual Property Right is the legal recognition and reward you receive for your creative efforts, in the context of global market scenario.

Source: 1-8_Brochure_Intellectual_Property_India_Complete IPO NIPAM

If we look at the origin of IP legislation in India, it was extended from the British crown as the act VI of 1856. The aim of this is to motivate new and useful manufacture and to induce inventors to disclose their invention secret. Since enacted without the approval of British crown, the act was repealed by act IX of 1857. The fresh legislation for granting exclusive privileges introduced in 1859 as act XV of 1859. The modification in the legislation as compared to previous legislation was grant of exclusive privileges to useful inventions only and extension of priority period from 6 months to 12 months. The act was based on United Kingdom Act of 1852 with certain departures which include allowing assignees to make application in India and also taking prior public use or publication in India or United Kingdom for the purpose of ascertaining novelty.

The Act 1859 was consolidated in 1872, which provides protection related to design. It was renamed as the pattern and design protection Act under Act XIII of 1872.To protect novelty of the invention, the Act 1872 was amended in 1883. In which prior to making application for their protection were disclosed in the Exhibition of India. A period of 6 month provided for filing such applications after the date of such exhibition. In the year 1883 some modifications made in United Kingdom and it was considered to be incorporated in Indian law. In 1888 the act was introduced to consolidate and amend the law elated to invention and design in conformity with the amendments made in the U.K. law.

The Indian Patents and Designs Act, 1911, (Act II of 1911) replaced all the previous Acts. First time it brought patent administration under the management of Controller of Patents. This was further amended in 1920 to enter into reciprocal arrangements with UK and other countries for securing priority. In 1930, further amendments were made to incorporate, inter-alia, provisions relating to grant of secret patents, patent of addition, use of invention by Government, powers of the Controller to rectify register of patent and increase of term of the patent from 14 years to 16 years. In 1945, an amendment was made to provide for filing of provisional specification and submission of complete specification within nine months. The Government of India constituted a committee under the Chairmanship of Justice (Dr.) Bakshi Tek Chand, a retired Judge of Lahore High Court, in 1949 to review the patent law in India in order to ensure that the patent system is conducive to the national interest.

The 1911 Act amended in 1950 in relation to working of inventions and compulsory licence/ revocation. In 1952 amendment was made to provide compulsory licence in relation to patents in respect of food and medicines, insecticide, germicide or fungicide and a process for producing substance or any invention relating to surgical or curative devices. The compulsory licence was made available by the central government notification. The Act remains in force without any changes till 1994, another ordinance was issued in 1999. The amended Act provided for filing of applications for product patents in the areas of drugs, pharmaceuticals and agro chemicals though such patents were not allowed. However, such applications were to be examined only after 31-12-2004. Meanwhile, the applicants could be allowed Exclusive Marketing Rights (EMR) to sell or distribute these products in India, subject to fulfilment of certain conditions. The second amendment to the 1970 Act was made through the Patents (Amendment) Act, 2002 (Act 38 0f 2002). This Act came into force on 20th May 2003 with the introduction of the new Patent Rules, 2003 by replacing the earlier Patents Rules, 1972. The third amendment to the Patents Act 1970 was introduced through the Patents (Amendment) Ordinance, 2004 w.e.f. 1 st January, 2005. This Ordinance was later replaced by the Patents (Amendment) Act 2005 (Act 15 of 2005) on 4th April, 2005 which was brought into force from 1-1-2005.

3.2.1 Types of IPR

Intellectual Property Rights can be divided into 2 types:

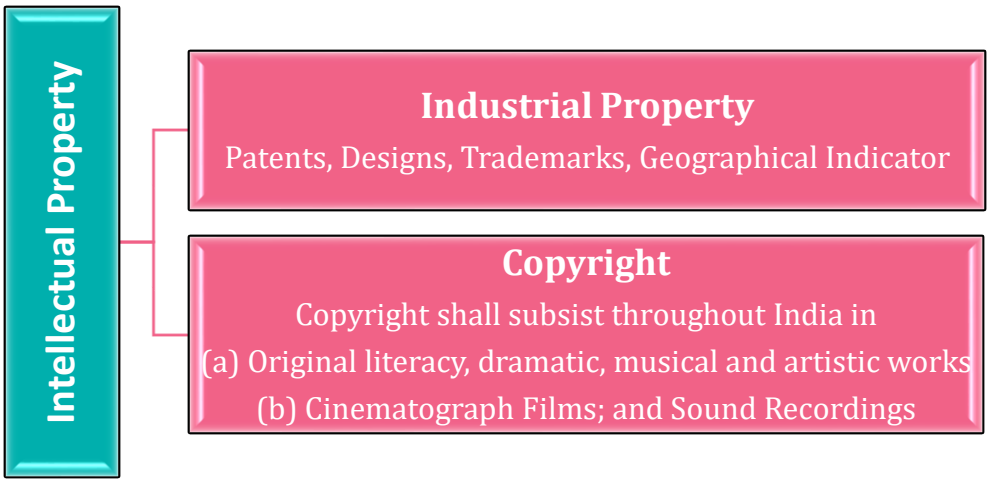


Figure-8: Types of IPR

3.2.2 Patent

It is the exclusive right granted for an inventor to exclude others using his invention without his permission for a limited period. Invention is either product or process which new way of doing things or new solution to the exiting problems. The primary condition of an invention to became eligible to file a patent is mention in the section 2(1) (j) of Indian Patent Act 1970. i.e. an invention must be:

- New/ Novel
- Non-obvious
- Must capable of industrial application

Patent right is granted for a limited period of time i.e. 20 years from the date of filing. It gives territorial right, exclusive right and can be enforced only in the country where it has been granted.

Source: 1-8_Brochure_Intellectual_Property_India_Complete IPO NIPAM

3.2.3 Copyrights

Copyright is granted for expression of Idea. Copyright is protection that covers published and unpublished literary, scientific and artistic work. Copyright relates to the exclusive right to do or authorize to do certain acts in relation to original literary, dramatic or musical work, and artistic creations (paintings, photographs, work of architecture, artistic craftsmanship) cinematographic films, sound recording, software programme etc, provided such works are fixed in a tangible or material form.

As per the Copyright Act, 1957 (the 'Act') a work should be registered under copy right must be an original work I.e. Original" means originality of expression of thought is required. It must originate from the author. It is the product of the labour, skill and capital of one man which must not be appropriated by another. Work may be original, even if derived from previous material, provided further independent skill, useful labour, capital and judgment have been bestowed on its creation.

Copyright ensures certain minimum safeguards of the rights of authors over their creations, thereby protecting and rewarding creativity. Creativity being the keystone of progress, no civilized society can afford to ignore the basic requirement of encouraging the same. Economic and social development of a society is dependent on creativity. The protection provided by copyright to the efforts of writers, artists, designers, dramatists, musicians, architects and producers of sound recordings, cinematograph films and computer software, creates an atmosphere conducive to creativity, which induces them to create more and motivates others to create.

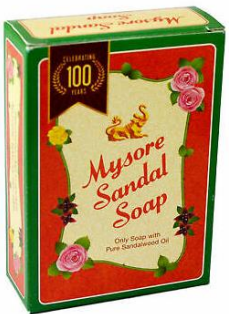
Copyright grants certain exclusive rights to the creator of work such as:

- right to reproduce the work in any material form
- issue copies of the work
- adaptation
- translation
- perform/ communicate it to the public

Source: 1-8_Brochure_Intellectual_Property_India_Complete IPO NIPAM

3.2.4 Trademark

This mark may be word, phrase, symbol or design which creates the identity of a business. A trademark is a sign capable of distinguishing the goods or services of one enterprise from those of other enterprises.



The main benefits include:

- When properly advertised, the Trade Mark becomes an effective instrument to attract the customers and acquire goodwill of the customer.
- A Trade Mark, through its widespread and extensive use in public, becomes popular and eventually results in acquiring an exclusive right, which can be legally enforced by the owner of the mark.
- Trade Mark helps the consumer to answer the question," who makes the product or who has provided the service?" e.g. COCA COLA, SONY, TVS, etc.

The main eligibility of a mark to be considered as trademark is that, TM Should not belong to the class of Marks prohibited by Law e.g. Emblem of India as per the Emblems and Names (Prevention of Improper Use) Act,1950. TM Should not contain obscene matter and should not hurt religious or sacred feelings of any citizen.

Further these marks are categorized as

- Collective marks
- Service marks
- Certification marks
- Certification marks

Source: 1-8_Brochure_Intellectual_Property_India_Complete IPO NIPAM

3.2.5 Industrial Design

Industrial design is a production technique of a certain product or article. Industrial property rights that protect the visual design of an object. IT consists of features like shape of the object, patterns, lines or colour combination which an article visual aesthetic appeals to the eye. The protection is for appearance only.

As per the Designs Act 2000 a design should be of following characters i.e

- Design should be New i.e. if there is no identical design already made available to the public before the date of filing, or application for registration.
- Design should be Original i.e. originate from the author of the design, and not a copy or imitation of existing designs.
- Design should be Individual Characterise overall impression produced by a design must differ from the overall impression produced by an earlier design made available to the public.

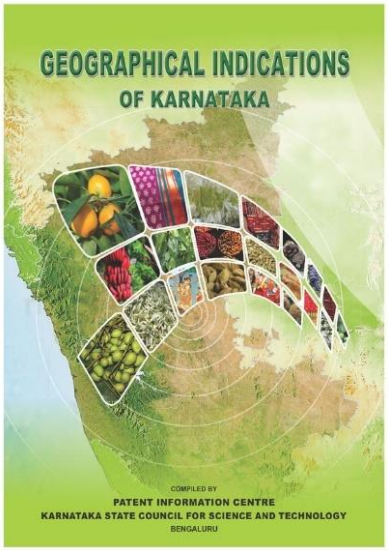
Source: 1-8_Brochure_Intellectual_Property_India_Complete IPO NIPAM

3.2.6 Geographical Indicator

A geographical indication (GI) is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin. In order to function as a GI, a sign must identify a product as originating in a given place.

To ascertain whether product qualifies as a Geographical Indications? It should conform to five main parameters:

1. Originating from a particular Geographical Area
2. Linkage with Geography and the product (Direct / Indirect)
3. Reputation of the Product (Local / National / International)
4. Historical Origin
5. Uniqueness and Quality of the product



In India, registration and protection of Geographical Indications is restricted to Goods only and Further "Goods" are divided into three main categories i.e., agricultural, natural and manufactured goods. Manufactured goods is further, sub-categories as Handicraft which includes Handloom, Textiles, goods of Industry or Industrial goods, food stuff & wines & spirits

Benefits of GIs:

- GI confers legal protection to geographical indications in India and prevents unauthorized use of a registered geographical indication by others.
- It boosts exports of Indian geographical indications by providing legal protection.
- It promotes economic prosperity of producers of goods produced in geographical territory.

Source: 1-8_Brochure_Intellectual_Property_India_Complete IPO NIPAM

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3.2.7 Schemes and initiatives for the IPR in India

To encourage the IP generation and to create IP ecosystem in the country the government through its various organisations implemented several schemes and programmes for the same. The announcement of National IPR Policy 2016 is also milestone in implementing IP ecosystem system. The Department of Science and Technology (DST) Government of India has setup Patent Facilitation Centres (PFC) and thus setting up of Patent Information Centres (PICs) in all State Councils leads to promotion of IPR in universities, colleges and general public at large in the country. Further these cells have established IP cells in Universities and Colleges resulting in creating awareness in these campuses. As an example the PIC Cell at KSCST has established 50 IP cells so for. In turn through these cell able to sensitize more than 900 IPRs including patents designs and copyrights. Like the Gujarat, Punjab and other state councils PICs are also in fore front in creating awareness and also in generating IPRS.

The Cell for IP Promotion and Management (CIPAM) is another body under the Department of Promotion of Industry and Internal Trade (DPIIT) working towards simplifying and streamlining of IP processes, apart from undertaking steps for furthering IPR awareness, commercialization and enforcement in the country.

The Technology Support Centres (TISCs) established in association with World Intellectual Property Organisation (WIPO) from CIPAM at the PICs of Punjab, Kerala and Karnataka is also a remarkable achievement for facilitating the start-ups and the education universities in generation of prior art search report and IP filings as well.

The National Intellectual Property Awareness Mission (NIPAM) from the Ministry of Commerce, Department of Promotion of Industry and Internal Trade (DPIIT) has started in the month of August 2021. It aims to inculcate the spirit of creativity and innovation to students of higher education (classes 8 to 12) and ignite and inspire the students of college/Universities to innovate and protect their creations. The experts from Patents offices in India will be delivering lectures on IPR in both online and offline mode. A target of 10 Lakh audiences is expected to reach by august 2022.

The KIRAN IPR programme of DST implementing by Technology Information and Forecasting Assessment Council (TIFAC) is a flagship programme in which the training was provided to the women candidates on IPR. The yearlong internship provides a professional experience to learn the IPR and helps in creating an employment opportunity.

A gist of the programs along with the above-mentioned facilitators is mentioned in the table for reference. These are the major activates in India in implementing the IP ecosystem by the Government of India.

Central Government initiatives for the IPR in India

S. No.	Name of the Scheme/programme/centres	Funding Agency	Objectives
1.	Centre of Excellence in Intellectual Property (CoE-IP)	Department for promotion of Industrial & Internal trade.	• To encourage the growth of IP in ICT by way of providing various IP related services • Creating awareness and facilitating IPR support to Startups/ SMEs/academia/inventors • Sensitizing about intellectual property protection and avoidance of infringement • Facilitation of know-how on various facets of IPR filing (patents, copyrights, trademark, etc.) • Providing IPR assistance to MeitY supported R&D projects
2.	Building Awareness on Intellectual Property Rights (MSME)	Ministry of Micro, Small, & medium Enterprises.	The objective is to enhance awareness of MSME about Intellectual Property Rights (IPRs) to take measures for the protecting their ideas and business strategies. Effective utilization of IPR tools by MSMEs would also assist them in technology upgradation and enhancing competitiveness.
3.	Patent Facilitation Programme (PFP)	Department of Science & Technology (DST)	For creating awareness and extend assistance on protecting Intellectual Property Rights (IPR) including patent, copyright, geographical indication etc. at state level. These PICs have also established Intellectual Property Cells in Universities (IPCU) of their respective states to enlarge the network. As of now 84 IPCU's have been created in different universities of the states. In addition, they are also liable to provide assistance to the inventors from Govt. organizations, State Universities, for patent searches to find out the potential and assessment of the invention.

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4.	Intellectual Property Facilitation Cell – MSME	Ministry of Micro, Small, & medium Enterprises., NIPAM	To promote awareness and adoption of Intellectual Property Rights among MSMEs, individual entrepreneurs, startups, and industry.
5.	Biotechnology Patent Facilitation Cell	Department of Biotechnology.	• To promote ecosystem strengthening projects • To develop strategic and emerging sectors in biotechnology • To encourage sustainable living by promoting adoption of bio-technologies, biotechnology products and services
6.	Patenting & Technology Transfer for Harnessing Innovations	Department of Science & Technology (DST), BIRAC'S	To promote the innovation ecosystem in India and also to enable the commercialization of the technology
7.	Start-Ups Intellectual Property Protection (SIPP)	Department of Promotion of Industry and Internal Trade	To protect and promote intellectual property rights of start-ups and thus encourage innovation and creativity among them. SIPP is envisaged to facilitate the protection of Patents, Trademarks, and Designs of innovative and interesting start-ups.
8.	Patent Facilitating Cell (PFC)	Department of Science and Technology	To create awareness and training program on IPR in the country, to extend assistance on protecting IPRs to the inventors from Govt. organizations, Central and State Universities, evolving policies at the national level and providing technical input to the government on IPR related issues.
9.	Intellectual Property Facilitation Centre	National Research Development Council (NRDC)	To promote, develop and commercialize the technologies, inventions, patents, processes emanating from various R&D institutions or universities and is presently working under the Department of Scientific & Industrial Research
10.	Biotechnology Patent Facilitation Cell	Department of Biotechnology	To provide awareness cum facilitation mechanism to create awareness about IPRs among scientists and researchers.

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11.	SIP-EIT Support for International Patent Protection in E&IT	Department of electronics and information technology	Providing financial support to startups and MSMEs to strengthen their competitiveness through innovation and its protection on the global level.
12.	Intellectual Property Facilitation Centre	Department of Defence Production	Developing a comprehensive production infrastructure to produce weapons, systems, platforms, equipment required for defense.
13.	Patent Assistance Funding Scheme	Biotechnology Industry Research Assistance Council	To engage the Biotech entrepreneurial ecosystem and to provide assistance for Intellectual Property protection. BIRAC offers to provide IP and technology management services to SME's, Startups, academia, and the Indian Biotech Industry.
14.	National Intellectual Property Awareness Mission (NIPAM)	DPIIT, Govt. of India	It aims to inculcate the spirit of creativity and innovation to students of higher education (classes 8 to 12) and ignite and inspire the students of college/Universities to innovate and protect their creations.
15.	Technology and Innovation Support Centre (TISC)	The Department for Promotion of Industry and Internal Trade and World Intellectual Property Organization (WIPO)	Intents to feed innovators with access to locally based, high quality technology information and related services, helping them to exploit their innovative potential and to create, protect and manage their intellectual property (IP) rights.
16.	IPR Promotion and Management (CIPAM)	DPIIT, Govt. of India	CIPAM assists in simplifying and streamlining of IP processes, apart from undertaking steps for furthering IPR awareness, commercialization and enforcement.

Table-21: Central Government initiatives for the IPR in India

State Government initiatives for the IPR in India

Name of the state	Name of the Scheme/programme/ centres	Objectives	Funding Agency
Arunachal Pradesh	Establishment of Arunachal Pradesh Innovation & Investment Park (AIIP)	As per the directions of Ease of Doing Business (EODB) Act, there is a mandate to establish Arunachal Pradesh Investment Agency for the purpose of Investment promotion, industrial facilitation, regulatory reforms, entrepreneurial development and obtaining invest or feedback. The APIIP will be empowered as the umbrella organization of all Arunachal Pradesh State sponsored incubators. APIIP shall predominantly facilitate incubation framework and activities; invest in equity for selected startups	Government of Arunachal Pradesh
Assam	Intellectual Property Rights-Awareness and Facilitation	1. To create awareness on Intellectual Property Rights(IPR) by organizing IPR camps, IPR workshops, IPR seminars, IPR lecture sessions, IPR exhibitions etc. 2. To support workshops, camps, seminars, meetings, programmes, exhibitions etc. involving Intellectual Property Rights (IPR). 3. To facilitate Intellectual Property Rights (IPR) consultation, support, guidance to the innovators.	Department of Science, Technology and Climate Change, Govt. of Assam
Gujarat	Intellectual Property Facilitation Centre	• Building Awareness on Intellectual Property Rights • To provide computerized facilities for searching/mapping, etc. with respect to patents, industrial designs, trade secrets, etc. • To provide basic information to file an application for grant of patent, GI, industrial design, trademarks, etc. • To facilitate successful transfer and commercialization of technologies	Industries & Mines Department, Department of MSME sector, GOG, Gujarat Council on Science & Technology (GUJCOST). NRDC, CII

Gujarat	Building Awareness on Intellectual Property Rights (MSME)	To enhance awareness of MSME about Intellectual Property Rights (IPRs) to take measures for the protecting their ideas and business strategies. Effective utilization of IPR tools by MSMEs would also assist them in technology upgradation and enhancing competitiveness	Ministry of Micro, Small, & medium Enterprises
Haryana	"Patent Registration Scheme" for Micro, Small & Medium Enterprises	All MSMEs existing anywhere in the state, which have filed EM Part II/Udyog Aadhaar Memorandum with respective District Industries Centre shall be eligible under the scheme. The industrial units must also comply with the following conditions: I. The item of manufacture of the unit should not fall in the restrictive list as notified by the State Government from time to time. II. The unit should have obtained NOC/CLU from competent authority, if applicable. III. The unit should be in commercial production. IV. The unit should be in regular production at the time of disbursement and the assistance shall not be released to the closed unit.	Industries And Commerce Department, Government of Haryana
Karnataka	Patent Reimbursement Incentives	The policy defines that the cost of filing and prosecution of patent application will be reimbursed to the incubated startup companies subject to a limit of Rs. 2 lakh (0.2 million) per Indian patent awarded. For awarded foreign patents on a single subject matter, up to Rs. 10 lakh (1 Million) would be reimbursed.	Startup Karnataka
Madhya Pradesh	Patent Research and Innovation Facility	To create awareness about Intellectual Property Rights (IPRs) and enable Universities, Industries, Government Departments and Research & Development (R&D) Institutions for patent researches. To analyze the patent information on a regular basis and suggest new programmes for	MPCST, Bhopal Madhya Pradesh

Madhya Pradesh	Intellectual Property Facilitation Centre (IPFC)	R & D Institutions. Guiding the inventors in respect of patenting their inventions.	MPCST, Bhopal Madhya Pradesh
Uttarakhand	Intellectual Property Rights cells	• Look after the activities related to the Intellectual Property of the institution • Evaluation and filling of patents, copyrights and design • Create awareness about Intellectual Property	Uttarakhand State Council for Science & Technology (UCOST)

Table-22: State Government initiatives for the IPR in India

Further it is evident form the report published from the Indian Patent office that India is leading towards filing of IPRs:

Application	2015-16	2016-17	2017-18	2018-19	2019-20
Patent	46904	45444	47854	50659	56267
Design	11108	10213	11837	12585	14290
Trademark	283060	278170	272974	323798	334805
Geographical Indication	14	32	38	32	42
Copyrights	Copyright administration shifted to DIPP/CGPDTM in 2016-17	16617	17841	18250	21905
Semiconductor Integrated Layout Designs (SCILD)	SCILD administration shifted to DIPP/CGPDTM in 2016-17	Nil	02	Nil	Nil
Total	**355898**	**350467**	**350546**	**405324**	**427309**

Table-23: Trends in last five years with respect to filing of IP applications

- The number of patent filings increased from 42,763 in 2014-15 to 66,440 in 2021-22 due to steps taken by the government to strengthen intellectual property rights (IPR) regime of the country
- India has granted 30,074 patents in 2021-22 as compared to 5,978 in 2014-15.
- There has also been a reduction in the time of patent examination from 72 months in 2016 to 6-23 months at present.
- "For the first time in the last 11 years, the number of domestic patent filing has surpassed the number of international patent filing at Indian Patent (IP) office in January-March 2022 quarter".
- Of the total 19,796 patent applications filed, 10,706 were filed by Indian applicants and 9,090 by non-Indian applicants.
- The coordinated efforts by the department for promotion of industry and internal trade (DPIIT) and IP office has led to increased awareness among all strata of the society.

According to the 2019-20 IPR annual report the following are the state wise Indian patent filed by Indian applicant:

Sl.No	State	Number of applications filed for Indian patent
1.	Maharashtra	4741
2.	Tamil Nadu	3546
3.	Karnataka	2230
4.	Delhi	1440
5.	Punjab	1435
6.	Telangana	1239
7.	Uttar Pradesh	1176
8.	Gujarat	885
9.	Haryana	672
10.	West Bengal	611
11.	Andhra Pradesh	484
12.	Kerala	361
13.	Odisha	301
14.	Madhya Pradesh	285
15.	Rajasthan	273
16.	Uttarakhand	209
17.	Jharkhand	185
18.	Himachal Pradesh	141
19.	Assam	102

Table-24: State-wise Indian patent filed by Indian applicant

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Year	Filed		Registered	
	Indian	Foreign	Indian	Foreign
2017-18	8224	3614	6432	3580
2018-19	8864	3721	6587	2896
2019-20	9706	4584	8447	3809

Table-25: Design application filed and registered

State/UT	Number of Applications
Andhra Pradesh	119
Assam	4
Bihar	4
Chandigarh	51
Chattisgarh	58
Dadra Nagar Haveli	16
Daman & Diu	83
Delhi	1484
Goa	21
Gujarat	1305
Haryana	545
Himachal Pradesh	74
Jammu and Kashmir	8
Jharkhand	19
Karnataka	507
Kerala	145
Madhya Pradesh	127
Maharashtra	2298
Manipur	4
Odisha	80
Puducherry	3
Punjab	244
Rajasthan	208
Sikkim	2
Tamil Nadu	836
Telangana	204
Uttara Pradesh	367
Uttarakhand	43
West Bengal	847

Table-26: Design application filed State-UT wise

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Year	Indian Applicants	Foreign Applicants
2017-18	247734	25240
2018-19	310116	13682
2019-20	320940	13865

Table-27: Trademark applications filed as on Intellectual property India 2019-20

State/UT	Number of Applications	State/UT	Number of Applications
Andhra Pradesh	4417	Madhya Pradesh	9727
Arunachal Pradesh	26	Maharashtra	65750
Assam	1312	Manipur	117
Bihar	3539	Meghalaya	56
Chandigarh	2175	Mizoram	41
Chattisgarh	2382	Nagaland	28
Dadra Nagar Haveli	93	Odisha	1873
Daman & Diu	111	Puducherry	230
Delhi	60720	Punjab	11440
Goa	726	Rajasthan	13328
Gujarat	26167	Sikkim	68
Haryana	17170	Tamil Nadu	19276
Himachal Pradesh	1330	Telangana	11780
Jammu and Kashmir	269	Tripura	93
Jharkhand	1363	Uttara Pradesh	22506
Karnataka	18063	Uttarakhand	2494
Kerala	10205	West Bengal	10999
Lakshadweep	1		

Table-28: Trademark application filed state/UT wise

It is evident from the above that the IPR ecosystem is robustly building in nation with all the programmes and facilities by DPIIT, State Councils, Department of Science and Technology, CIPAM, The Patent Offices and Private Stake Holders. This may result in economic development, creation of jobs, and innovation culture in India. This is also a stepping stone towards Atmanirbhar Bharath.

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3.3 Atmanirbharata & Industry

Industry is a productive enterprise or organization, which produce or supply goods, services. Industries converts raw materials into products. Industries related to the economic activities concerned with production of goods, extraction of services and provision and services. Industry essential to make a country financially strong. They are required to fulfil daily usage demand of the people without any shortage.

India's Gross Domestic Product (GDP) may affect from the growth in the industrial sector. Industries are Important for rapid growth of the nation, creation of employment, exploitation of resources, foreign exchange and self-sustainable growth. The different types of industries are primary, secondary and tertiary industries.

- Primary industries concerned with the extraction of natural resources from the earth. This kind of industries depends on the specific region. Examples are mining, farming, fishing etc. The primary industry can be further divided into genetic industry and extractive industry. In genetic industry the raw materials can be improved via human involvement such as agriculture, fisheries, forestry. The extractive industry produces finite raw materials that cannot be replenished through cultivation.

- The secondary industries transits raw materials into finished items. Examples wood is used to make furniture, steel is used to make automobiles, textile used for clothing. Further, secondary industries can be categorized as heavy and light industry. The heavy industries are large scale manufacturing. The industry is made up of construction, transportation, & manufacturing enterprises. Ships, petroleum processing, machinery production are among the most common operations in this heavy industry. The light industries require relatively smaller quantity of raw materials, less power and area. Examples home, personal product, food, beverages etc.

- Tertiary industries market secondary industries product. These provides the services to general public and other industries. These industries can further divide into two categories. First group is a business group that makes money such as finance sector. The second group is non-profit sector such as public education.

The industrial sectors are categorized as micro, small & medium enterprises, mining, chemical and petrochemical, defence products, fertilizer, food processing, heavy industries, manufacturing, oil and natural gas, pharmaceuticals, retail, textiles and tourism.

The Department of Promotion of Industry and Internal Trade (DPIIT) determined the Industrial Policy at central government level which includes

- Productivity in Indian industry
- Industrial Management
- Matters related to e-Commerce and start-ups
- Facilitating Ease of Doing Business (EoDB)

- Promotion of internal trade including retail trade, welfare of traders and their employees
- Administration of Industries (Development and Regulation) Act, 1951, grant of Industrial Licenses (IL) and acknowledging Industrial Entrepreneurs Memorandum (IEM).

The department also handles Foreign Direct Investment (FDI) and undertakes promotion of investment for industrial development of the country. It is responsible for promotion and development of sectors related to cables, Light Engineering Industries, Light Industries, Light Electrical Engineering Industries, Paper and Newsprint, Tyres and Tubes, Salt, Cement, Ceramics, Tiles and Glass, Leather Goods Soaps and detergents and Industries not covered by other Ministries/Departments.

Central Government initiatives for the Industry

Sl. No.	Name of the Scheme/programme/centres	Objectives	Funding Agency
1.	Make in India	To facilitate investment, foster innovation, building best in class infrastructure, and making India a hub for manufacturing, design, and innovation.	Department of Promotion of Industry and Internal Trade (DPIIT)
2.	Invest India	Invest India provides multiple forms of support such as market entry strategies, deep dive industry analysis, partner search and location assessment policy advocacy with decision makers.	Joint Venture (Not for Profit) Company between Department for Promotion of Industry and Internal trade, Federation of Indian Chambers of Commerce & Industry (FICCI), CII, NASSCOM and various State Governments
3.	Start-up India	To catalyse start-up culture and build a strong and inclusive ecosystem for innovation and entrepreneurship in India.	Start-up India, Government of India
4.	Industrial Park Rating System (IPRS)	• Provide information to prospective tenants and compare parks on various choice of identified parameters • Enhance competitiveness of industrial parks and help identify areas of intervention • Recognize best practices and promote competitive spirit among park developers and operators • Identify requisite policy support to be delivered by state/central government for driving competitiveness of the ecosystem.	Department of Promotion of Industry and Internal Trade (DPIIT)
5.	Industrial Development of North Eastern Region (NER)	The incentives under the scheme include-	Department of Promotion of Industry and Internal Trade (DPIIT)

		1. Central Capital Investment Incentive for Access to credit (CCIIAC) 2. Central Interest Subsidy (CII) 3. Central Comprehensive Insurance Incentive (CCII) 4. Goods and Services Tax (GST) Reimbursement 5. Income Tax (IT) Reimbursement 6. Transport Incentive (TI) AND 7. Employment Incentive (El)	
6.	Industrial Development of Lakshadweep and Andaman & Nicobar Island	1. Central Capital Investment Incentive for Access to Credit (CCIIAC) 2. Central Interest Subsidy (CII) 3. Central Comprehensive Insurance Incentive (CCII) 4. Goods and Services Tax(GST) reimbursement 5. Income Tax (IT) reimbursement 6. Transport Incentive (TI) and 7. Employment Incentive(EI)	Department of Promotion of Industry and Internal Trade (DPIIT)
7.	Programmes for Industrial Infrastructure Development-Modified Industrial Infrastructure Up-gradation Scheme (MIIUS)	Enhancing industrial competitiveness of domestic industry by providing quality infrastructure through public private partnership in selected functional clusters/locations, which have the potential to become globally competitive	Department of Promotion of Industry and Internal Trade (DPIIT)
8.	Delhi Mumbai Industrial Corridor (DMIC):	To develop futuristic industrial cities in India which can compete with the best manufacturing and investment destinations in the world and converging next generation technologies across different sectors thereby creating employment opportunities and economic growth leading to overall socioeconomic development.	Government of India
9.	Chennai Bengaluru Industrial Corridor (CBIC):	To develop futuristic industrial cities in India which can compete with the best manufacturing and investment	Government of India

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		destinations in the world and converging next generation technologies across different sectors thereby creating employment opportunities and economic growth leading to overall socioeconomic development.	
10.	Amritsar Kolkata Industrial Corridor (AKIC):	To develop futuristic industrial cities in India which can compete with the best manufacturing and investment destinations in the world and converging next generation technologies across different sectors thereby creating employment opportunities and economic growth leading to overall socioeconomic development.	Government of India
11.	Aspire - A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship	• Create new jobs and reduce unemployment • Promote entrepreneurship culture in India • Grassroots economic development at district level • Facilitate innovative business solution for un-met social needs • Promote innovation to further strengthen the competitiveness of MSME sector	Ministry of MSME, Government of India
12.	Fund for Regeneration of Traditional Industries (SFURTI)	• To organize the traditional industries and artisans into clusters to make them competitive and provide support for their long term sustainability • To provide sustained employment for traditional Industry artisans and rural entrepreneurs • To enhance marketability of products of clusters by providing support for new products, design intervention and improved packaging, and also the improvement of marketing Infrastructure	Ministry of MSME, Government of India

		• To equip traditional artisans of the associated clusters with improved skills and capabilities through training and exposure visits • To make provision for common facilities and improved tools and equipment for artisans • To strengthen the cluster governance systems with the active participation of the stakeholders, so that they are able to gauge the emerging challenges and opportunities and respond to them in a coherent manner • To build innovative and traditional skills, improved technologies, advanced processes, market intelligence and new models of public-private partnerships, so as to gradually replicate similar models of cluster- based regenerated traditional Industries	
13.	Credit Linked Capital Subsidy Scheme (CLCSS)	To facilitate technology up-gradation in MSEs by providing an upfront capital subsidy of 15 per cent (on institutional finance of upto Rs 1 crore availed by them) for induction of well-established and improved technology in the specified 51 sub-sectors/products approved.	Ministry of MSME, Government of India
14.	Prime Minister's Employment Generation Programme (PMEGP)	To generate self-employment opportunities through establishment of micro-enterprises in the non-farm sector by helping traditional artisans and unemployed youth.	Khadi and Village Industries Commission (KVIC)
15.	Credit Guarantee Scheme for Micro and Small Enterprises (CGTMSE)	To MSME units through collateral-free credit facility (term loan and/or working capital) extended by eligible lending institutions to new and existing micro and small enterprises.	Ministry of MSME, Government of India

Table-29: Central Government initiatives for the Industry

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Innovations act like a driving force for the economy. Technology and its fast expansion as well as its acceptance have become a vital factor, which affects almost all the sectors including agriculture, manufacturing and services. Innovations and technological advancements play a significant role in deciding the way businesses and ventures participate in the nation's economic development as well as their expansion across the world.

The competitiveness of businesses changing rapidly through continuous innovations by bringing in new technologies for improving the quality standards as well as building adequate infrastructure. In recent years, there has been a huge progress in the field of science and technology, which provides large scope of technological upgradations in different areas. In order to improve tools and machineries for all the businesses, efforts have been made to establish appropriate laboratories, technology centres and incubation units for their support.

India today has a strong ecosystem of more than 50,000 startups. Out of this, more than 10,000 start-ups and 42 unicorns have been formed in challenges of pandemic COVID situation. The individuals are getting a lot of motivations from campaigns like Mudra, Start-up India, Stand up India, Skill India, Atal Innovation Mission and the new National Education Policy to enhance the potential of the young minds.

Technology and its rapid growth affect the way of working of the businesses and ventures. It also plays a major role in making Micro, Small, and Medium Enterprises (MSMEs) adaptive to the global economy. In this scenario, the need for Business Incubators (BI) is important to promote and support creativity of individual innovators and to assist them to become technology-based entrepreneurs. BIs are essential to accelerate technological development, shaping innovative ideas into actual Industrial upgradations, resulting in successful businesses. The ability of Indians to adopt Innovation, new technology; the spirit of entrepreneurship of Indians; can give new energy to every global partner of ours. Women Entrepreneurship has been one of the key driving forces behind India's growing startup and innovation ecosystem as well as its overall economic development.

The Ministry encourages the innovations and technological advancement of MSMEs as well as provides awareness on protection of ideas and inventions by the medium of scheme like Intellectual Property Rights (IPR). The purpose of the IPR scheme are to increase awareness among the MSMEs about Intellectual Property Rights, to take measures for protecting their ideas and business strategies. Effective utilisation of IPR tools by MSMEs would also help them in technological upgradation and augmentation of their competitiveness. Under the IPR scheme, the Ministry has been conducting awareness/sensitization programmes on IPR for MSME organizations and expert agencies, pilot studies for particular clusters/groups of industries for MSME organizations, competent agencies and expert agencies.

To conclude, inventions take place when people think differently from the rest of others. To be an effective innovation, it needs to be simple and uncomplicated as well as focused on a particular operation. Any technology or invention must be simple enough to make the people understand about its functioning. All such innovative ideas and urge to turn them to reality leads an outstanding mind to success.

4. Technology Deployment for Socio-economic development of Society

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4.1 Schemes/Programmes for the socio-economic development of society

4.1.1 Central Government Initiatives

The Union Government of India launches different schemes from time to time with specific objectives. These schemes aim at benefiting the poor, economically backward, rural people, or vulnerable sections of the society. They address the social and economic welfare of the citizens of India.

Generally, the meaning of a **scheme** is a plan, design, or program of action involving many people which is formulated by the government. A union government scheme means a scheme formulated by the Government of India. The different Ministries of the Government of India have launched various government programmes known as **schemes or Yojana**. The schemes launched by the Government of India are either Central or State specific schemes. Some of the schemes are also implemented through a collaboration between the Centre and the States. The schemes launched by the Ministries of the Central Government of India are the Union Government Schemes. These schemes play a crucial role to solve the socio-economic problems prevailing in the country. They help to uplift the vulnerable sections of the society by providing basic and necessary facilities to them. The main objective of these schemes is to provide social, financial and economic welfare to the citizens of India.

The general objectives of the social-economic and financial schemes are:

- To improve the quality of the life of the people.
- To provide employment opportunities.
- To provide education and training to the weaker sections of the society.
- Empower women for their better participation in society.
- To provide financial assistance to women, small businesses and weaker sections of society.
- To provide financial security to the vulnerable sections of society.
- Development of rural and backward areas.
- Up-liftment of the poor.
- Reducing the economic inequality between different sections of society.
- Provide social security measures such as maternity benefits, housing, insurance, etc.

List of Union Government Schemes for Individuals and Businesses:

There are different schemes launched by the Union Government of India. Some schemes aim at providing socio-economic benefits to the individuals. Some schemes aim at providing financial assistance to the businesses. The list of prominent schemes launched by the Union Government is as follows:

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Sl. No	Name of Scheme/ Programmes	Focus/ Objective
1.	Deendayal Upadhyaya Gram Jyoti Yojana, *Ministry of Power, GoI*	To provide continuous electricity supply to rural areas of India
2.	Rashtriya Krishi Vikas Yojana *Ministry of Agriculture & Farmers Welfare, GoI*	To make farming a remunerative economic activity by strengthening farmer's efforts, risk mitigation, Improvement of pre & post-harvest infrastructure, promoting agri-entrepreneurship and innovations.
3.	UJALA Scheme *Ministry of Power, GoI*	Also known as the LED-based Domestic Efficient Lighting Programme (DELP) the scheme aims to promote energy efficiency in all households.
4.	Women entrepreneurship programme *(DST, GoI)*	To foster women entrepreneurship development and skill building
5.	Pradhan Mantri Kaushal Vikas Yojana *Ministry of Skill Development and Entrepreneurship (MSDE), GoI*	To enable a large number of Indian youth to take up industry-relevant skill training that will help them in securing a better livelihood
6.	Vocational Training Programme for Women *MSDE, GoI*	Stimulating employment opportunities for women of various socio-economic levels and different age groups.
7.	Ujwal Discom Assurance Yojana Scheme (UDAY) *Ministry of Commerce & Industry, GoI*	To provide affordable and accessible 24×7 power to all, to provide a solution for revenue-side efficiency and cost-side efficiency.
8.	Pradhan Mantri Krishi Sinchayee Yojana *Ministry of Commerce & Industry, GoI*	To expand cultivated area with assured irrigation and reduce wastage of water in the country, harnessing rainwater at a micro level through 'Jal Sanchay' and 'Jal Sinchan'.
9.	Digital India *(Ministry of Commerce & Industry, GoI*	To improve online infrastructure and increase internet accessibility among citizens, linking rural areas to high-speed internet networks; empowering digital advancement.
10.	Pradhan Mantri Matsya Sampada Yojana (PMMSY) *Ministry of Commerce & Industry, GoI*	To double the income of fish farmers and fishers in the country.
11.	Start-up India *Dept. for promotion of Industry and Internal Trade (DPIIT), GoI*	To support entrepreneurs, building a robust start-up eco-system and transforming India.

Table-30: Schemes and objectives of various central government programs

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Sl. No	Name of Scheme	Objectives
1.	The Venture Capital Assistance Scheme *Ministry of Agriculture and Farmers Welfare under Startup India*	To meet shortfall in the capital requirement for implementation of selected projects.
2.	Support for International Patent Protection in Electronics and & Information Technology (SIP-EIT) *Ministry Of Electronics & Information Technology*	Support for international patent filing, encourage innovation and recognize the value and capabilities of global IP, capturing growth opportunities in ICTE sector.
3.	Biotechnology Ignition Grant (BIG) *Biotechnology Industry Research Assistance Council (BIRAC)*	To stimulate commercialization of research discoveries by providing very early stage grants to help bridge the gap between discovery and invention.
4.	Dairy Entrepreneurship Development Scheme *National Bank for Agriculture and Rural Development (NABARD)*	Generating self-employment opportunities in the dairy sector, covering activities such as enhancement of milk production, procurement, preservation, transportation, processing and marketing of milk
5.	High Risk -High Reward Research *Science and Engineering Research Board (SERB) under Department of Science & Technology*	Supports and invites new proposals and ideas expected to have a paradigm shifting influence on the Science and Technology
6.	Scheme of Fund for Regeneration of Traditional Industries (SFURTI) *Khadi and Village Industries Commission under Ministry Of MSME*	To organize the traditional industries and artisans into clusters to make them, competitive and provide support for their long term sustainability, to provide sustained employment for traditional Industry artisans and rural entrepreneurs
7.	Small Business Innovation Research Initiative (SBIRI) *Biotechnology Industry Research Assistance Council (BIRAC), DBT*	Product and process development and taking them to the market, facilitating innovation.

Table-31: The schemes under Start-up India Initiatives

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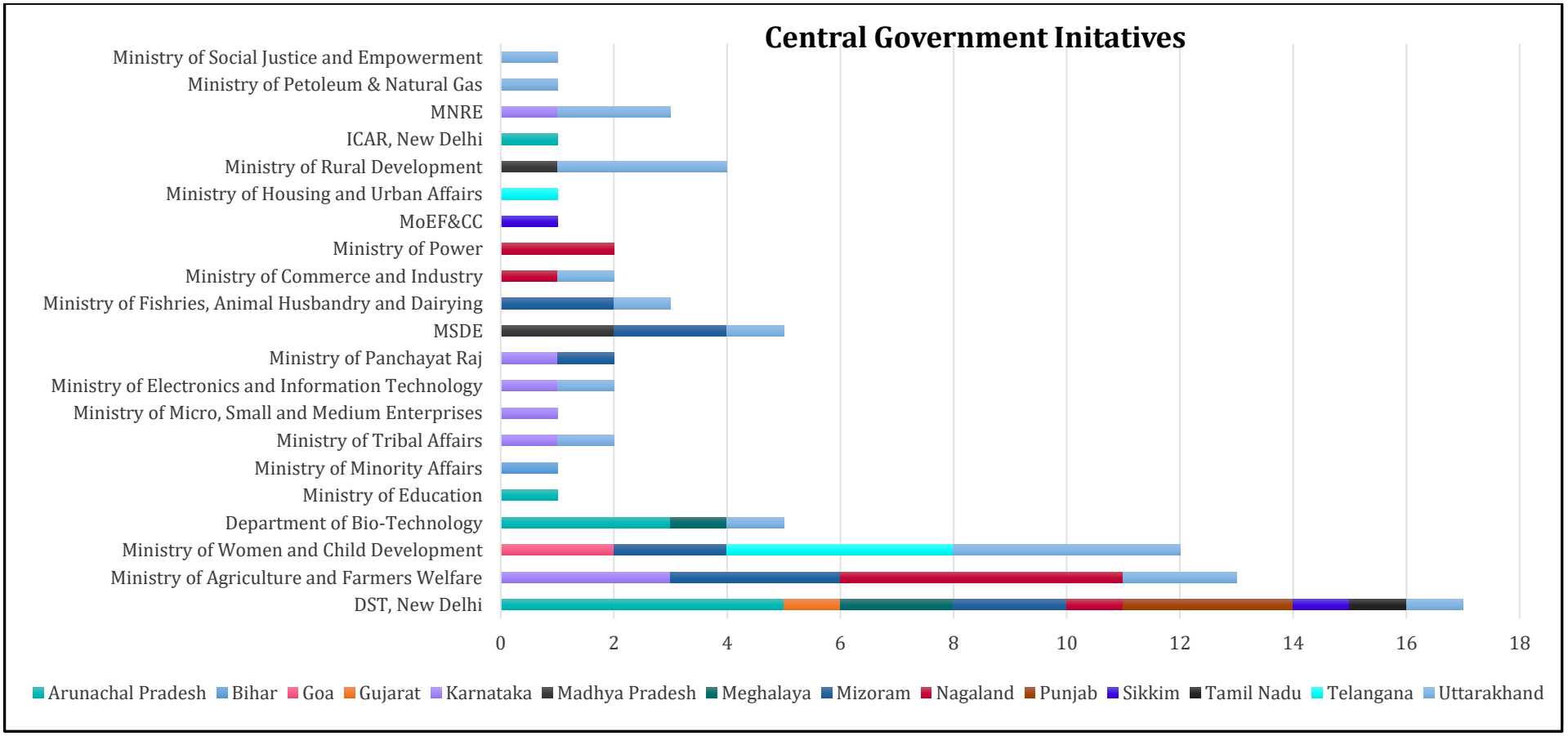

Figure-9: Central government initiatives (Govt departments and number of schemes implemented)

Various states are implementing schemes of different Ministries and departments of Govt. of India for socio-economic upliftment of the society. The targeted beneficiaries include educated unemployed youth, entrepreneurs, women, girls, SC/ST, farmers, students, minorities, rural citizens, etc. Some of the programs under implementation are listed as under:

Sl. No	State	Central Schemes	Target Section
1.	Arunachal Pradesh	• Establishment of Model Village at Nampong, Namsai • Technology Demonstration of Three Tier Agro-forestry System and Bamboo Drip Irrigation along with Allied Activities for Self-Sustainability of Tribal People of DokoPutu Village, West Siang District • Establishment of Sea-Buckthorn Nursery at Boha Village of Kalaktang Circle, West Kameng District • Establishment of Modern Nursery for Forest Regeneration and Conservation of Economically Important Plant Species at Sibi & Rilung village of Koloriang Circle, Kurung Kumey District • Collaborative Programme on Science and Technology Communication for Entrepreneurships Development among the Tribal women of Arunachal Pradesh & Assam • Establishment of Aroma Unit for promotion of cultivation of aromatic crops and entrepreneurship development • Establishment of State of Art Orchidarium at Kimin, Arunachal Pradesh and Production Units in Different Part of State for Promoting Orchid Based Entrepreneurship. • Setting up of Banana Fibre Extraction and Processing units in selected locations of Arunachal Pradesh	ST, Women, Farmers and entrepreneurs
		• AICRP ON ESA NERIST Center	Women, SC, ST
		• Unnat Bharat Abhiyan	ST
2.	Bihar	• Pradhan Mantri Jan Vikas Kaarykram, PMJVK	Minority
3.	Goa	• Pradhan Mantri Matru Vandana Yojana • RGSEAG	women & adolescent girls
4.	Gujarat	• NCSCTC	Students
5.	Karnataka	• Kisan Urja Suraksha Evam Utthan Mahabhiyan – Kusum Yojana	Farmers
		• Van Dhan Scheme	Tribal people
		• Rashtriya Gram Swaraj Abhiyan	Panchayati Raj Institutions
		• Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)	Rural Citizens
		• Solar Charkha Scheme	Women

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		• Krishonnati Yojana – Green Revolution • Restructured National Bamboo Mission under NMSA • Agricultural Mechanization Promotion Scheme for Crop Residue Management	Farmers
6.	Madhya Pradesh	• Deen Dayal Upadhyaya Grameen Kaushalya Yojana	Rural poor youth
		• Jan Shikshan Sansthan (JSS)	women, SC/ST, minorities, Divyangjan
		• Pradhan Mantri Kaushal Vikas Yojana (PMKVY)	Youth
7.	Meghalaya	• Women Technology Park Programme/ Bolmoram Technology Resource Centre cum Knowledge & Innovation Park, east Garo Hills, Meghalaya • Development of Model Village	Tribal Women, youth, social groups & coop societies
		• Genetic up-breeding of duck production to strengthen livelihood security in NER of India by converging conventional & molecular techniques	Poultry farmers & entrepreneurs
8.	Mizoram	• Enhancement of Livelihood options for Rural Women in Aizawl, Mizoram	Women
		• Technology led organic cultivation of mushroom for enhancing livelihood of tribal women at Saitual, Mizoram	Women
		• Pradhan Mantri Krishi Sinchayee Yojana, • Mission of Integrated Development of Horticulture • National Bamboo mission	ST
		• SANKALP • Enhancing Skill Development Infrastructure in NE states	ST
		• State resource centre for Women • Schemes for adolescent girls (SABLA)	Women, Girls
		• PMMSY • National Livestock Mission	All
		• Rashtriya Gram Swaraj Abhiyan	Rural community
9.	Nagaland	• Biomass dryer	ST
		• Women Entrepreneurial Development	Women
		• Deendayal Upadhyaya Gram Jyoti Yojana • Unnat Jyoti by Affordable LEDs for all	ST

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		• Sub- Mission on Agricultural mechanization (SMAM) • Integrated Soil Nutrient Management • Mission for Integrated development of horticulture • Blue revolution (NEEL KRANTI): Integrated development and management of fisheries • Rashtriya Krishi Vikas Yojana	ST, Women, farmers
10.	Punjab	• S&T for Women • Sustainable Agriculture and Rural Transformation Holistic Initiative • Scheduled Caste Sub Plan	SC, Women Farmers, Weaker Section
11.	Sikkim	• Green Skill Development Programme – ENVIS	Unemployed youth
		• Diffusion of grassroots innovations and documentation of innovations and outstanding traditional knowledge from Sikkim	Local innovators, traditional healers
12.	Tamil Nadu	• SC/ST Cell	SC, ST
13.	Telangana	• Mahila Shakti Kendras (MSKs) • Scheme for Adolescent girls (SABLA) • State Resource Centres for Women • Ujjwala	Women, Girls
		• Social Mobilization & Institution Development (SM&ID)	All
14.	Uttarakhand	• Pradhan Mantri Adarsh Gram Yojana (PMAGY)	SC
		• Deendayal AntyodayaYojana – NRLM • Shyama Prasad MukherjiRurban Mission (NRuM) • Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDUGKY)	Rural poor community
		• New National Biogas Organic Manure Programme (NNBOMP) • BIO-ENERGY SCHEME	All
		• Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM) • Sub Mission on Agricultural Mechanization (SMAM)	Farmers
		• Pradhan Mantri Matsya Sampada Yojana	Fishers
		• Pradhan Mantri Ujjwala Yojana	Women
		• PMKVY- Pradhan Mantri Kaushal Vikas Yojana	Unemployed youth
		• Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)	Rural people
		• Industrial Development Scheme	All
		• Skill Vigyan Programme	All

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		• S&T for Women	Women
		• Mahila Shakti Kendras (MSKs) • Scheme for Adolescent girls (SABLA) • State Resource centres for Women • Mahila Shakti Kendras • PM Matru Vandana Yojana	Women, Girls
		• Van Dhan Yojana	Tribal population

Table-32: Central Government initiatives for socio-economic development: State-wise data

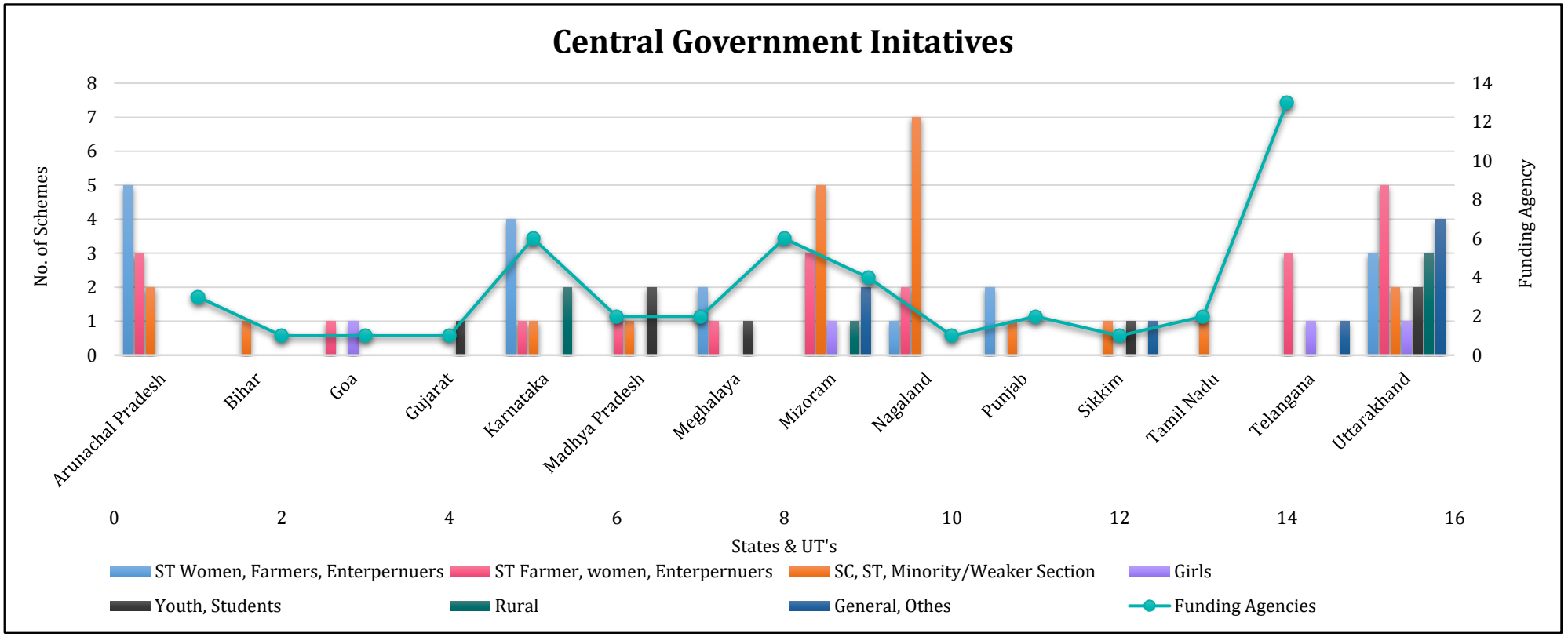

Figure-10: Central government initiative with reference to beneficiaries

4.1.2 State Government Initiatives

The S&T Vertical of NITI Aayog is the nodal division for all matters related to science and technology. This includes examination and appraisal of S&T programmes of Agencies/ Departments such as Department of Science and Technology, Department of Biotechnology, Department of Scientific and Industrial Research, Council of Scientific and Industrial Research, Department of Space, Ministry of Electronics and Information Technology, Department of Telecommunications, Department of Posts, Ministry of Earth Sciences and Department of Atomic Energy.

Science and technology (S&T) is widely recognised as an important tool for fostering and strengthening the economic and social development. All states are working with a strong network of institutions to promote and train manpower, generate employment, create an innovative knowledge base, generate newer technologies and harness S&T for improving livelihood. For instance, in Gujarat, research and development programs in emerging fields of science & technology in state priority areas under STI are being undertaken. TLI (Transformation Livelihood Intervention) Project was started in 2006 for the Socio-economic empowerment of Women in Nagaland, particularly the rural and urban poor women, by facilitating various income-generating activities. The Griha Aadhar Scheme in Goa addresses the problem of spiralling prices and to provide support to the housewives/ homemakers from the middle, lower middle and poor sections of the society. In Telangana, the KCR Kit scheme was announced by the state government in its 2017-18 budget for pregnant women and new born babies providing a kit containing some essential items for pregnant women and new born baby to manage pregnancy complications. The scheme is designed to get pregnant women nutritious food and to take care of the new born after delivery. KCR Kit scheme is aimed at wellbeing of mother and child and reducing the infant mortality rate. Additionally, self-help groups in Telangana have been exceedingly successful in enabling women to be financially independent, and build their skills and confidence. There are more than a lakh SHGs in Telangana and GHMC alone boasts of 45,000-strong women groups. Over 10 lakh women from across Telangana have set up their businesses, courtesy SHGs.

In Uttarakhand, State Council for Science and Technology, Uttarakhand has made initiatives in various fields like technology transfer which includes degradation of plastic waste, solar emergency lights, design and fabrication of an All-Terrain Vehicle and promotion of forest-based Livelihood.

The Government of Bihar (GoB), through Bihar Rural Livelihoods Promotion Society (BRLPS) is spearheading World Bank-aided Bihar Rural Livelihoods Project (BRLP), locally known as JEEViKA with the objective of social & economic empowerment of the rural poor. Many schemes/programmes have also been started for the development of the SC/ST community. In Nagaland, for the benefit of ST Community “Feed Crusher”or Pedu in the local dialect is being promoted which is used to crush raw materials for preparing feeds mainly for animals such as pigs, cows, and chicken.

Other schemes for tribal welfare in Nagaland include Biomass Dryer, Coffee Development, Resource mission etc.

Punjab government has initiated a programme on Technological Intervention in Horticulture & Allied areas targeting SC/ST population under Scheduled Caste Sub-Plan (SCSP) since 2017-18with a total of more than 500 beneficiaries. In Mizoram, a New Economic Development policy has been implemented so that the limited resources available can be optimally and judiciously allocated to various sectors of the economy to bring maximum benefit to the people of the state.

Some states are also implementing schemes for disabled people like the Karnataka Rural Rehabilitation project for Disabled People with the aim to deliver all Govt. services to the doorstep of disabled persons. In Bihar, Chief Minister's Disabled empowerment scheme (Sambal) has been implemented by the state govt. from the year 2012-13 by integrating new and old schemes for the welfare of disabled persons in society. Under this scheme, facilities for the survey, certification, education loans, and self-employment loans are provided to disabled persons apart from activities for rehabilitation and running special schools for the disabled. State-wise details of programs/ schemes are listed in table below:

Sl. No	State	Target Section	State Initiatives in Skill Development
1.	Bihar	Women, Disabled	Jeevika BRLPS, Chief Minister's Disabled empowerment Scheme
2.	Goa	Girl Child, Women Post graduate Students, SHG	Laadli laxmi scheme, Griha Aadhar scheme, Internship scheme for students of counselling/ Psychology/Social Work/Home science etc, SWAWLANBHAN
3.	Gujarat	Women	R&D in Emerging Fields of S&T on State Priority area under STI
		Youth, Students	ICT and e readiness Initiatives
		Companies	Gujarat State Data Centre, Health Management Information System, Gujarat State Wide Area Network (GSWAN)
4.	Haryana	ST, SC, Widows, Women, Girls	Tailoring Training, Up-Gradation of The Typing And Data Entry Skill
		Unemployed Youth	Financial Assistance for Training
		Candidates in Un-organized Sector	Creation of Employment Generation Opportunities by Setting Up Employment Oriented Institutes/Training Programmes.
5.	Karnataka	Disabled persons	Rural Rehabilitation Project
		Farmer	Chief Minister Raitha Vidya Nidhi
		Economically Weaker Section	Karnataka Nekar Samman Yojana
6.	Madhya Pradesh	Entrepreneurs	Mukhyamantri Yuva Udyami Yojana
		Youth	Mukhyamantri Kaushal Samvardhan Yojana
		Women	Mukhyamantri Kaushalya Yojana
		Rural women artisans	Cluster Development Project
		Farmers, Students, Researchers	Training programmes
		Craft Workers	M.P. Karigar Vigyan Congress- Workshop
		Iron and Leather Craft Workers	Skill Upgradation and Entrepreneurship Development
7.	Meghalaya	IVCS members & VO members, Schools, Institution, community	Skill Training on Appropriate Technology
		Budding Entrepreneurs	Skill Training on bamboo Products
		IVCS members & VO members	Training of Trainers on Bamboo Technology Food/Fruit Processing, Solar Egg Incubator
		Women	Sanitary pad making
8.	Mizoram	ST	Socio Economic Development Programme, New Economic Development Policy

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		Women	Myki – Women Entrepreneurial Development Initiative, Transformative Livelihood Intervention, Sanitary Napkin production Unit, Vocational training for women, Craftsmen training, Rural Industries programme, Coffee Development
9.	Nagaland	All	Nagaland bee keeping & Honey mission, Nagaland Bamboo Resource Mission
10.	Punjab	SC/ST population	Scheduled Caste Sub Plan – Technological Intervention in Horticulture & Allied Areas
11.	Sikkim	All	Remote Sensing
		SC/ST/All	Biotechnology, Technology Transfer
12.	Telangana	All	T-Fiber , TASK, Mission Bhagiratha, Mission Kakatiya, Kanti Velugu, (T-IDEA), (TS-iPASS), Aarogyasri, Support to Urban Street Vendors (SUSVs), Self-Employment Programmes (SEPs), Basti Dawakhanas and Palle Dawakhanas, Mana Ooru-Mana Badi/ Mana Basti-Mana-Badi, Telangana Ku Haritha Haram, (TKHH), Artificial Intelligence for Agricultural Innovation (AI4AI) initiative, Telangana State Khadi Village Industries Board (TSKVIB), One-District One-Product (ODOP), Telangana State Handloom Weavers Cooperative (TSCO)
		Women	Security, Health and Environment (SHE) Teams, KCR Kit, Self-Help Groups (SHGs), Mahila Shakti Kendras (MSKs), Digital Employment Exchange of Telangana (DEET), The One Stop Centres (also called Sakhi Centres)
		SC, ST	Telangana State Program for Rapid Incubation Dalit Entrepreneurs (T-PRIDE),GIRI VIKASAM
13.	Uttarakhand	Economically Backward Youth, migrants, skilled and unskilled artisans, handicraftsmen, women, unemployed persons.	State Rural Livelihood Mission, Uttaranchal Gramin Sarvabhom Mission (UGSM), Mukhyamantri Swarozgar Yojana, Mukhyamantri Saur Swarozgar Yojana, Uttarakhand Mahila Samekit Vikas Yoiana (UMSVY), Credit Cum Subsidy (CCS), IWDP/Hariyali , Deendayal Uttarakhand Rural Housing Scheme, Indira Amma Bhojnalaya Scheme

Table-33: Initiatives in Skill Development

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4.1.3 Private sector/NGOs initiatives

Many NGOs are working in the sector of technology deployment in India with the support from Department of Science and Technology, Government of India. Global Innovation and Technology Alliance (GITA) is a Public Private Partnership (PPP) between the Technology Development Board (TDB), Department of Science & Technology (DST), Government of India (GoI) and India's apex industry association Confederation of Indian Industry (CII). For the implementation of technology deployment programs GITA has been partnering with various Ministries (Ministry of Electronics and Information Technology, Ministry of Micro, Small & Medium Enterprises etc.) and departments of the Government of India as the Department of Science and Technology (DST), Technology Development Board (TDB), Department for Promotion of Industry and International Trade (DPIIT), Defence Research and Development Organisation (DRDO) and Department of Heavy Industry (DHI). State Councils, Private organizations and NGOs are actively involved in carrying out projects for betterment of quality of life in rural areas, education and drudgery reduction through inputs from Science & Technology. Some prominent projects are as listed as under:

Sl. No	State Name	Name of the Scheme/ programme	Targeted section	Funding Agency
1.	Arunachal Pradesh	Technology for Sanitary Napkin	SHG's of Kimin, Namsai, Tawang and papumpare	DST Govt. of India
		Technology for Citronella and lemon Grass oil extraction	SHG's of Kimin, Namsai, and papumpare	DST Govt. of India
2.	Gujarat	Sardar Patel Renewable Energy Research Institute (SPRERI)	All	ICAR, DBT, DST, MNRE, Govt. of Gujarat
		Vikram Sarabhai Centre for Development Interaction (VIKSAT)	All	TATA Trust, John Deere Foundation, etc.
3.	Uttarakhand	Livelihood Improvement & Drudgery Reduction through Appropriate Livestock Technologies and Biomass Enhancement in Kumaun Himalayas	Rural Community	DST, DBT, GoI
		Inclusive development for vulnerable sections and persons with disabilities, Green Livelihood	Person with disability	Christian Blind Mission
		Vidyagyan	School Children	Shiv Nadar Foundation & HCL
		Promotion of Sustainable Livelihood In The Hills Of Uttarakhand	Rural People	CBM India Trust Bangalore and The Hans Foundation

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		Project Prayaas Climate Action, Emission Reduction & Verification Programme	Rural areas	Indigo, Fair Climate Network & Environmental Defence
		Project Footprint	Rural areas	HDFC Bank
		Paramparagat Krishi Vikas Yojana	Farmers	Ministry of Agriculture
		Energy Solar Lamp distribution program	Poor people	Balaji Sewa Sansthan
		E-Waste Management	All	(MoEFCC)

Table-34: Private Sector/NGO initiatives

4.1.4 International initiatives

Several international initiatives are being implemented in various states for the general welfare, socio-economic development, human capacity building and environment conservation utilizing the S&T based ecosystem. United Nation Development Programme (UNDP) and IFAD (United Nation) are working with Uttarakhand Govt.in projects aimed at Workforce Development, Public Policy and Good Governance and Agriculture Development. Additionally, UNDP is working for environment conservation and livelihood generation through SECURE Himalaya Project with the Forest Department in several Himalayan states. Ministry of Micro, Small & Medium Enterprise (MSME) of Gujarat Government initiated Vibrant Gujarat Scheme with the title Charkhe-se-Chandrayaan Tak. This program is beneficial for all the sections of society (Women, SC, ST, Disabled etc.) and Indian community residing in countries like US, UK, etc.

4.2 Establishment/centres for socio-economic development

Centres for socio-economic development provide opportunities to motivated scientists & technologists from national Research and Development (R&D) labs, S&T-driven Non-Governmental Organizations (NGOs), and field-level workers to take up action-oriented and location-specific projects aiming at the socio-economic development of disadvantaged sections of the society through appropriate interventions of Science, Technology and Innovation (STI), leading to their improved quality of life and livelihood. Through diverse schemes and programs, efforts are being made to empower the community by adopting technologies to address locally defined needs and priorities that consider available resources and the moral prosperity of society for sustainable development. The schemes and programs are also being converged with line function ministries/departments for the last-mile delivery and national development programs to achieve Sustainable Development Goals (SDGs).There are a number of centres dedicated to socio-economic development in the country whose detailed information is provided in the compendium.

4.2.1 Women Technology Parks

Empowering women is essential for a nation's development and there is a need to generate income and employment opportunities for rural women. The Women Technology Parks (WTPs) enable the use of appropriate technologies to catalyse economic growth and development of rural women by raising their productivity, generating sustainable income, and improving their livelihoods. Science for Equity, Empowerment and Development (SEED) Division of Department of Science & Technology (DST) has been implementing a scheme "Science & Technology for Women" for women empowerment through Science & Technology (S&T). Besides individual projects for technology development, up-gradation, modulation & replication, Women Technology Parks (WTPs) are envisaged to act as resource centres, where all necessary support is made available to women for livelihood generation.

Figure-11: Women Technology Parks in India

The aim of WTPs is to create awareness and impart skill training to rural women on proven technologies so as to obtain optimal benefits utilizing the existing natural resources found locally in abundance. WTPs provide hands-on training, promote the establishment of micro-enterprises, ensure value-addition of the products and access to markets. Training and skill sets are imparted to rural women so that they can optimally use the technology and become self-reliant. Continuous up-gradation of the technology, value addition to the products, making the technology and products align to the emerging needs and trends, catering to the market requirements/ demands, and continuous improvement in the products are necessary for the sustainability of a WTP. The use of natural resources as raw materials that are found locally in abundance is what makes WTPs stand out from other income generating endeavours, as it is both environments friendly and sustainable if tapped optimally. These WTPs have shown their viability even in remote areas of the country and act as a bridge between the scientific/technical institutions and the community members, particularly rural women.

Sl. No	Location	Women Technology Park
1.	Department of Home Science, St. Joseph's College, Gnanapuram Andhra Pradesh	Integrate Livelihood Technologies as Women Technology Park for Tribal Women
2.	CSIR-North East Institute of Science & Technology, Jorhat Assam	Establishment of Rural Women Technology Park
3.	State Council of Science, Technology & Environment, Meghalaya, Nongrim Hills, Shillong	Bolmoram Technology Resource Centre Cum Knowledge and Innovation Park,
4.	Mizoram Science, Technology & Innovation Council, Aizawl, Mizoram	Enhancement of Livelihood Options for Rural Women
5.	Desh Bhagat University, State Highway, 12A, Amloh Road, District Fatehgarh Sahib, Mandi Gobindgarh, Fatehgarh Sahib, Punjab	Development of Women Technology Park for Empowerment of Rural Women
6.	Pushpa Gujral Science City Jalandhar, Kapurthala, Punjab	Empowerment of Women in Rural Areas Through Science Based Skill Development
7.	Tripura State Council For Science & Technology, Vigyan Bhawan , 1st Floor, Pandit Nehru Complex Gorkhabasti, Kunjaban Agartala, Tripura	Empowering Rural Women Through Various Technology Based Livelihood Opportunities Under Women Technology Park
8.	Indian Institute of Technology, Mandi, Himachal Pradesh	Livelihood Generation And Improvement For Women Entrepreneurs In Small Scale Fruits And Vegetable Farming And Post Harvesting Management
9.	Madhya Pradesh Vigyan Sabha Gyanvigyanparisar, Sagoni Kalan, Raisen Road, Bhopal, Madhya Pradesh	To Establish Women Technology Park For Demonstrative Model Of Technologies For Livelihood Enhancement Of Tribal Women
10.	CSIR-National Mettalurgical Laboratory, Burmamines, Jamshedpur	Women Technology Park (WTP) for Capacity Building and Entrepreneurship Development
11.	Unnati Mahila Udhamita Avam Prashikshan Samiti, Dehradun, Uttarakhand	Development of Low Cost Polythene Substituted Biodegradable Fabric from Nettle and Lyocell Fiber for Livelihood Enhancement of Women
12.	National Institute of Technology Silchar, Assam	Design And Development of Solar Photovoltaic Powered Cane Slicing Machine
13.	State College of Teacher Education, Kohima, Nagaland	Women Technology Park (WTP) For Rural Tribal Women Of North-East Through Technological Intervention

Table-35: Women Technology Park

4.2.2 Innovation Hub

Innovations Hubs have been set up across the country in various science centres, museums, and non-formal education institutions that promote creativity, engagement and inspire innovations. These Innovation Hubs are supported under Scheme for Promoting Innovation, Creativity, and Engagement in Science (SPICES) of the National Council for Science Museum. With science centers, these multi-disciplinary laboratories not only promote innovation but also redefine their effective utilization.

Innovation Hubs work with the following objectives:

1. To engage young minds in creative hobbies & activities in S&T
2. To promote critical thinking and practical problem-solving skills
3. To support and materialize their ideas and protection under IPR
4. To recognize, encourage and facilitate local innovations in S&T

This facility is made available to the registered members and remains open for students, teachers and institutions on nominal payment basis. It promotes independent thinking, problem solving ability, nurturing creativity and generation of innovative ideas.

Facilities at Innovation Hub

Innovation hub facilitates innovative activities, experiments and projects in a multi-disciplinary set up. It comprise of following facilities for students/mentors:

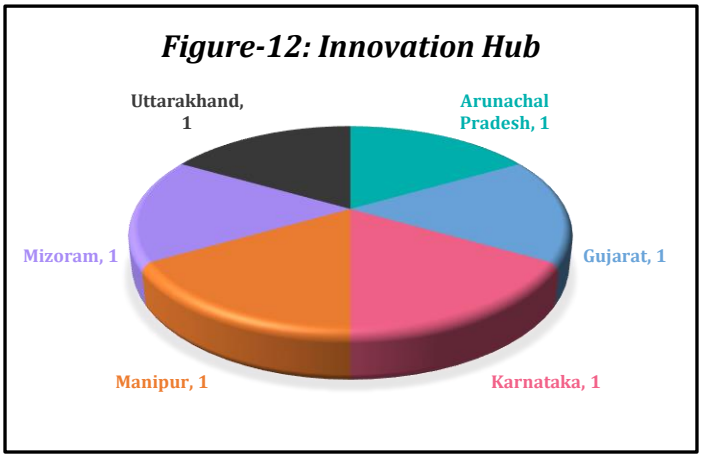


Figure-12: Innovation Hub

- **Hall of Fame**: Stories of major inventions and their inventors in different field through Multimedia kiosks.
- **Innovation Resource Centre:** Broadband internet terminals will provide access to innovation centre resources, E-journals, books and grass root innovation portals etc.
- **Idea Lab:** multi-disciplinary laboratories equipped with moderate set of tools and scientific instruments (3D printer, Mini lathe machine, Drill machine, grinding machine, and biotechnological instruments like incubator, electrophoresis, centrifuge, pH meter etc).
- **Design Center:** Designing the anticipated model using software and its development using 3D printer.
- **Tech Lab (Electronics & Robotics):** A corner dedicated to electronics and robotics activities.
- **Summer Science Camps:** Innovation Hub organizes summer science camps every year, in which sessions on electronics & Arduino, Robotics & Coding, Creative Science, and Life Sciences are organized.

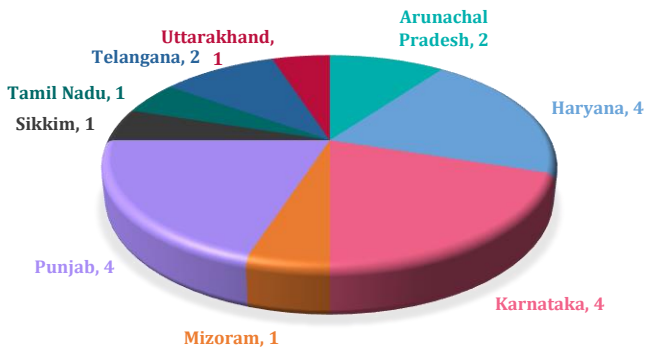
Projects at Innovation Hub

New ideas that are likely to benefit society are encouraged. The students, after becoming members, submit their project proposals or ideas. They start working on the project after it is duly approved by the expert committee. Students are required to document their daily work at the completion of each project session. Good works/ projects are posted on the website of the Centres and students get the opportunity to participate in Science/ Innovation Fairs organized by the centres or any such institutions.

4.2.3 Scheduled Caste/ Scheduled Tribe (SC/ST) Cells

The Scheduled Castes and Scheduled Tribes comprise about 16.6% and 8.6%, respectively of India's population (2011 census) which is more than 25 % of the total population. The socio-economic deprivation and disadvantages suffered by Scheduled Castes (SC) and Scheduled Tribes (ST) led to the decision to adopt measures to close the enormous gaps and reduce the development deficits between these two communities and rest of the Indian population. The need was explicitly recognized in the Constitution of India, which mandated special protection and provisions for SC and ST development. It was in 1974-75 in the Fifth Five Year Plan period that the Government of India introduced the policy of the Tribal Sub-Plan (TSP) and later in 1979-80 in the Sixth Five Year Plan period the Special Component plan (SCP) which was renamed as Scheduled Caste Sub Plan in April, 2006 and renamed as Development Action Plan for Scheduled Caste (DAPSC) in 2018.

Figure-13: Scheduled Caste (SC)/ Scheduled Tribe (ST) Cells



The Government of India has adopted a multi-pronged approach for the socio-economic development of the SC and ST communities: social empowerment through educational development; economic empowerment through income and employment enhancing avenues and integrated development of SC/ST majority villages; protection through effective implementation of protective legislations and holistic development through earmarking of funds for the welfare of Scheduled Castes. Although the Government has been taking several steps and measures for the upliftment of SC and ST communities through community based developmental programmes like right to education, empowerment of rights, infrastructure development, creation of job opportunities, yet the efforts are not often enough sustainable.

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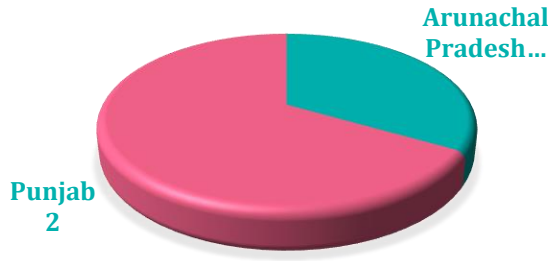
4.2.4 STI Hubs

Science, Technology and Innovation (STI) Hubs develop, nurture and ensure the development, improvement, and delivery of appropriate and relevant S&T approaches for Creation of Sustainable Livelihoods and enhancing the Quality of Life of the Scheduled Caste and Scheduled Tribe population in the country. The thrust areas for interventions focus on the following themes:

- Natural resource and human resource endowment for sustainable livelihood planning through science, know-how, and practices
- Promote research, development & adaptation of appropriate and relevant technologies for socioeconomic development of target population
- Promotion and Documentation of Traditional & Indigenous Knowledge and upgrade the skills, building on local innovation & local knowledge systems (including integration of high end technologies with traditional & indigenous skills)
- Promotion, replication and scaling up of successful technologies leading to socio economic empowerment
- Creation of micro-enterprises and forward linkages
- Science and technology Capacity Building and Skill Development leading to sustainable livelihoods

Figure-14: Science Technology Innovation Hubs



The Science Technology and Innovation Hubs serve as springboards for new ideas and innovation and promote science and technology interventions & inspire innovations for the socio-economic development of Scheduled Caste and Scheduled Tribe communities. The STI hubs are co-located in the existing institutions. This co-location not only promotes more effective utilization of the knowledge centres, but also redefines their usage and role in fostering problem-solving and project-based learning and provides hands-on/ practical learning and engagement in the process of science, technology and innovation. The STI Hub coordinates with the local S&T-based voluntary organizations for the dissemination of technologies and interventions through network programs.

4.2.5 Village Clusters

As per Census of India statistics, the rural population in India, stands at 833 million, constituting almost 68% of the total population. Further, the rural population has shown a growth of 12% and an increase in the absolute number of villages by 2279 units during the 2001-2011 period.

Ministry of Rural Development, Government of India:

Large parts of rural areas in the country are not stand-alone settlements but part of a cluster of settlements, which are relatively proximate to each other. These clusters typically illustrate potential for growth, have economic drivers and derive locational and competitive advantages. These clusters once developed can then be classified as 'Rurban'. Hence taking cognizance of this, the Government of India has proposed the Shyama Prasad Mukherji Rurban Mission (SPMRM), aimed at developing such rural areas by provisioning of economic, social and physical infrastructure facilities.

Taking also into view, the advantages of clusters, both from an economic view point as well as to optimize benefits of infrastructure provision, the Mission aims at development of 300 Rurban clusters, in the next five years. These clusters would be strengthened with the required amenities, for which it is proposed that resources be mobilized through convergence of various schemes of the Government, over and above which a Critical Gap Funding (CGF) would be provided under this Mission, for focused development of these cluster. The Shyama Prasad Mukherji Rurban Mission (SPMRM) follows the vision of "Development of a cluster of villages that preserve and nurture the essence of rural community life with focus on equity and inclusiveness without compromising with the facilities perceived to be essentially urban in nature, thus creating a cluster of "Rurban Villages".

State Name	Score	Rank
Tamil Nadu	88.66	1
Telangana	86.40	2
Mizoram	84.26	3
Chhattisgarh	84.19	4
Gujarat	82.78	5

Table-36: Top 5 states on performance based indicator (Ministry of Rural Development)

Cluster Name	Score	Rank
Aibawk (Mizoram, Aizawl)	96.58	1
Suthamalli (Tamil Nadu,Tirunelveli)	95.32	2
Dasna Dehat (Uttar Pradesh, Ghaziabad)	94.97	3
Ryakal (Telangana, Sangareddy)	94.81	4
Bhagtanpur Abidpur (Uttarakhand, Haridwar)	94.24	5

Table-37: Top 5 cluster on performance based indicator

(Source: https://rurban.gov.in/index.php/public_home#gsc.tab=0)

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Ministry of Micro, Small and Medium Enterprises (MSME), Government of India (GoI):

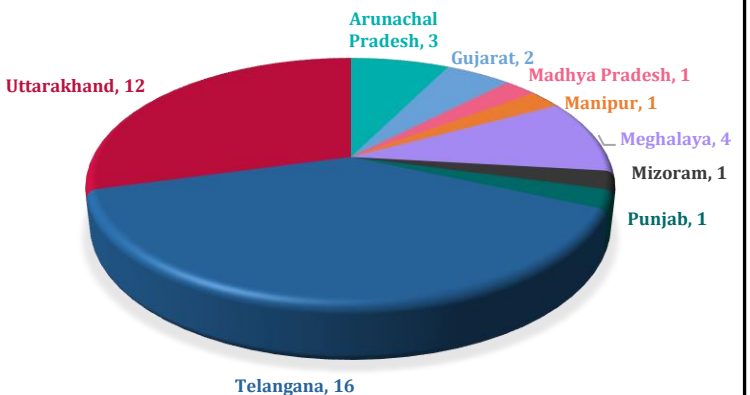
The MSME, Government of India (GoI) has adopted the Cluster Development approach as a key strategy for enhancing the productivity and competitiveness as well as capacity building of Micro and Small Enterprises (MSEs) and their collectives in the country. A cluster is a group of enterprises located within an identifiable and as far as practicable, contiguous area or a value chain that goes beyond a geographical area and producing same/similar products/complementary products/services, which can be linked together by common physical infrastructure facilities that help address their common challenges. The essential characteristics of enterprises in a cluster are (a) Similarity or complementarity in the methods of production, quality control & testing, energy consumption, pollution control, etc., (b) Similar level of technology & marketing strategies/practices, (c) Similar channels for communication among the members of the cluster, (d) Common market & skill needs and/or (e) Common challenges & opportunities that the cluster faces.

Objectives:

1. To support the sustainability and growth of MSEs by addressing common issues such as improvement of technology, skills & quality, market access, etc.
2. To build capacity of MSEs for common supportive action through formation of self-help groups, consortia, upgradation of associations, etc.
3. To create/upgrade infrastructural facilities in the new/existing Industrial Areas/Clusters of MSEs.
4. To set up Common Facility Centres (for testing, training, raw material depot, effluent treatment, complementing production processes, etc).
5. Promotion of green & sustainable manufacturing technology for the clusters so as to enable units switch to sustainable and green production processes and products.

4.2.6 Technology Demonstration Centers

Figure-15: Technology Demonstration Centres



Entrepreneurship development programs are highly technology-driven programs where the science councils act as a window for the region to scan and gain access to new technologies. Under this mission, the scheme of creation of Technology Resource centers (TRC) and Technology Demonstration Centers (TDC) has been initiated. It heralds the development of improved technologies based on locally available natural resources and the improvement of post-harvesting techniques for commercial requirements.

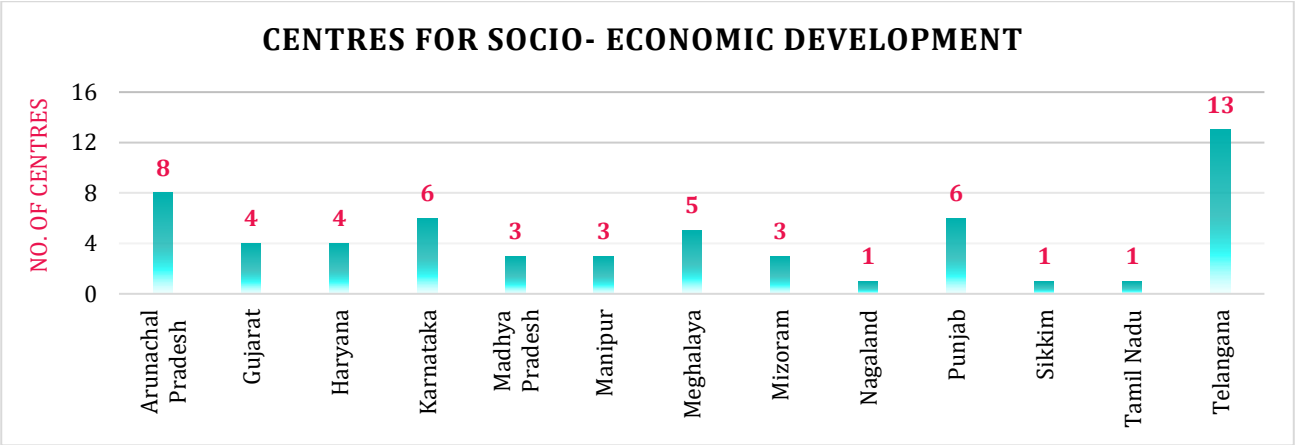


Figure-16: Centres for socio economic development (WTPs, Innovation Hubs, SC/ST Cells, TDC, STI Hubs)

4.2.7 Deployment and demonstration of Technologies

Technology Deployment is:

- Establishment of innovations in action that involves the generation of knowledge and processes to develop systems to solve problems and extend human capabilities.
- Acquiring and installing the technology to make it available for use.

The key process of technology deployment is not only the placement of physical artefacts into user's hands but communication of knowledge needed to use artefacts effectively. Various technologies have been deployed in different states of India in various field like Agriculture, Livelihood, Energy, Environment, Waste management etc.

Agriculture:

Agriculture plays a vital role in India's economy. 54.6 of the total workforce is engaged in agriculture and allied sector activities (Census 2011) and accounts for 18.8% (First Advance Estimates) of country's Gross Value Added (GVA) for the year 2021-22 (at current prices). Given the importance of the agriculture sector, Government of India has taken several steps for its development in a sustainable manner. Steps have been taken to improve the income of farmers. As per the Land Use Statistics 2018-19, the total geographical area of the country is 328.7 million hectares, of which 139.3 million hectares is the reported net sown area and 197.3 million hectares is the gross cropped area with a cropping intensity of 141.6%. The net area had sown works out to be 42.4% of the total geographical area. The net irrigated area is 71.6 million hectares.

The Government has adopted several developmental programmes, schemes, reforms and policies that focus on higher incomes for farmers. Seven sources of income growth have been identified viz., improvement in crop productivity; improvement in livestock productivity; resource use efficiency or savings in the cost of production; increase in the cropping intensity; diversification towards high value crops; improvement in real prices received by farmers; and shift from farm to non-farm occupations.

Various technologies have been deployed and demonstrated during the last 5 years in several state for improving agricultural practices and income enhancement. For instance, proactive efforts for mitigation of grey mould (*Botryotinia ricini*) disease of castor (*Ricinus communis* L.) crop have been initiated in Telangana using dynamical disease forecast methodology. Under this, field trials for disease identification, expert advises to farmers for control of the disease, development of decision support system are some of the project milestones achieved so far. Similarly, paddy Straw Based Briquetting Demonstration Plants established with the intervention of Punjab State Council for Science & Technology will not only help check environmental pollution through gainful utilization of straw but will also enable farmers earn extra income from the sale of the stubble. More such plants in the future will ease Punjab's stubble burning problem. The low calorific value of 3,500 for briquettes, compared to 7,000 for coal, and is amply balanced out economically since coal costs Rs 10,000 per ton as against Rs 4,500 per ton for briquette. Further, with oil becoming expensive, this is also a more viable source of energy. Some other technological interventions in agriculture sector are listed below:

Area	Technology used	State	Collaborating Institute/ Industry
Agriculture	BARC Technology	Madhya Pradesh	MPCST, Bhopal
	Farm Technology Training centre, Anand Agricultural University	Gujarat	Junagadh Agriculture University
	Vibro Thermal Disinfector, Banana Tissue Culture, Soil organic carbon detection kit	Manipur	BARC ,Mumbai
	Biopesticides & Biofertilizers Consortium	Nagaland	IIHR, Bangalore
	Paddy Straw Based Briquetting Demonstration Plants (PSCST)	Punjab	PPP model of PSCST involving TERI, New Delhi, ACRI Hyderabad, M/s Gill Brothers
	Cultivation of traditional cash crops and manufacturing their high value products through resource centre	Uttarakhand	UCOST
	Micropropagation Tissue Culture., Cultivation and processing of Aromatic crops, Banana fibre extraction and processing	Arunachal Pradesh	ICAR-National Research Centre on Orchids, Sikkim, Saveer Biotech. New Delhi; Fragrance & Flavour Development Centre, Kannauj; etc.
	Mushroom cultivation Technology.	Tamil Nadu	Tamil Nadu State Council for Science & Technology (TNSCST) and DST, GoI
	Proactive mitigation of grey mould disease of castor crop.	Telangana	ACRC- PJTSAU

Table-38: Technology used in different states in the field of agriculture

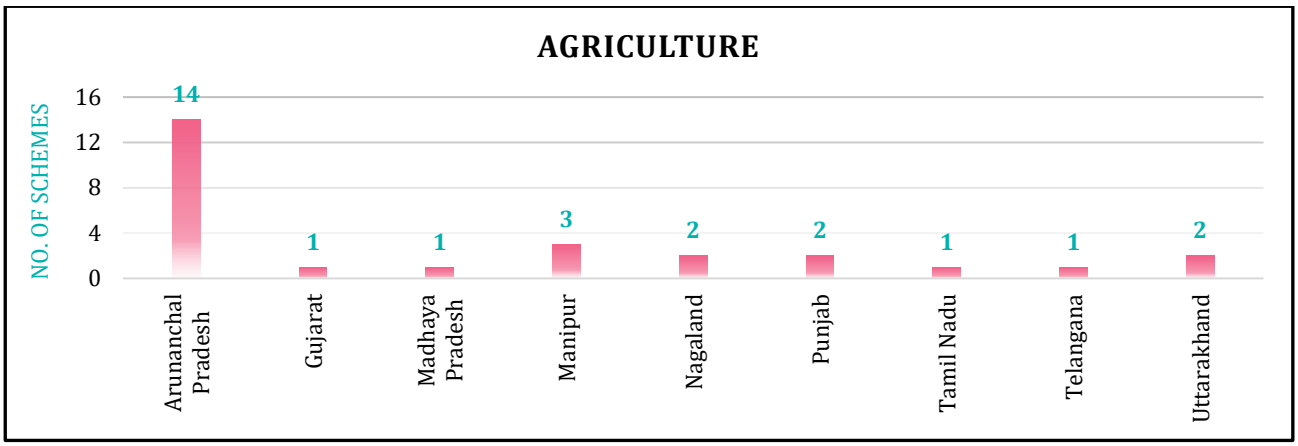


Figure-17: Number of schemes in agriculture sector

Health:

India's healthcare sector was worth about 280 billion U.S. dollars in 2020 and is estimated to reach up to 372 billion dollars in 2022. The primary function of health systems is to provide high-quality and universal health services. At the same time, through their spending and investments, health systems play an important role in the status and stability of national and regional economies. Health systems play an increasingly important role in driving inclusive and sustainable development through responsible practices in the areas of employment and the purchasing of goods and services. Establishing infrastructure and facilities, purchasing equipment as well as building skills through education and training, in turn, translate into direct manufacturing and services outputs, leading to more jobs.

Various technologies have been deployed and demonstrated during the last 5 years across several state resulting in income generation. In Madhya Pradesh, Arunachal Pradesh, Meghalaya, Sikkim, Nagaland sanitary napkins production mostly from wood pulp by handmade machines have been demonstrated and deployed which will help rural woman in many ways to benefit economically by providing direct and indirect employment. In addition, the hygiene levels of rural and urban females in community would be improved, these napkins do not pollute the environment and their disposal is easy. Each unit produces 4000 packets of napkin (consisting of 8 napkins each) for a single shift of eight hours every day, which can create a direct employment for 6 to 10 women, By selling this napkin through resident dealer mode, a large number of women would get economic benefit through indirect employment.

In Manipur, Flouride Detection Kit for ground water (FDK) testing is being used which is a simple, user-friendly and highly cost effective kit for estimation of fluoride in groundwater in comparison with the currently available techniques. The procedure is as simple as adding a specified amount of kit reagent to the water sample to be analysed and identifying the color developed. The color develops almost instantaneously and the distinction can be made with the naked eye. For ease of comparison, a colour chart as well as the color standards is provided in the kit. Water sample can be immediately categorized as being safe, marginal or unsafe for drinking from fluoride point of view. Some other interventions in health sector include:

Area	Technology used	State	Collaborating Institute/ Industry
Health	• Thalassemia Disease burden and mutation , micro profiling in populations of Telangana • Assessment of Plasma Metabolites in Patients on Maintenance Hemodialysis. • Characterization of Circulating Cancer Cells (CCCs) from Clinical Blood Samples of Ovarian Cancer for the Development of Prognostic Biomarkers. • Design, Synthesis and evaluation of novel dithiocarbamate analogues as potent anticancer agents	Telangana	DST -TSCOST
	Fluoride Detection kit for ground water, Online Water Purifier	Manipur	BARC, Mumbai
	Production of sanitary napkins by handmade machines	Madhya Pradesh	MPCST, Bhopal
	Sanitary pad making	Meghalaya Madhya Pradesh Arunachal Pradesh Sikkim	National Innovation Foundation (NIF), SCSTE Meghalaya, MPCST, DST, Govt of Nagaland
	• Uttarakhand Thyroid Surgeries Registry (UTSR) • Assessment of health related quality of life (HRQoL) and physical activity, fitness, dietary pattern and screen time as its correlates among school going adolescents in Garhwal division of Uttarakhand. • Prevalence, pattern and prevention of skeletal and dental fluorosis in district Rudraprayag, Uttarakhand	Uttarakhand	UCOST

Table-39: Technology used in different states in the field of health

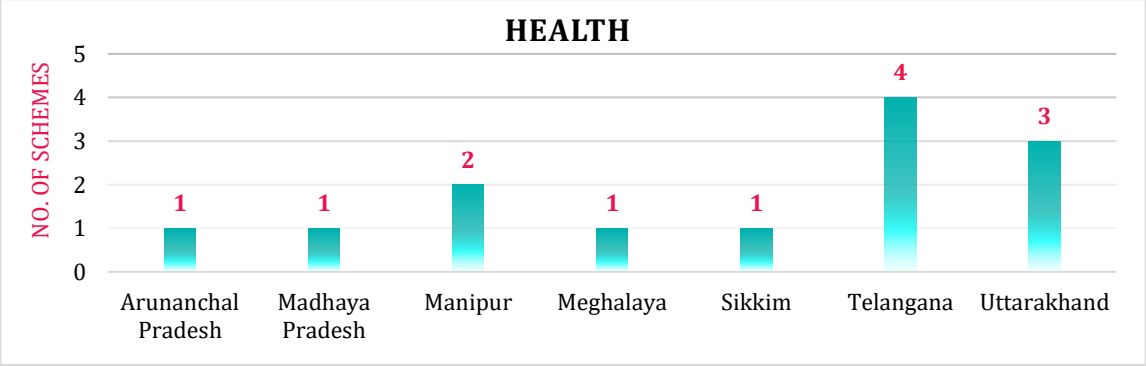


Figure-18: Number of schemes in health sector

Energy:

The Union Government strives to provide top-quality policy support to all stakeholders to make India energy-secure. It aims to boost investment to achieve an efficient, sustainable, and clean energy system. The government makes concerted efforts towards reducing energy import, ensuring an alternative supply of energy and enhancing domestic supply. It seeks to strengthen the energy infrastructure and resolve cross-sectoral issues. The Energy sector deals with five key sectors: power, coal, petroleum and natural gas, new and renewable energy, and atomic power.

India being a country rich in sunshine for most of the part of the year, various states have taken initiatives to implement and improvise solar energy technologies. Green energy initiative at Mahatma Gandhi Institute of Rural Energy & Development (MGIRED), Karnataka aims to develop a centre of excellence in the area of solar energy. In Telangana, installation of kitchen - waste operated Biogas Plants- A safe, clean and wealth Generative Initiative has been started with objective to reduce carbon emissions into the environment by promoting non-conventional/renewable energy technologies to generate energy from kitchen and organic waste, thereby increasing the scope for conservation of precious natural resources. In tune with the above, TSCOST is promoting innovative biogas technology at household, community and institutional level to promote organic waste management for generating cooking gas and lighting from kitchen waste/ other organic waste. Some other interventions are detailed in following table below:

Area	Technology used	State	Collaborating Institute/Industry
Energy	Bio fuel using low cost technology and advance chullah/smokeless chullah	Madhya Pradesh	MPCST, Bhopal
	Solar Dryer	Meghalaya	Advance Pluss, Haryana SCSTE, Meghalaya Consortium of Resource Person
	Forced Circulation Solar Drier Technology, Rural Biomass Based Fuel Pallet production Unit, Demonstration of Technologies for emission reduction and energy efficiency in Cupola, Brick Kiln, Rolling Mills, Induction Furnace & Forging Units, conversion of Coal fired furnaces into PNG based furnaces, Zig Zag Firing Technology	Punjab	DST-GoI
	Kitchen Waste Bio- Gas	Telangana	CCMB
	Foldable Solar Dryer, Solar street lights, home systems, etc	Manipur	BARC, Mumbai; MNRE, State Government.

Table-40: Technology used in different states in the field of energy

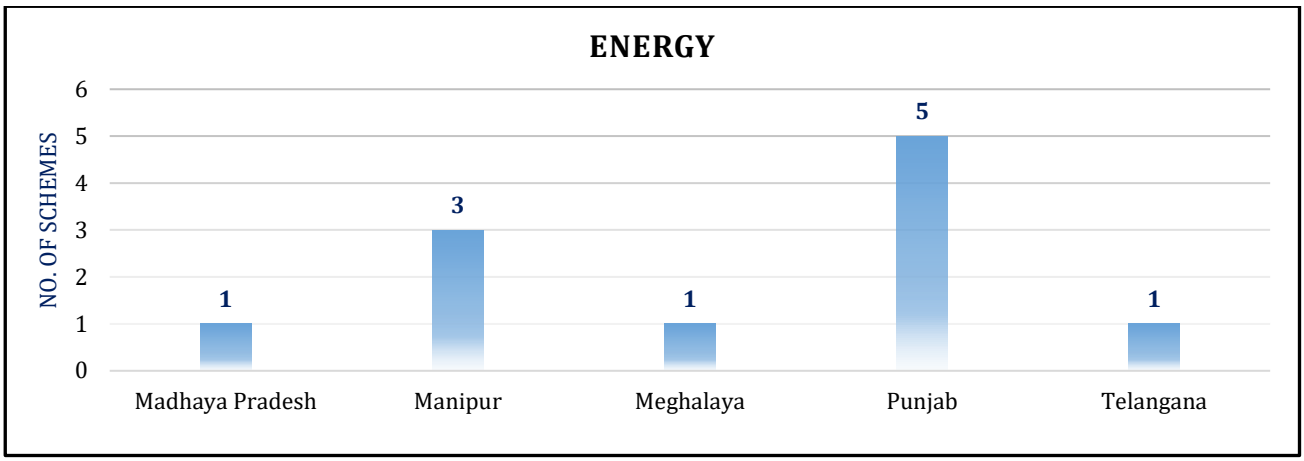


Figure-19: Number of schemes in energy sector

Livelihood:

Livelihood perspectives start with how different people in different places live. A variety of definitions are offered in the literature, including, for example, 'the means of gaining a living' or 'a combination of the resources used and the activities undertaken in order to live'. A descriptive analysis portrays a complex web of activities and interactions that emphasises the diversity of ways people make a living. This may cut across the boundaries of more conventional approaches to looking at rural development which focus on defined activities: agriculture, wage employment, farm labour, small-scale enterprise and so on. The Economic Survey issued just before the July 2019 budget stated that 'Growth of Indian economy moderated in 2018–19 with a growth of 6.8 percent, slightly lower than the 7.2 percent in 2017–18. Yet India continued to be the fastest growing major economy in the world.

The govt. strives on the need for a socially inclusive path of economic growth, so that people have jobs and equal opportunities to participate in the growth process. Livelihood thus is central to policies, programmes and practices, especially aimed at the poor. As a concept, livelihood is multidimensional and can be contextualised to almost all aspects of growth and development, viz., political, social, economic, demographic, ideological and technological. Often used interchangeably in terms of income, employment, employability, livelihood comprises assets (including both material and social resources), activities and capabilities required for the means of living. Putting it into practice is even more complex which requires understanding of linkages, interdependence and conflicts between all the above aspects. To make a broad meaning, one can say that livelihood not only refers to income, but also the effect it creates on the quality of life itself.

Science & Technology has been expanding the horizons of sources of livelihood for people cutting across different sections of society as well as promoting innovation. Some of the technologies in the field of livelihood generation in various states of India are as follows: Micro solar dome establishment, affordable Lighting Solution for Urban Slums, Rural & Remote Areas under Support & Guidance of SEED Division, DST, Hybrid Ultra-Capacitors (HUC) lighting kits developed by IISc Bangalore, scheme for STEM (Science, Technology, Engineering and Math) professionals in Gujarat etc. Technologies have also been deployed in the field of environment, waste management, pharma, animal husbandry and physical sciences etc.

Area	Technology used	State	Collaborating Institute/ Industry
Livelihood	Bamboo Technology	Meghalaya	SEED Division, DST, GoI SCSTE, Meghalaya, Consortium of Resource Person (CoRP)
	MicropropagationTissue Culture, Banana fibre extraction and processing, Cultivation and processing of Aromatic crops.	Arunachal Pradesh	ICAR -National Research Centre on Orchids, Pakyong, Sikkim Savera Biotech New Delhi
	Micro Solar Dome	Nagaland	NBIRT, Kolkata
	Foldable Solar Dryer, Solar street lights, home systems, etc	Manipur	BARC,Mumbai; MNRE State Government
	Egg Hatchery, Bamboo Crafts, Ecotourism Industry, Beekeeping and Processing, Ice Stupa	Sikkim	NIF, MoEF&CC, GoI, UNDP, SDC
	Energy from Waste, Polyhouse	Tamil Nadu	Tamil Nadu State Council for Science & Technology(TNSCST) & DST, GOI
	Mushroom cultivation, apiculture, Ringal handicraft training	Uttarakhand	UCOST

Table-41: Technology used in different states in the field of livelihood

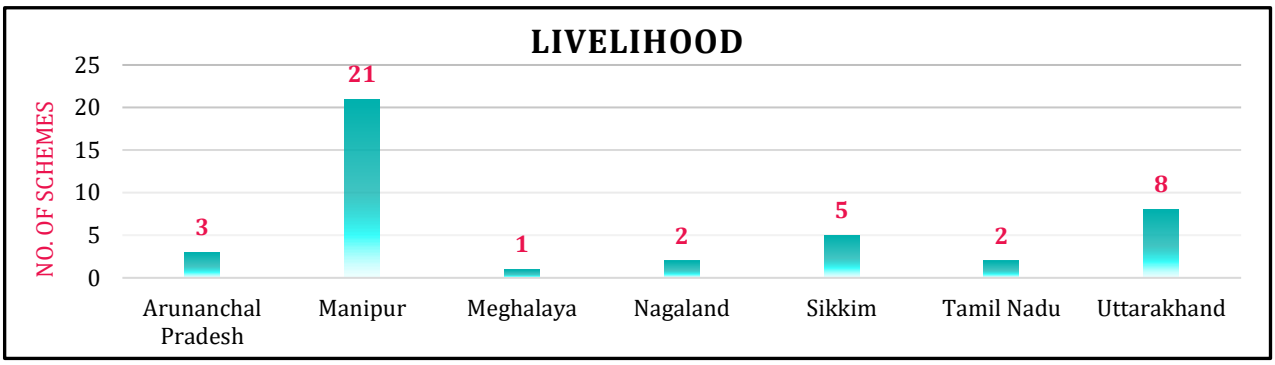


Figure-20: Number of schemes in livelihood sector

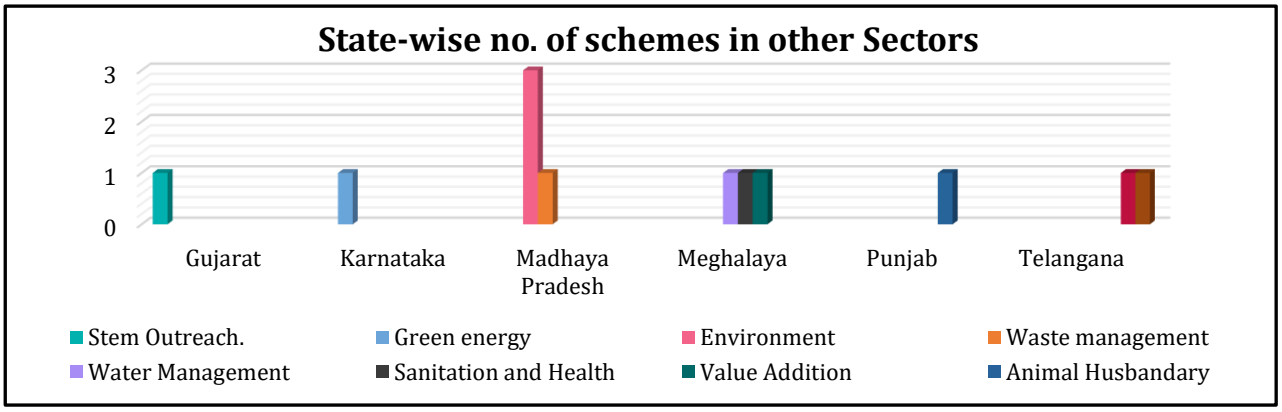


Figure-21: Number of schemes in other sectors

4.2.8 Collaborations for socio-economic development

State governments are working in collaboration with various international agencies, central governments, private institutions, non-government organizations for natural resource management, disaster management, livelihood generation, agriculture, health care, skill development trainings, improving access to clean drinking water, etc.

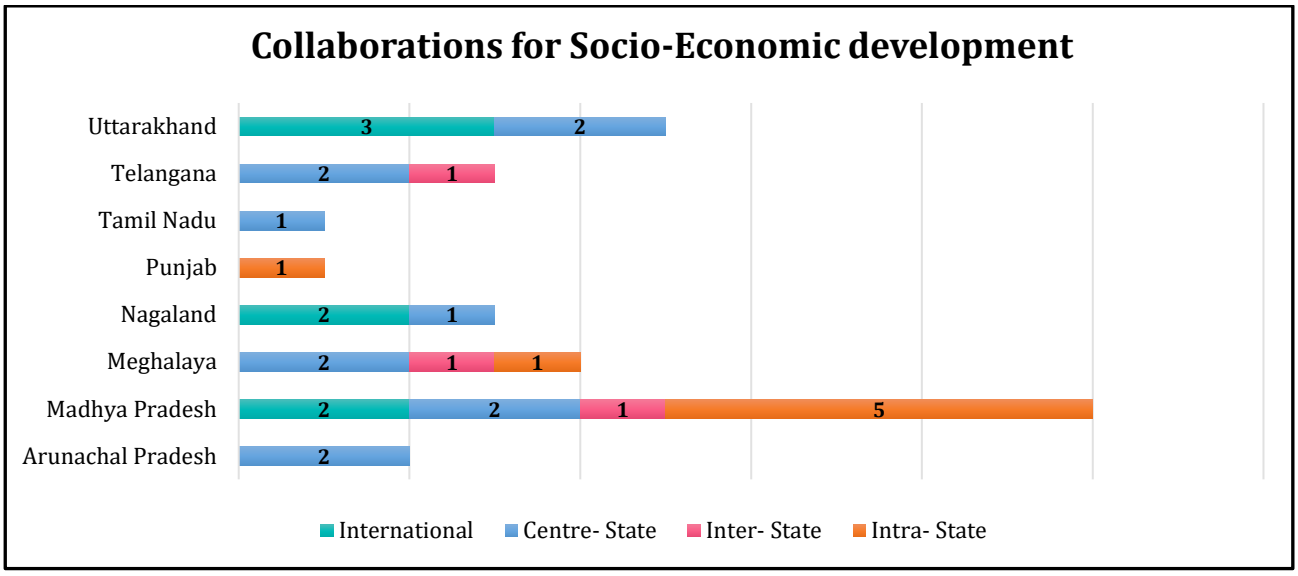


Figure-22: Collaboration for socio-economic development

International Collaborations:

The Agriculture Production Commissioner (APC), Government of Nagaland is collaborating with International Fund for Agriculture Development (IFAD) during 2017-2024 for better Jhum cultivation practices that will improve productivity and sustainability creating an ecological balance; and support Jhumia households to adopt alternative farming systems. This will make wet rice fields more productive, improve livestock systems and increase off-farm income, will enhance the income of farmer's income and reduce pressure on natural resources and increase resilience to climate change. As farmers move to more market-orientated production, the project will support improved market access and value chain development. Forest & Environment Department, of Nagaland is working with Japan International Cooperation Agency (JICA) with JICA during 2018-2027 to promote forest conservation through forestry Interventions, livelihood improvement, community development and institutional strengthening.

Tourism Department, Madhya Pradesh collaborated with Milan, Barcelona and Dubai in 2018 for International Events & road shows in the state. Similarly, the Government of Uttarakhand is collaborating with World Bank in the fields of disaster management, providing improved water supply services in peri-urban areas and enhancing accountability in public finances management.

Centre- State Collaborations:

Some Centre- State collaborative programs being carried out by State Science & Technology councils for skill development, training and technology demonstrations are as under:

Sl. No	Host Institute	Name of Collaborating Agency	Funding Agency/ Year of Collaboration	Impact/ Salient Outcomes
1.	DBT-APSCS&T CoE for Bioresources and Sustainable Development, Kimin	• CSIR-NEIST, Jorhat and NERIST, Nirjuli • College of Horticulture and Forestry, Central Agricultural University, Pasighat Tezpur University, Tezpur	DBT, GoI/ 2020	Training of young graduates and entrepreneurs for skill development on different aspects life science and biotechnology.
2.	M.P. Council of Science & Tech., Bhopal & National Academy of Sciences (NASI), Bhopal	• National Mission for Clean Ganga, GoI and HLL • CSIR-CBRI, Roorkee and CSIR—AMPRI) Bhopal • National Academy of Sciences (NASI) Bhopal and M.P. Ayurveda Adhikari Sangh	MPCST, Bhopal/ 2019 & 2020-2021	• Safe and Sustainable Water Including Sanitation – A Road to Swachh & Swasth Bharat • Makeshift Clinic in the campus of Govt. Jai Prakash Hospital, Bhopal. • Workshop on World Nature Conservation Day 2019.
3.	State Council of Science Technology & Environment (SCSTE), Meghalaya	• Meghalaya Basin Development Agency (MBDA) • EMSYS, Bangalore, SELCO Foundation, Bangalore, Advance Pluss, Haryana, Sauramandella, Bangalore, Barefoot college, Rajasthan, Sistema bio-digester, line depts	DST, GoI/ 2016-2018, 2018-21	• Establishment of a Zero Cool Energy Chamber • Community participation, useful for farmers • Establishment of the Bolmoram Technology Resource Centre • Empowerment of women, promotion of livelihood
4.	Municipal Affairs, Government of Nagaland	Kohima Smart City Development Limited, Kohima Municipal Council	Ministry of Housing & Urban Affairs, GoI/ 2016-2023	Economic growth and improved quality of life, development and harnessing of technology
5.	Mother Teresa Women's University, Kodaikanal	Tamil Nadu State Council for Science & Technology (TNSCST), Chennai ,SEED Division, DST, Govt. of India and Department of Biotechnology	SEED Division, DST, GoI/ 2021-2024	• Total 60 SC/ST people around the Kodaikanal area benefited. • Knowledge on various types of mushrooms (edible and poisonous), upliftment ofeconomic status, marketing, linkages, loan schemes etc.

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6.	TSCOST	• DST - SEED (SC-ST Cell) • DBT – Skill Vigyan Initiative	GoI/ 2021-22	Beneficial for students, SC/ST categories
7.	UCOST	• DBT- Skill Vigyan Program • DST-SEED (SC-ST Cell) • Scientific management of natural resources for sustainable development in UBA clusters in Shivalik region • Water, energy, food nexus project	DBT, GoI/ 2020 GoI/2021-22 DST, GoI/ 2021 DST, GoI/ 2020	• Students trainees • For SC/ST people • Farmers/ rural people • Rural people, farmers

Table-42: Centre- State Collaborations

Inter-State/UT:

Inter-state initiatives for strengthening S&T collaborations and education are as under:

1. Institute of Social Research and Development, M.P. with Child Line Foundation, Mumbai is working on Child-line Care and Protection programme.
2. State Council of Science Technology & Environment (SCSTE), Meghalaya collaborated with North East Christian University, Kohima in 2018-2019 for building up the capacity of beneficiaries in handling Appropriate Technologies.
3. In Telangana, TS - Global linker in collaboration with Confederation of All India Traders (CAIT) is working on launching of the "SMEs of Digital India" program.
4. Madhya Pradesh Council for Science & Technology (MPCOST) organizes Vigyan Manthan Yatra under its Mission excellence program, to expose meritorious school students to ongoing research and development activities in various S&T institutions in India with an aim to promote excellence, Innovation, awareness about Science, Entrepreneurship and Skill Development. Under Vigyan Manthan Yatra, every year meritorious students of Madhya Pradesh visit UCOST, prestigious R&D institutions in Dehradun and interact with scientists.
5. Scientists at Regional Science Centre, UCOST mentor winners of State Level Children Science Congress of Himachal Pradesh for their subsequent participation at National Level competition.
6. Officers from Himachal Pradesh Council for Science, Technology and Environment (HIMCOSTE), Shimla are interacting with Uttarakhand State Council for Science and Technology (UCOST) for future scientific collaborations on priority areas of Himalayan states.

Intra-State/UT:

Sl. No	Host Institute	Name of Collaborating Agency	Funding Agency/ Year of collaboration	Impact/ Salient Outcomes
1.	M.P. Council of Science & Technology (MPCST), Bhopal	Indira Gandhi Rashtriya Manav Sangrahalaya, Bhopal	MPCST/2019-2020	Livelihood through Scientific Cultivation of Lac.
		Maulana Aazad National Institute of Technology, Bhopal & CIAE, Bhopal		Briquette Technology for Environment Protection.
		Indira Gandhi National Tribal University, Amarkantak		Scientific cultivation of Lac.
		TRIFED, Bhopal		Skill and Entrepreneurship development training program-Blacksmith Product Making.
		National Academy of Sciences (NASI) Bhopal and M.P. Ayurveda Adhikari Sangh		Workshop on World Nature Conservation Day 2019.
2.	State Council of Science Technology & Environment (SCSTE), Meghalaya	• Meghalaya Basin Management Agency (MBMA) • Meghalaya State Rural Livelihood Society (MSRLS)	SCSTE & Meghalaya Basin Management Agency/2018-2022	• Skill enhancement for Villagers in Appropriate Technologies • livelihood promotion • creating Master trainers in Appropriate Technology area
3.	Punjab State Council for Science &Technology (PSCST) Chandigarh	• AIIMS Bathinda • MRSPTU Bathinda • ISF College of Pharmacy, Moga • PGIMER Chandigarh • DAV University • NIT Jalandhar • GADVASU • PAU Ludhiana	DST-GoI, 2021	Setting up of SC Clusters across Punjab
4.	Uttarakhand State Council for Science & Technology (UCOST), Dehradun	CSIR- Indian Institute of Petroleum, Dehradun	UCOST/ 2021-2022	Hands-on-training to life science graduates/ postgraduates for molecular diagnosis of Covid-19

		Forest Research Institute, Dehradun	UCOST/ 2019-2020	Understanding methods of Data presentation/ management, enhancing skill on descriptive statistics & multivariate analysis using R Software.
		Society of Pollution & Environment Conservation Scientists, Dehradun		• Development of Low- cost Science kit for better understanding of Physics • Providing technical facilities to small & micro entrepreneurs.
		Aanchal Parvatiya Vikas Chetna Kendra, Dehradun	UCOST/ 2017-2018, UCOST/ 2021	• Agriculture reforms through Science & Technology at Tehri Garhwal • Providing Juicer and Ginger processing machine for Technology Resource Centre in Hewalghati cluster.
		Saraswati Jan Kalyan Evam Swarojgar Sansthan, Dehradun	UCOST/ 2021	Local women have been trained to make Ringal handicrafts.
		Bhartiya Gramotthan Sanstha, Rishikesh	UCOST/ 2021-2022	Technology resource Centre for upgradation of Local Handicrafts and Designing at Rishikesh
		Krishivan Research Centre for Agripreneurship Development & Environment Protection, Dehradun	UCOST/ 2021-2022	Employment generation through mushroom cultivation
		Lakshya Society, Saraswatipuram, PO Harrawala, Dehradun	UCOST/ 2021-2022	Promotion of traditional spices crop (Ginger), in to high valued products in district Tehri, Garhwal.
		Primary Matsya Jeevi Sahkari Samiti Ltd., Dwarhat, Almora	UCOST/ 2021-2022	Providing quality and improved planting materials of Millet, Turmeric etc, establishing market linkage & capacity building trainings

Table-43: Intra-State/UT Collaborations

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5. Science Communication & Popularization

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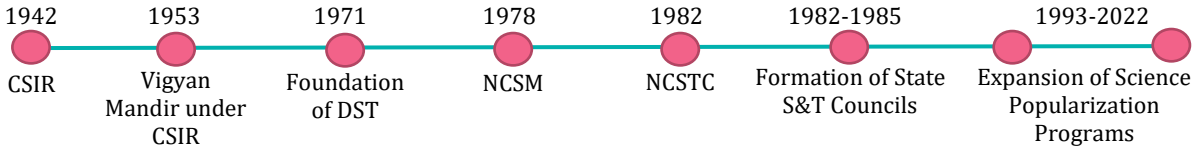
5.1 Introduction

5.1.1 Post-independence initiatives in India for science communication

The **Constitution of India in Article 51A (h)** mentions one of the fundamental duties of the citizens as 'to develop a scientific temper, humanismand the spirit of inquiry and reform'. India is the first to introduce 'scientific temperament'in its constitution in 1976. With the help of scientific and technological advancements, modern India has achieved new heights and is continuously involved in development of new technologies to achieve self-reliance and sustainability. The economic growth of any country is coupled with industrial and societal development and it is well recognized that science and technology exert an increasing influence on growth and development-material, industrial, economic and social. The greater the capacity of a nation to generate, transfer and utilize technology, the faster is its growth, progress and prosperity. The benefits of science and technology should percolate to the majority of the population, particularly to those that live below the subsistence level in a developing country. To achieve this objective it is necessary that science and technology be taken to rural areas amidst their own environmental and cultural context without creating any social or economic imbalances. Application of scientific and technological know- how can be, in many ways- improvement in traditional skills, technologies for better utilization of resources, introduction of crops of more economic value, introduction of small industries, improving public utility facilities, like drinking water, latrines, sanitation and health, rural housing, roads and last but not the least creating a scientific awakening among the masses.

India has taken several significant initiatives for science communication among the masses. The contributions of National Institutions, State S&T Departments& Councils and Voluntary Organizations are noteworthy.



Popular Establishments for Science Communication

One of the pre-independence initiatives of the Government of India in a direction to promote scientific knowledge and boost industrial and economic growth was to set up the ***Council of Scientific & Industrial Research (CSIR)*** in 1942. To address the need for communicating science to the unknown general public and as a tribute to the foresightedness of the Indian scientific leadership that could gauge the importance of science communication, CSIR established the '***Publications & Information Directorate***' in 1951.

One of the initiatives of CSIR in 1953 was to conceptualize and establish '***Vigyan Mandirs***' for science popularization in all districts of India, under the leadership of Dr. S.S. Bhatnagar, then head of the CSIR. The first *Vigyan Mandir* was set up at Kapashera near Delhi on August 15, 1953. The major concern of these centers was to address and solve the societal problems related to water, sanitation, agriculture, nutrition and health. Though the experiment could not survive longer, but the experience gained was later utilized to conceptualize the district science centers and community science centers in India.

To promote and coordinate the scientific activities in the Country, the ***Department of Science & Technology, Government of India*** was founded in 1971 with one of its objectives as the promotion of Science & Technology and emphasis on emerging areas. The proposal for ***State S&T Councils*** was initiated at the time of formulation of science &technology plan for the five year plan 1974-79.

The last seventy five years have been significant in the development of science museums and science centers in India. The prime objectives of the science museums were to portray the scientific and technological achievements and the transmission of scientific ideas to the masses. The first pilot project to establish science museum was at Birla Institute at Pilani in 1954 and at National Physical Laboratory, New Delhi in 1956. The movement was accelerated after the success of Birla Industrial and Technological Museum (BITM) which was established at Kolkata in 1959 and Visvesvaraya Industrial and Technological Museum at Bangalore in 1965 under the administrative control of CSIR. The first Mobile Science Exhibition was first initiated by the BITM in 1965 to cater to the people who could not come to the museums. The theme was '*Our Familiar Electricity*'. In 1970s the Union Planning Commission recommended to constitute a task force to assess the working of science museums in Indi. The recommendations were to establish science museums in all parts of the country at national, state, district levels. The ***National Council of Science Museums*** was hence founded in 1978 to accelerate the development of science museums in the country. Four Science Cities and several hundreds of science centers and planetariums have been established by the NCSM in partnership with the State Governments and private agencies.

Publications & Information Directorate (PID), earlier established by CSIR was re-assumed as ***National Institute of Science Communication*** in 1996, ***National Institute of Science Communication & Information Resources (NISCAIR)*** with merger of ***Indian Scientific Documentation Centre (INSDC)*** in 2002, and became ***National Institute of Science Communication & Policy Research (NISCPr)*** with merger of ***National Institute of Science & Technology Development (NISTADS)*** in 2021. The activities of NIScPr include dissemination of scientific and technological information to different segments of the society, publishing popular science content in the prominent Indian languages, conduct S&T policy research focused on socio-economic development ofthe country. The popular science communication programs of NIScPr include '***Jigyasa',*** publication of science magazines – **Vigyan Pragati**, **Science Reporter**, and many other iconic publications and journals.

In the sixth five-year plan in 1982, the Government of India institutionalized the ***National Council for Science & Technology Communication (NCSTC)*** to accelerate the movement of developing scientific temperament in India. The programmes of NCSTC are focused at capacity building in science communication and promoting scientific temperament among the community at large by providing budgetary support to State S&T Councils, Voluntary Organizations and Academic & Research Institutes of the Country. One of the prominent initiatives of NCSTC in 1987 & 1992 was to organize ***Vigyan Jatha***, a massive science communication event that touched millions of people of the Country, spreading information among them about science relevant to their day-to-day lives. A radio program '***Manav Ka Vikas***' was hosted jointly by NCSTC & All India Radio in 1990 which was broadcast in 18 Indian languages over 80 stations. Currently, the key activities supported by NCSTC include National

Children Science Congress, science exhibitions, STEM demonstrations, organizing seminars and workshops on topics of scientific interest, mobile science laboratories, training programs in science communication, popular lectures by eminent scientists and industrial visits of school students, radio programs on science communication, health and environmental awareness through science communication, etc.

Vigyan Prasar was founded in 1989 as an autonomous society to accelerate the science popularization agenda of the Department of Science & Technology, Government of India. The Organization majorly serves as a resource & facilitation centre for science popularization. Few popular initiatives are to establish a network of ***science clubs*** across all the States, publishing of popular science magazine ***Dream 2047*** since 2007, development of science communication content in the form of books, electronic media, CDs, etc.

Many **flagship programs** have been initiated by the central and state departments to catalyze the activities for promotion of science and technology among masses.

The first ***National Science Exhibition*** was organized in 1971 by NCERT in collaboration with University Grants Commission which was later renamed as '***Jawaharlal Nehru Science Exhibition for Children'*** in 1988.

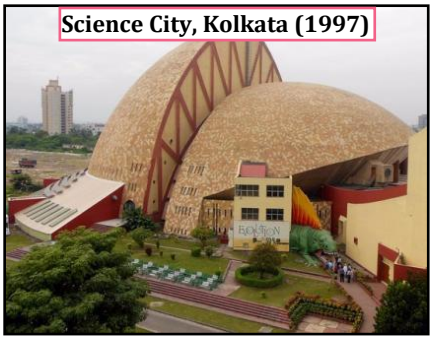
Figure-23: Science Communication Ecosystem of India

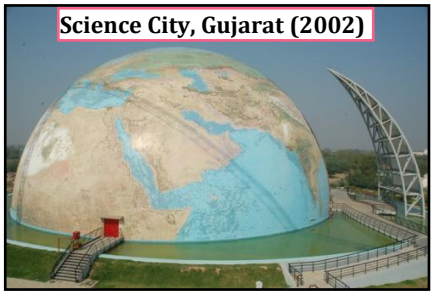
Celebration of ***National Science Day*** was started on February 28, 1987 to commemorate the discovery of the Indian Nobel Laureate Sir C.V. Raman. Events are organized every year throughout the country with great enthusiasm addressing a common theme announced by the NCSTC every year.

5.2 Infrastructure development towards science communication

The growth of scientific infrastructure for science popularization in India was initiated in 1950s. To disseminate the scientific knowledge to the students & general public and to demonstrate the applications of science & technology for socio-economic development, science museums were conceptualized in India with first '***Central Museum***' established in 1954 at Birla Institute of Technology & Science at Pilani followed by establishment of science museum at National Physical Laboratory in 1956. The scope of science museums in India got accelerated with Birla Industrial & Technological Museum, established at Kolkata in 1959 and Visvesvaraya Industrial & Technological Museum (VITM), opened in Bangalore in 1965 by the Government of India. The first Science Center was conceived & built in Mumbai in 1977. The National Science Centre of Mumbai started semi-functioning in 1977 and became fully operational in 1985. The **National Council for Science Museums** was established in ***1978*** to assess the working of science museums established in the Country under various initiatives and excelled the movement of developing science museums all over the Country. Communicating Science to Empower people' is the motto of NCSM. To achieve its objectives, NCSM organizes various activities throughout the year from it's headquarter in Kolkata and also through its various units spread across India. The activities ranges from organizing an event, training and workshops, lectures and demonstrations, seminars, development of new galleries, exhibitions, Science Centre/Museum and Mobile Science Exhibitions. The National Council of Science Museums has also collaborated with many State Governments and private agencies and established many science centers and planetariums in the Country. As of now, India has four science cities, 99 science centers, 27 observatories, 27 planetariums and 23 science parks which together attract millions of population for building scientific temperament among them.

5.2.1 Science Cities


Science City, Kolkata (1997)


Science City, Gujarat (2002)

To portray the growth of science and technology and their applications in industry and human welfare, science cities and science centers have been conceptualized in India which also aims at popularizing and enhancing the understanding of science and technology in cities, urban and rural areas for the benefit of


Pushpa Gujral Science City, Kapurthala (2005)

students and for the common man. Prime objectives of these centers are to popularize science, provide young people with the opportunity to explore informal ways of supplementing formal education, disseminate information on the latest developments in science and technology, and capacity building through state-of-art communication tools and technology with thematic galleries, large number of interactive exhibits and scientific parks. The first science city in India was established at Kolkata in 1997 by the National council of Science Museums. Later, two more science cities were developed in Gujarat, Punjab in 2002 and 2005 respectively. The already developed regional science centre at Lucknow was re-established as Regional Science City in 2007.


Science City, Lucknow (2007)

Upcoming Science Cities in India

The Government of India has been continuously working on the expansion of infrastructure for science popularization. A Science City is under construction in 250 bighas of land at Guwahati, Assam. Dr. A. P. J. Abdul Kalam Science City is under construction in 22 acres of land at Patna in Bihar. The five galleries 'Be a Scientist', 'Basic Sciences', 'Space and Astronomy', 'Sustainable Planet' and 'Body and Mind' are proposed in the Science City at Patna.

5.2.2 Science Centers

Science Centers are facilities that form the part of non-formal methods of promoting the science education. Equipped with exhibits that demonstrate principles of basic sciences in an interactive way, these centers remain open for all strata of the society. Science Centers in India are administered by the Centre/State/UT Governments. The societal and economic impacts of these centers make them a unique way of engaging communities in scientific activities and develop scientific temperament. The modern day science centers house a variety of exhibits that demonstrate real life experiences from basic sciences to latest advanced technologies like augmented reality, virtual reality, 3D theaters, etc. Variety of innovative galleries have been designed in the science centers that deliver unique, transdisciplinary exhibitions, events and educational programmes and engage millions of inquiring minds in connective, participative, and surprising ways. It offers a social space to develop ideas, imagine the future, and realize dreams.

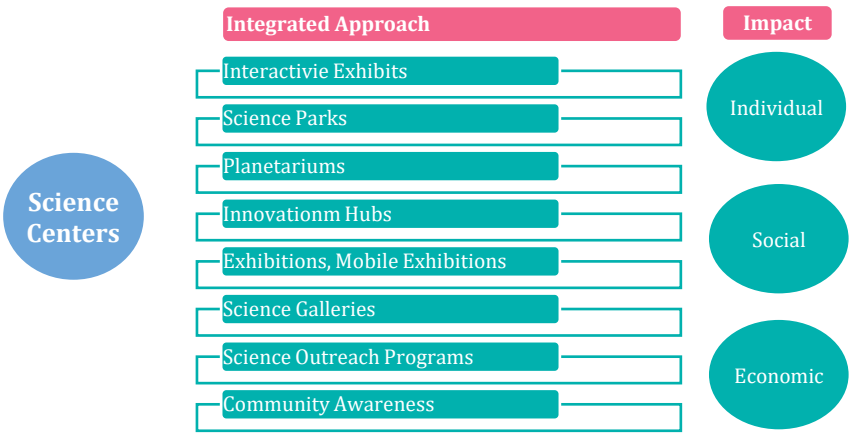


Figure-24: Integrated approach and impact of Science Centers

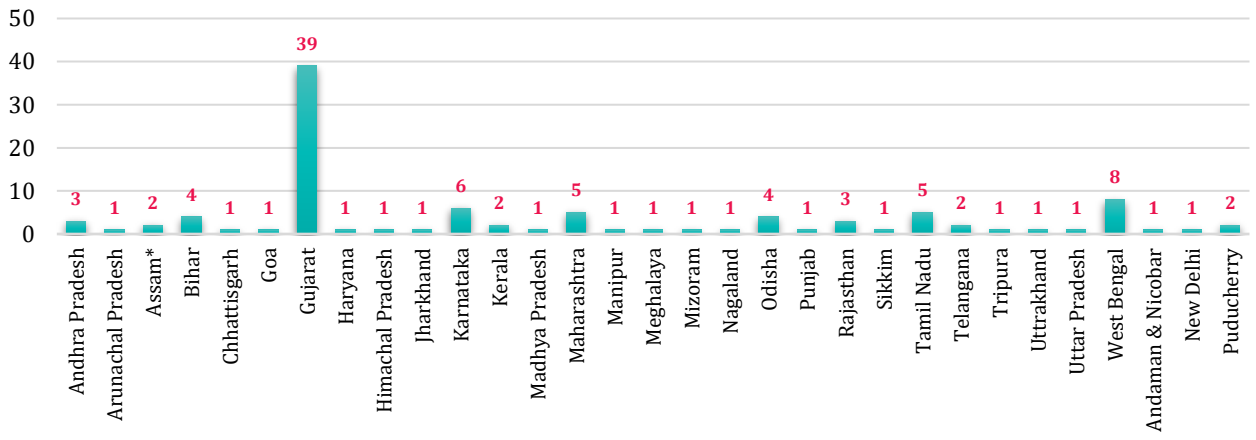
The National Council of Science Museums is the leading agency catalyzing the development of science museums and centers in the Country. Currently, NCSM administers 25 science centers all over the country. It has also developed the centers which are administered by the State/UT Governments and private agencies. A list of science centers operating in the country is presented in Annexure 2.

Glimpse of Aryabhatta Science Centre

To augment the impact of science on community, the Science and Technology Division of **Assam Science Technology & Environment Council (ASTEC)** has initiated the development of regional science centers in State. The Council had set up 219 Aryabhatta Science Centre in development blocks of the State. Aryabhatta Science Centres are providing a highly conducive platform for students, teachers and common people for enriching their knowledge and application of science in day to day lives. These Centres have been designed and equipped to encourage enquiry among students and the community such as interactive books, learning kits, hands on tools, scientific equipments, thought provoking video films, GPS etc. More than 2, 00,000 students, 33,000 teachers and above 59,000 general public were involved in the last five years.

Gujarat Council of Science & Technology has established and developed ***28 Community Science Centres*** and ***3 Regional Science Centres*** in 31 districts of the State. Overall, more than 65 lakh students of schools and colleges, teachers, farmers, academicians, researchers, industrial members etc. are get to involve in the activities carried around these centers. The role of these centers is to attract people towards science, develop scientific temper among them, and socio-economic development through scientific attitude.

Figure-25: Science Centres in the States



*Source: As reported by State S&T Councils & collected from Internet Sources *Assam Science & Technology Council has set up 219 science centers in the development blocks of the State*

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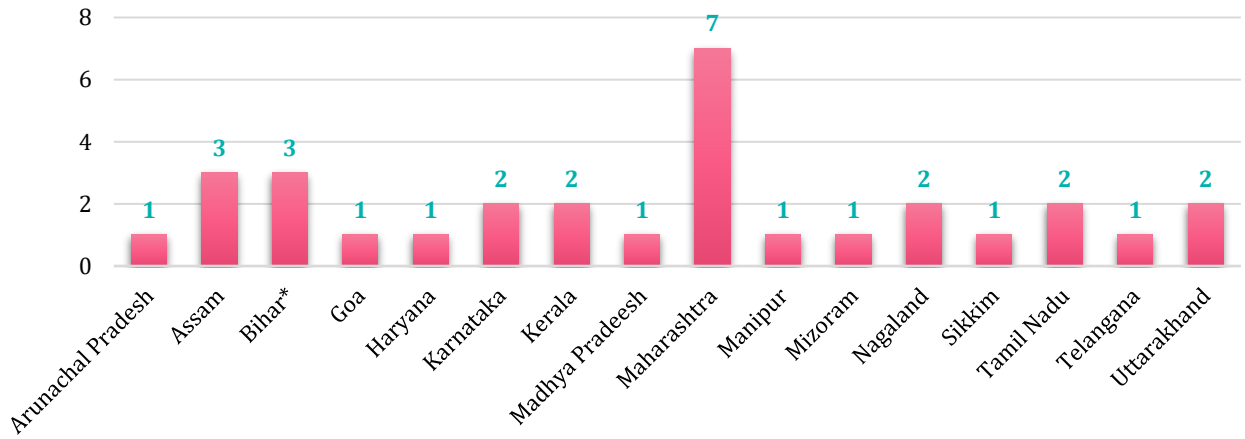
The State Government of Karnataka has established two regional science centers at Dharwad and Pilikula and two sub-regional science centers at Ballari and Raichur respectively. The Government is progressing to establish eight more sub-regional science centers at Bagalakote, Gauribidanur, Haveri, Bidar, Vijayapura, Adhichunchanagiri, Koppala, and Shivamogga.

Haryana Government is setting up a regional science centre in Ambala district in collaboration with NCSM. This science centre will display facts and information on different subjects, including science, space and agricultural technology. The science centre also plans to house a 'flight simulator through which the visitors will have an experience of airplane's flight.

5.2.3 Planetariums

Planetarium is a specially-designed theater with a domed ceiling that is able to project a realistic image of the night sky indoors. First used to educate about stars, planets, and constellations, planetariums today are unique immersive facilities often used to support Science, Technology, Engineering, and Mathematics (STEM) learning and to cross learning disciplines into art, culture, and history. The planetarium is not merely a tool for the acquisition of astronomical knowledge in schools; it is also a valuable medium for raising our awareness and love of the eternally blue earth by deepening our understanding of the planet. The planetariums impress us with the infinity, dignity, regularity, and wonder of the cosmos and inspire minds to explore so many remaining fields of study.

Figure-26: Planetariums in the States



Source: Reported by State S&T Councils

5.2.4 Mobile Science Laboratories & Mobile Exhibitions

Mobile Science Lab is an innovative initiative in the field of science, for hands-on activities of different modules and facilitates easy learning of concepts by students. The program aims at encouraging the students to inculcate a qualitative and hands on learning environment and empowering underprivileged schools to design creative ways to nurture the budding scientists. Mobile Science Lab is aimed at enhancing the education system by providing adequate infrastructure to facilitate scientific learning by the students in a friendly way. The focus is on gaining knowledge through activity-based and hands-on learning leading to innovative/qualitative thinking among students. Many such programs are operational in the

Country with support from Centre, State and CSR. An attempt has been made to collate the information about some mobile science laboratory initiatives going on in various parts of India.

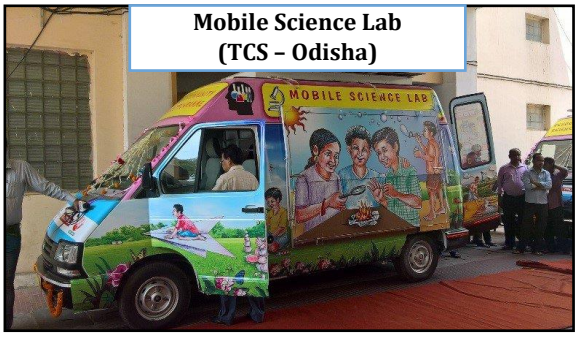
Mobile Science Exhibition (North Bengal Science Centre)


Mobile Science Laboratory (SPSTI – Haryana)

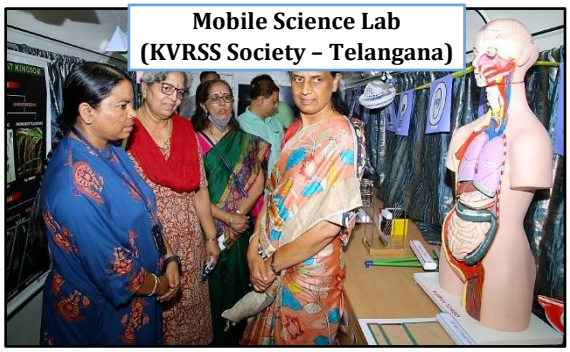

Mobile Science Exhibition (Chhattisgarh)


STEMM Bike (IRADA - Haryana)

Mobile Science Exhibition on Space Technology – VITM Bangalore



Mobile Science Lab (TCS – Odisha)


Mobile Science Lab (KVRSS Society – Telangana)

Mobile Science Lab (Agastya Foundation – Karnataka)

- The National Council of Science Museums (NCSM) has been operating twenty three Mobile Science Exhibitions in the country operated through Science Centres. In 2019-20, twenty-five new Mobile Science Exhibition buses were launched for scientific awareness in aspirational districts of several States of India.
- A Mobile Science Lab ***'Joy of Science'*** is operated by Vikram A. Sarabhai Community Science Centre in Gujarat with support from NCSTC.

- Seven Mobile Science Labs are operated by the Department of Education, Government of Haryana.
- Another Mobile Science Lab 'Circus of Science is operated by a non-profit organization Society for Promotion of Science & Technology in India (SPSTI) since 2016 in various districts of Haryana with support from NCSTC and Government of Haryana.
- A pilot project ***STEMM Bike*** is initiated by an NGO Indian Resource and Development Association (IRADA) with support from NCSTC.
- Twelve Mobile Science Labs are operational in Karnataka under the aegis of Karnataka Science & Technology Promotion Society. Another Lab '***Vijnana Vahini***' is also operated by Swami Vivekananda Youth Movement in Karnataka.
- A 'Mobile Science Lab' is operated since 2012 by Chhattisgarh Council of Science & Technology.
- Sarv Shiksha Abhiyan in Tamil Nadu is also operating Mobile Science Labs in the State.
- Dr. Abdul Kalam Science Centre & Planetarium (Lawspet, Puducherry) launched a Mobile Science Exhibition Bus in 2020.
- Agastya Foundation, a Karnataka based organization has been operating the largest network of outreach activities in India. According to their report for the year 2019-20, the Organization is operating more than 106 science activity centers, 193 mobile science laboratories and 78 lab-on-bikes.
- A Mobile Science Lab is inaugurated by the Minister of Education, Telangana recently in 2022 under the auspices of K.V. Rao Scientific Society, Telangana.
- Many other initiatives have been taken by Infosys, Mahindra, HP and other private agencies as a part of Corporate Social Responsibility and launched mobile science laboratories in various parts of India.

5.3 National Flagship Programs

The Government of India through its different entities has been supporting the activities for popularization of science throughout the Country. The coordinating agency National Council for Science & Technology Communication (NCSTC) working under the Department of Science & Technology, Government of India supports voluntary organizations in the Country to conduct activities that could enlighten the society & create scientific awareness and temperament among the masses. National Children Science Congress, Celebration of National Science & Mathematics Days, science exhibitions, science melas, explanation of so called miracles, mobile laboratories, awareness on environmental & health issues are the key activities supported by NCSTC. The Vigyan Prasar, another autonomous under Department of Science & Technology has setup a large network of science clubs all over the country and has been supporting them through capacity building and resources for conducting science awareness programs.

The National Council for Science Museums (NCSM), an autonomous body under the Ministry of Culture has been continuously involved in setting-up of science museums and science centers in the Country. These centers and museums have been involving a large number of people through in-house scientific exhibits and conducts outreach activities for those who could not come to the museums.

Other Ministries & Government Departments have also initiated few flagship programs which are being conducted all over the Country with great enthusiasm. National Green Corps is a major initiative of the Ministry of Environment, Forest & Climate Change which involve activities in schools for creating awareness on environmental issues.

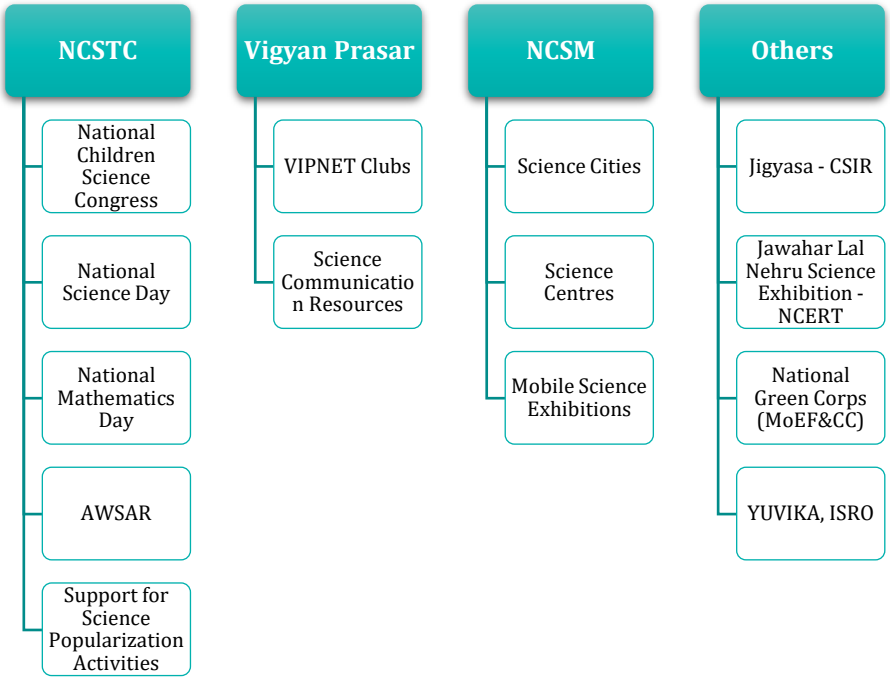


Figure-27: National Flagship Programs

5.3.1 NCSTC Support to Government, Private & Voluntary Organizations for Science Awareness Activities in India

The National Council for Science & Technology Communication (NCSTC) since its inception has been extensively supporting voluntary organizations for conducting science popularization activities in the Country. Projects are supported for STEMM demonstration and popularization, science communication through traditional and novel methods and low-cost teaching aids, celebrating National Science Day and National Mathematics Day by state councils and departments, science and technology communication through community radio, National Children Science Congress, children centric outreach programs, scientific explanation of miracles, environment and health awareness through science communication, eco-next, etc. Analysis of the projects sanctioned by NCSTC from 2016-17 to 2020-21 show that an average of 218 projects are supported every year for science communication activities.

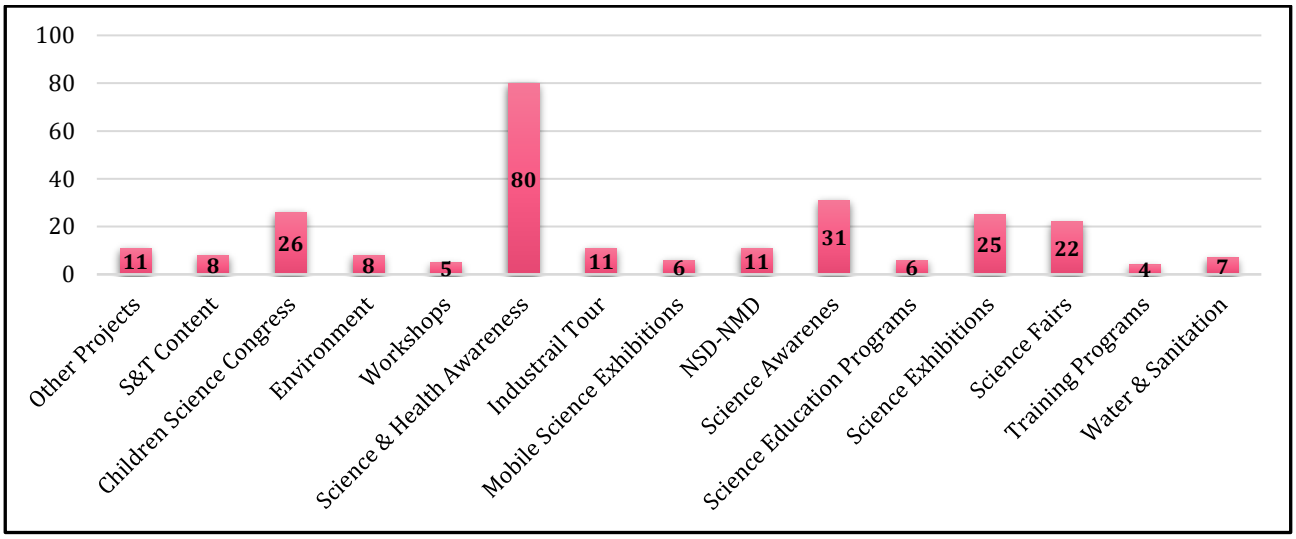


Figure-28: Analysis from List of Projects Sanctioned by NCSTC in the year 2020-2021

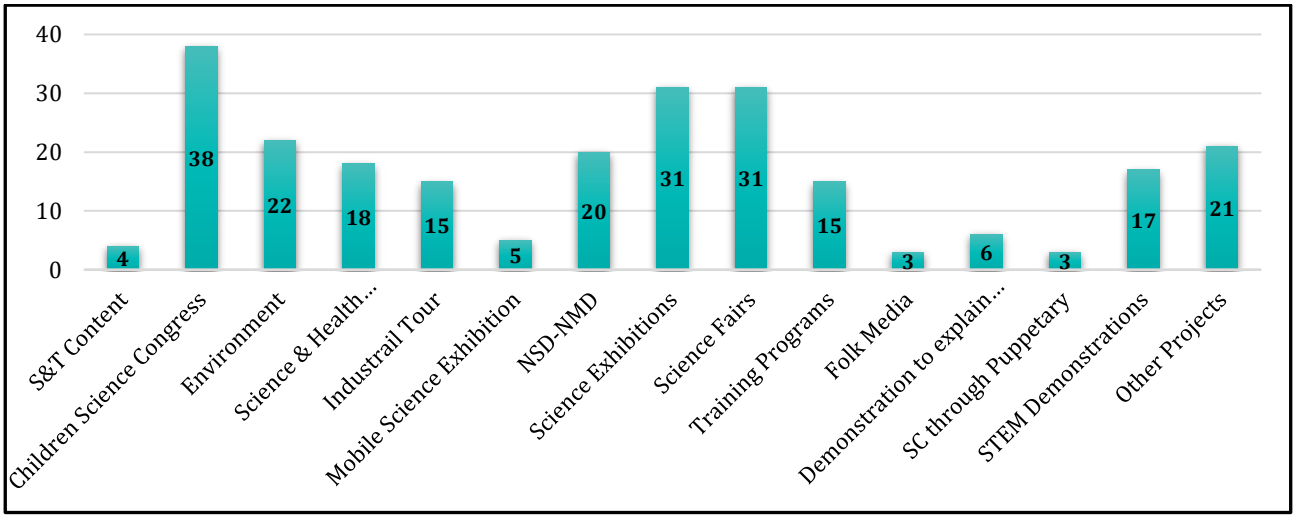
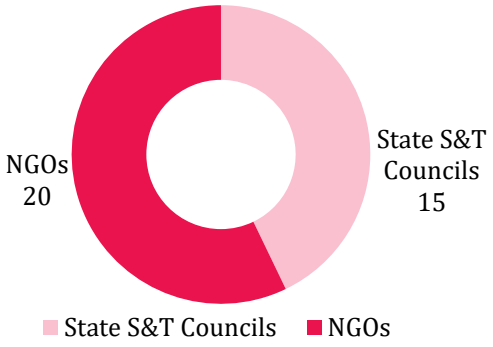


Figure-29: Analysis from List of Projects Sanctioned by NCSTC in the year 2019-2020

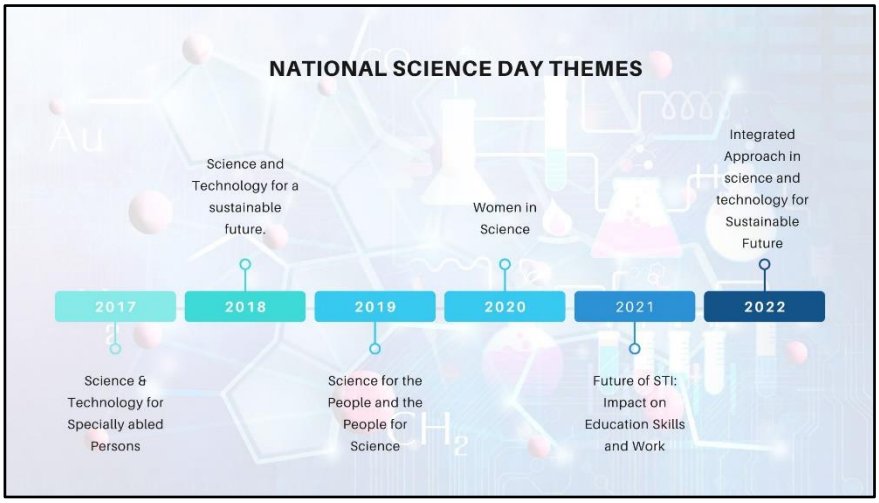
5.3.2 National Children Science Congress

With a vision to address the grassroot societal problems by engaging and bringing forward the young talent of the Country; National Children's Science Congress (NCSC) was initiated in 1993 by National Council for Science & Technology Communication, DST, and Government of India. The program provides a common platform to all school and out of the school children to exhibit their creativeness and innovation in addressing and solving the cross-sectoral problems. The analysis of last five years (2017-2021) reports demonstrate that, 15 S&T Councils and more than 20 Voluntary Organizations have been implementing the project with support from NCSTC, DST-GoI.

Figure-30: National Children Science Congress State Implementing Agencies (2017-2020)



5.3.3 Celebrating National Science Day & National Mathematics Day



National science Day is celebrated every year in the Country on February 28 to commemorate the discovery of the 'Raman Effect' with an aim to promote scientific activities in the country. The National Science Day was started by the Government of India on February 28, 1987. Every year, a new theme is announced by the Government of India and funds are allocated to State S&T Councils and Voluntary Organizations to conduct activities and promote S&T driven agenda among students, teachers and general public.

5.3.4 Augmenting Writing Skills for Articulating Research (AWSAR)

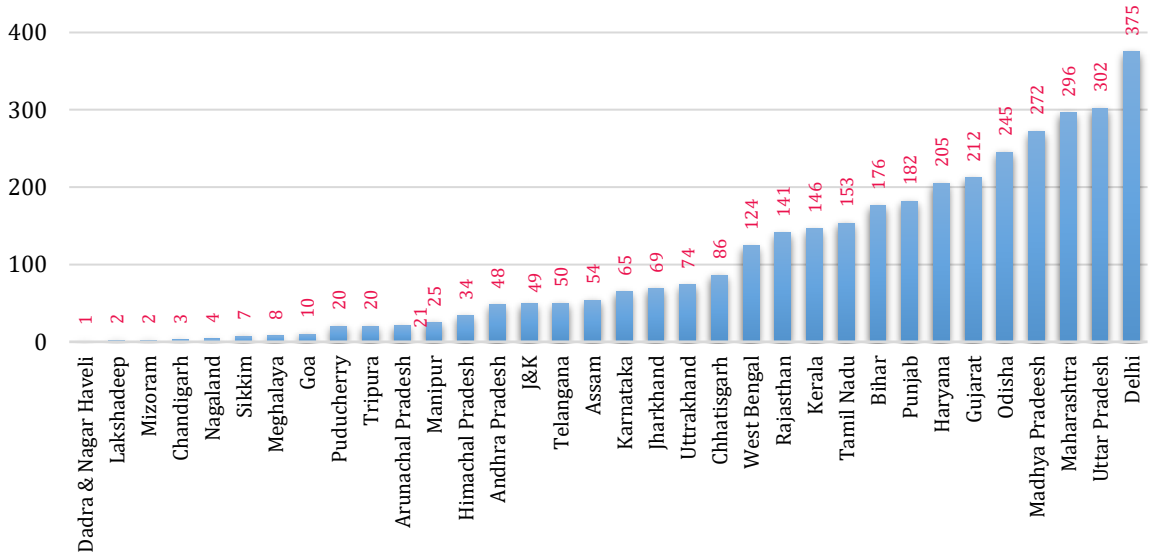
Augmenting Writing Skills for Articulating Research (AWSAR) is a new initiative conceptualized & supported by National Council for Science & Technology Communication (NCSTC) Division, Department of Science and Technology (DST) which is actively engaged in developing various outreach programs for scientific fraternity. AWSAR envisages to bridge the existing gap in communicating research to common man by utilizing the latent potential of PhD Scholars and Post-Doctoral Fellows (PDFs). This program is being coordinated by Vigyan Prasar, an autonomous institute of DST. The key objectives of AWSAR include encouraging youth pursuing higher studies to submit at least one story/article based on their research work, foster, strengthen and create scientific temper through popular science writing and creating a culture

of science communication/popularization among the scholars and recognize the initiative and output of researchers on the specific aspects of natural, physical, mathematical and information sciences, applied science, technology, engineering, and multi-disciplinary science.

5.3.5 Science Clubs

Science clubs have been playing a key role in many places due to their exemplary work and commitment of their members towards their chosen causers. Several national and international organizations have their science clubs across the country. VIPNET, acronym for Vigyan Prasar NETwork, was added as a new project to Vigyan Prasar in 1998 with the objective of providing a fillip to the science clubs movement in India. Thisis a network to weave all science clubs, societies, organizations which are already established, or are going to be established, and are willing to work with Vigyan Prasar to strengthen the popular science movement in the country with far reaching implications for the development of society. A total of 3488 science clubs are operational in the countries which are registered with the Vigyan Prasar.

Figure-31: Registered VIPNET Science Clubs in the States



Source: Vigyan Prasar

In addition to the national initiatives, several States has set-up science clubs in Government schools. The S&T Council of Haryana has set up a total of 220 science clubs in Government Senior Secondary Schools with 10 clubs in every district. A total of 27,500 beneficiaries have been reported by the State in last five years.

Chhattisgarh State S&T Council has taken initiative to establish 68 science clubs along with science book corners in the leading Government Schools in various districts.

5.3.6 CSIR – JIGYASA

A prominent initiative 'Jigyasa' promoting student-scientist connect was initiated by the Council of Scientific & Industrial Research as a part of the vision of Social Scientific Responsibility. The program is implemented by the scientists of the CSIR Labs in all parts of India and aims to extend the classroom learning to experiential and research based learning. A variety of science outreach programs are conducted under the umbrella of CSIR-Jigyasa program, popular lectures, science stage shows, Lab visits, to name a few.

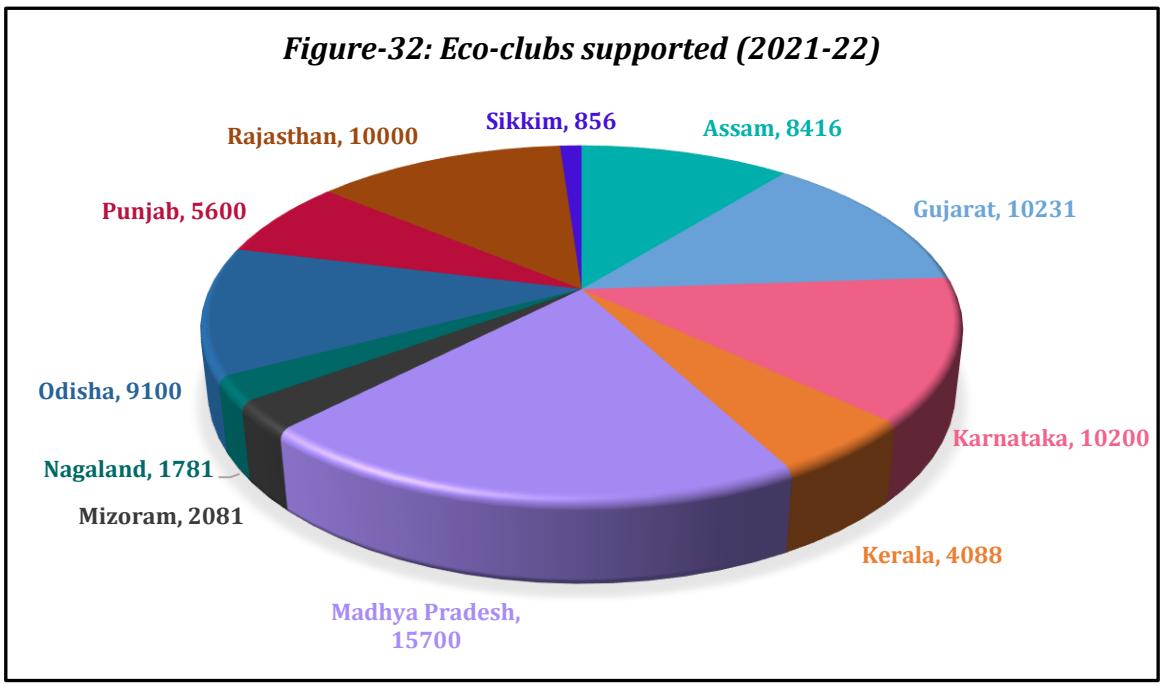
5.3.7 Jawaharlal Nehru Exhibition for Science, Mathematics & Environment

Glimpse of 45th Jawaharlal Nehru National Exhibition on Science, Mathematics & Environment – 2018 organized by NCERT at Ahmadabad (Source: Twitter @CMOGuj)

One of the popular programs conducted at national level is Jawaharlal Nehru National Science, Mathematics and Environment Exhibition for Children. With a view to encourage, popularize and inculcate scientific temper among the children of the country, NCERT organizes this national level science exhibition every year where children showcase their talents in science and mathematics and their applications in different areas related with our everyday life. The event is conducted every year since 1971 in stages from school level to national levels.

5.3.8 National Green Corps

To spread environmental education, promote environmental awareness and to mobilize student's participation for environment conservation, the Government of India initiated Environment Education, Awarenessand Training (EEAT) scheme in 1983-84. National Green Corps under this scheme was launched as a central initiative in 2001-02. More than one lakh Eco-clubshave been formed in schools and colleges across the country under this initiative. In order to sensitize studentson various environmental issues, the Eco-clubs undertake activities like celebration ofimportantenvironmental days such as WorldEnvironment Day, World Wetland Day, EarthDay, etc. by organizing debates, quiz, slogancompetitions, drawing/poster competitionsetc., awareness on solid waste management(waste segregation into biodegradable andnon-biodegradable), plantation drives,cleanliness drives, etc.



Source: Annual Report 2021-22, Ministry of Environment, Forest & Climate Change

5.3.9 YUVIKA (ISRO)

Indian Space Research Organization is organizing a special program for School Children called "Young Scientist Program" "YUva VIgyani KAryakram", YUVIKA, to impart basic knowledge on SpaceTechnology, Space Science and Space Applications to the younger students with a preference to rural areas. Launched in 2019, the program is aimed at creating awareness about the emerging trends in science and technology amongst the youngsters, who are the future building blocks of our nation. ISRO has chalked out this program to "Catch them young".The program is also expected to encouragemore students to pursue in Science, Technology, Engineering and Mathematics (STEM) based research /career. The YUVIKA program involves a two-week residential summer camp that includes invited talks, experience sharing by the eminent scientists, experimental demonstration, facility and lab visits, exclusive sessions for discussions with experts, practical and feedback sessions. The program aims to select 150 students across the country, who are studying in class IX in a school located within the territory of India and a minimum participation is ensured from each State and Union Territory.

5.4 Science Communication & Popularization Programs

5.4.1 State Initiatives

The State S&T Councils have initiated many flagship activities for the popularization of science and technology through formal and non-formal methods. Arunachal Pradesh has been supporting popular lectures and innovation festivals in the State. '*Science & Mathematics Facilitators*' scheme is being executed by Assam State S&T Council. The State has established block-level science centers to expand the scope of science outreach programs. Bihar has initiated student project program in 2019-20, providing support to about 500 students to engage them in solving specific science and technology problems relevant to the society. Chhattisgarh S&T Council has been implementing a *'Young Scientist Congress'* since 2002 to mark the discovery of the Indian Nobel Laureate Sir C. V. Raman. The scheme promotes young talent by inviting cross-sectoral research paper presentations. Goa is implementing national programs and science fairs & exhibition in the State. The *Community Science Centres* recognized by the Gujarat Council of Science & Technology has noted impact in science outreach activities at district level. The *scholarships and PhD fellowships* to promote science education among students of schools, colleges, universities and Annual Science Conclaves are few flagship activities of the Haryana State Council for Science & Technology being organized since 2009-2010. The State of Himachal Pradesh has started *State Science Congress* in 2017. The Karnataka State Council for Science & Technology has been successfully implementing "*Students Project Program*' every year since 1977 by providing financial and academic support for Bachelor of Engineering projects. Kerala S&T Council has been conducting *Kerala Science Congress (1989), Student Project Program, Scheme for Promoting Young Talents in Science, residential camps and Pratibha Scholarship for pursuing higher education in sciences. Young Scientist Congress* is organized every year since 1986 by Madhya Pradesh S&T Council which aims at identifying budding scientists and providing encouragement to their research plans and programmes. Science & Innovation Activity Centers have been established by Maharashtra in association with NCSM benefitting millions of school students. Manipur is conducting the radio programs on Artificial Intelligence, Traditional Knowledge Systems, Global Warming and Climate Change. Mizoram and Nagaland are implementing Sci-Connect program of the Vigyan Prasar and other flagship programs of the NCSTC. Punjab has been actively involved in implementing the national programs for science communication in the State. Rajasthan has established science clubs and school science centers. The Department of Science & Technology of Sikkim has been conducting a variety of awareness programs related to biodiversity, biotechnology and agriculture. Tamil Nadu is implementing Young Student Scientist Program by exposing students to the science and research through a residential programme conducted in Universities/Colleges of the State. The Telangana S&T Council has collaborated with NIT Warangal to promote science, technology and innovation initiatives in the State. A number of science communication programs are being conducted by Uttarakhand S&T Council – State-level Children Science Congress, best science teacher awards, publication of science magazines, and conducting science fairs.

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Arunachal Pradesh

- Students Solar Ambassador Workshop
- Popular Science Lectures
- Science Drama
- Children Science Parks
- Outreach program on" Innovation, Ideas & Robotics"
- Awareness on Robotics and Advanced Manufacturing
- State level Innovation Festival
- Science on Tour
- Wipro Earthian

Assam

- 219 Aryabhatta Science Centers developed at block levels
- Science & Mathematics Facilitators
- State Science Fair
- Raij Mel - Eradication of Superstition

Bihar

- Student Project Program started in 2016

Chhatisgarh

- Young Scientist Congress (2002)
- 68 Community Science Clubs established in leading Government Schools
- State-level Science Quiz & Science Exhibitions
- Western India Science Fair,
- Science Parks established in 12 Schools
- National Science Seminar
- Mobile Science Lab
- Mobile Planetarium

Goa

- National Green Corps
- National Children Science Congress
- Wipro Earthians Program
- Science Exhibitions

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Gujarat

- Establishment & Development of Community Science Centres Network in the State
- Financial support for organization of Seminar / Symposia / Workshop / Conference/Training Program / Exhibitions / Paper Presentation in different university / college / institute / NGO
- Celebration of S & T Days
- School Science Club 3000 Science Clubs across the state with activity kit and seed amount
- Establishment for Design of Schools in the frontier areas of Science & Technology and Information Technology in the State

Haryana

- Science Quiz and Science Essay competitions at block, district and state levels
- 220 Science Clubs established in Government Schools
- Celebration of National Technology Day
- Organizing Science Conclaves hosting multifarious activities
- Scholarships for School students, undergraduates, postgraduates and PhD fellowships
- Exposure Visits to national laboratories, science cities and national science centers
- Honoring Meritorious Students
- National School Eco Club Program

Himachal Pradesh

- State level Children Science Congress
- Science Fairs, Science Exhibitions
- Workshops
- Popular Science Lectures

Karnataka

- Mobile Science Laboratories & Digital Planetariums operated by Karnataka Science and Technology Promotion Society (KSTePS)
- e-Magazine - Vijanana, Meena Radio
- Science seminars, science exhibitions, science dramaStudent Project Program
- PhD Fellowships, awards to scientists and researchers

Kerala

- Kerala Science Congress
- Celebration of Days - National Technology Day, Environment Day
- Science Education Centre

Madhya Pradesh

- Junior and Senior Science Olympiads
- Science Exhibitions
- Teachers Training Workshops
- Young Scientist Congress

Maharashtra

- Assistance for S & T Application
- Science and Innovation Activity Centres
- Implementation of National Programs

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Manipur

- State Science Communicator Award
- Dr. Ibeyaima Innovation Award
- Radio program on Artificial Intelligence, Traditional Knowledge Systems and Global Warming & Climate Change

Meghalaya

- Science & Environmental Fairs
- Awards to Meritorious Students
- Wipro Earthian Sustainability Education Program
- Workshop on Innovative Experiment in Physics

Mizoram

- Mizoram Science Congress
- Science Magazines
- Science Talk Show
- Science Exposure Tour
- Lunglei Science Centre

Nagaland

- Social Mobilization on Climate Change
- National Children Science Congress

Punjab

- Nodal Agency for conducting workshops in northern region
- National Children Science Congress
- Wipro Earthian Program
- National Green Corps

Rajasthan

- Establishment of science clubs
- 24 School Science Centres established in collaboration with NCSM

Sikkim

- Awareness programs & workshops on topics of scientific importance for students, teachers and general public
- Radio-Serial on Sustainable development funded by Vigyan Prasar

Tamil Nadu

- Young Student Scientist Program (15-days residential camp of Class 9th students in Higher Education Institutes)
- Student Project Schemes for UG/PG students
- Young Scientist Fellowship Scheme (10-15 scientists are supported for 2-6 months training on sophisticated research instruments)
- Tamil Nadu Scientist Award (outstanding applied research work)

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Telangana

- Demonstrations, Popular Lectures, Exhibitions on Scientific Topics
- Street Plays, Kala Jathas against Superstitions
- Recognize distinguished Scientists/ Academicians/ Engineers
- Celebration of important science related days and occasions

Tripura

- Student Project Program
- School Science Clubs and College Science Forums
- State Science Fairs
- Junior Mathematical Olympiad (Since 2007)
- Meghnad Saha Award for Science Popularization/Communication
- P. C. Roy Award for Societal Application of Technology
- C. V. Raman Award for School Students for best model/exhibit in State Science Fair.

Uttarakhand

- Uttarakhand State Science and Technology Congress (USSTC)
- Best Science Teacher Award
- Late Malti Purohit Memorial Award (NASI-UK Chapter)
- Leading women Scientist Award
- UCOST Women Excellence Award
- Workshop/ Seminar/ Conference/ Symposium
- Popular Lecture, Science Fairs
- Science Mgazines, OHO Radio

Uttar Pradesh

- District Science Clubs
- Explanation of Scientific Miracles
- Science Awareness Programs on safe drinking water, plastic, agriculture and other waste / garbage reuse and management, Health, Hygiene , Sanitation, Clean Environment etc. in rural areas for common masses
- Industrial /Scientific Institutions' visits
- Science & Technology Exhibition and Mela
- Financial support to Seminar, Symposium and Academic bodies/ Scientific Societies. Development of Science Films and Advertisement
- Science on Wheels -Vigyan Bus

West Bengal

- District-level Residential Science Education Camps for school students
- Block/ Municipal level Non Residential Science Camp with hands-on experiments for school students
- Camp-cum Tour program for school students
- Satyendra Puraskar for best popular Science Writer in Bengali
- Meghnad Puraskar for voluntary organizations in science popularization
- Gopal Chandra Bhattacharyya Smriti Puraskar for individuals in science popularization
- State Innovation Award to encourage, recognize, honour & reward grass root technological innovations

Puducherry

- Mobile Science Exhibition Bus launched in 2020
- Financial assistance for the conduct of Conferences / Seminars / Workshops by academic institutions
- Travel Grant to Academicians for presenting papers Internationally
- Sky Watching Activities, Science Exhibitions
- Financial assistance to schools, higher education institutes and voluntary organization for conducting activities - magazines, science tours, celebration of days, awareness lectures

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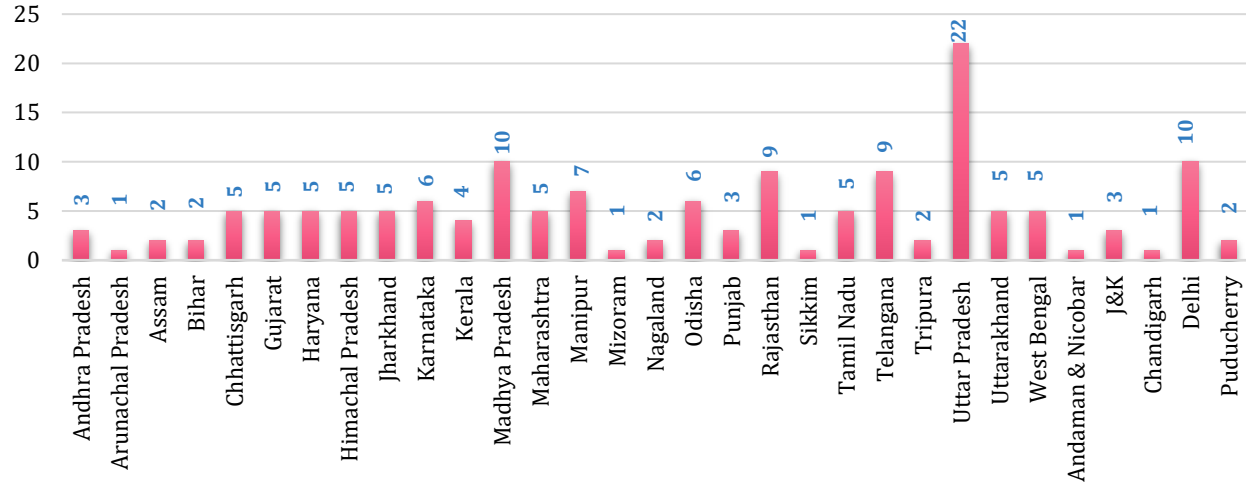
5.4.2 Private/NGO Initiatives

Many private and voluntary organizations have been actively involved in science communication throughout the country. These organizations have massive outreach and impact on the individuals and society at large. These institutions are engaged in the promotion and dissemination of science in various ways. With the help of central and state government, CSR and self-financing, these institutions have been able to create impact on the society by conducting scientific activities across the country. The key activities undertaken by these organizations are conducting science fairs and exhibitions, operating mobile science exhibitions and laboratories, organizing vigyan yatras, conducting programs on scientific explanation of so-called miracles, developing low-cost science and mathematics teaching aids, popular lectures by eminent scientists, organizing summer and winter camps in science, mathematics, astronomy, emerging technologies etc, science demonstrations for general public, and many other activities keeping in view the science communication to general public as prime objective.

An analysis has been made on the organizations which have been involved in implementing the science communication activities with support from National Council for Science & Technology Communication (NCSTC) for the years 2019-20 and 2020-21. More than 150 organizations have been listed in Annexure 3 which are involved in the science popularization activities.

Figure-33: Private & Voluntary Organizations



Source: Projects sanctioned by NCSCT for the years 2019-20 and 2020-21

5.5 Role of Print, Digital Media and Radio in Science Communication

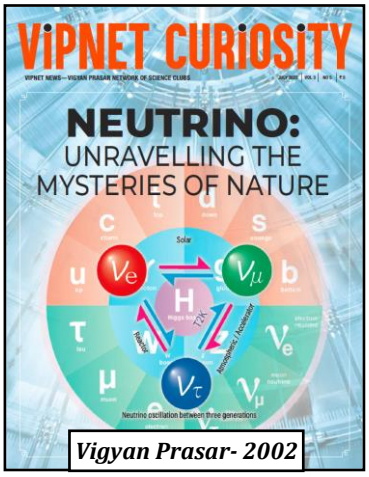
Dissemination of scientific knowledge has drastically changed with the developments in print and digital media. Digital media has emerged as a popular platform for communicating science as well as science's active engagement with the society. Through its wide reach, it has not only provided with ample ways for enhancing public understanding of science but also public participation in science through online citizen science initiatives. Science reaches the grassroot level simultaneously in most regions of the globe through multiple digital media channels; and thus has become an integral part of people's lives all over the world.

CSIR – NISCAIR (1952)

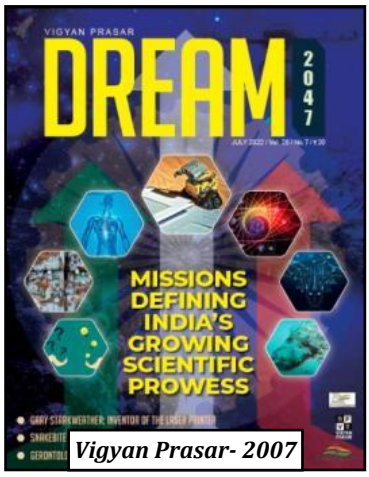
CSIR – NISCAIR (1964)

The National Institute of Science communication and Policy Research (NIScPR) has been publishing two popular science magazines - Vigyan Pragati and Science Reporter. Launched in 1952, Vigyan Pragati endeavours to familiarize its readers with important current events/issues in the field of science in an easy-to-understand manner. The Science Reporter magazine (1964) is one of the oldest English language popular science monthlies published in India. Science Reporter seeks to disseminate information about S&T developments throughout the world, with special focus on Indian scientific achievements. It provides insight into all the major scientific and technological developments, presents facts about controversial scientific concepts, and tries to bring to its readers interesting, exciting and informative information from various disciplines of science.

Vigyan Prasar brings out monthly bi-lingual science magazine Dream 2047 since 2007. The magazine is being published for the last sixteen years. Present circulation of the magazine is 35000. A CD-ROM is also produced on Dream 2047" CD-ROM which is a collection of all the popular science published in the monthly newsletters and this popular Science magazine.



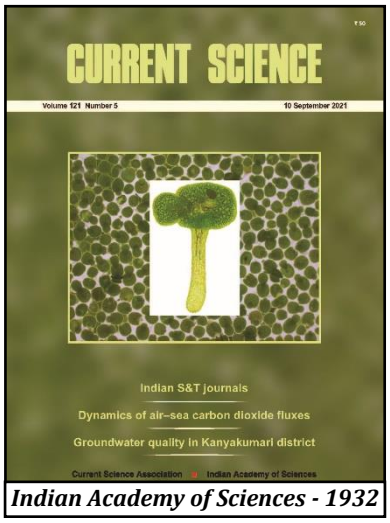
Vigyan Prasar- 2002



Vigyan Prasar- 2007

Magazines published by Uttarakhand S&T Council

Punjab - 2022



Indian Academy of Sciences - 1932

5.5.1 India Science TV (Journalism)

India Science is an Internet-based science Over-The-Top (OTT) TV Channel. It is an initiative of the Department of Science and Technology (DST), Government of India, implemented and managed by Vigyan Prasar (VP), an autonomous organization of the Department of Science and Technology. This 24x7 video platform is dedicated to science and technology knowledge dissemination, with a strong commitment to spreading scientific awareness especially with Indian perspectives, ethos and cultural milieu. The initiative is supported by the National Council of Science and Technology Communication (NCSTC), DST.

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India Science covers the entire landscape of Science & Technology including Engineering, Health and Medicine, Natural Science, Environment and Wildlife, Children's Curiosity, Science and Society, Agriculture, Innovations, Scientific Heritage, Science Policy using interactive and latest formats like Documentaries, Discussion, Demonstrations/Experiment Shows, Quizzes, Game shows, Science Fiction, Docu-Dramas, Specials, Biographies. India Science mainly focuses on India's contribution to science and technology and will also cover the latest S&T developments from all around the world.

5.5.2 Communicating Science through Radio

Radio is a very vibrant and far reaching medium of communication which touches wide geographical areas of India. Radio is such a medium of communication which shares public information from all walks of life. Whether we look for general information, cultural stimuli, discussion on any public interest topic, campaign arguments or entertainment, we will find a radio station *AKASHAVANI **आकाशवाणी*** which satisfies our needs. New formats of dissemination of audio media content (web radios, streaming audio, podcasting, etc.) have furthered the capacity of radio. In many of these dimensions of radio programs, we do find *science programs or science topics.* Radio reaches to every nooks and corners of our country and therefore it spreads message of science wherever it is reached. In this way, we can find radio as one of the best media to communicate science to general public.

One more thing to add here that its popularity has not been affected by internet which is converting TV viewers, but not the radio listeners. This is strength of this communication medium.

For communicating science in far flung areas of our country, radio **आकाशवाणी** has been proved a very effective medium of communication.

If we see the radio programs broadcast by All India Radio (AIR), we find that several innovative ideas are being used in producing radio science programs. All over the country, each and every station of AIR has a science section headed by a program officer.

A variety of science based programs are now available on AIR, such as Radioscope, Science Today, Science Magazine, Sciencenama, Science Talk, Feature, Drama, and Science News which are jointly produced by AIR and Vigyan Prasar.

AIR has been broadcasting a lot of radio reports of different scientific conferences held in India or abroad.

In the early 1990s, a landmark 144 part radio serial Manav Ka Vikas (Human Evolution) was jointly produced by National Council for Science & Technology Communication and AIR. This program was broadcast simultaneously from more than 80 radio stations in 18 Indian languages with 100,000 children and 10,000 schools registered as dedicated listeners."

52 episodes of radio serial based on understanding and managing climate change and Global warming, named *Whispers of the wind and ***बदलती फ़िज़ाएँ*** *Atom to Star, **परमाणु से सितारों तक**, based on atomic model and energy, Lest we Lose and **कहीं देर न हो जाये**, based on disaster

management, Life must go on and **चलती रहे ज़िन्दगी** based on sustainable development, Magic of numbers and **अंको के खिलाड़ी** based on understanding mathematics and mathematicians, Coming tomorrow **आनेवाला कल** based on artificial intelligence, etc were broadcast in different channels of AIR in different regional languages.

Punjab had broadcasted 365 episodes under the program - "Sehat Ka Vardaan: Nari Ka Samman" on Jyotirgamaya, 91.2 FM, Community Radio of Panjab University, Chandigarh on the topics related to women health, infant and child-care, nutrition, diseases etc.

Currently, Radio Science Serials are being broadcasted in Karnataka and Sikkim. Manipur has been conducting programs on Artificial Intelligence, Traditional Knowledge Systems and Global Warming & Climate Change. The State of Uttarakhand is conducting programs on Sustainable Development, Early Warning Systems, Climate Change & Global Warming, and Understanding & Managing.

As far as communicating science through radio is concerned, there is ample scope and opportunities of science writers, editors, producers, drama artists, feature writers etc. All India Radio can play a crucial role to make a roadmap to harness the potential of science communication for radio.

6. Policies for Science Technology & Innovation

Azadi Ka Amrit Mahotsav

6.1 Introduction

Policies play important role in development agenda of the country. The Central Government plays pivotal role in formulation of policies reflecting the need of the nation and putting in place structured framework, strategy for programme implementation to build up sustainable future. As STI has potential to catalyze and accelerate growth of the nation, hence policies in Science Technology Innovation play significant role in their socio-economic transformation. Such Policy Instruments also aid in expansion of knowledge base and technological empowerment for well-being of communities. Promoting innovations in the public sector, enhanced public service delivery, improvised business environment, initiatives for building technological and innovation capacities, expanding market size etc. are some of the critical drivers which have impacted STI ecosystem of various countries.

India has also invested for developing policy instruments to strengthen STI ecosystem of the country, which evolved and progressed over the years through different phases of economic and industrial development. Since independence, four major STI policies have been implemented in the country with Scientific Policy Resolution (SPR) laying the foundation in the year 1958 followed by others. Recently, Department of Science & Technology, Govt. of India and O/o Principal Scientific Advisor, Govt. of India have released draft of 5th STI Policy. The present chapter focuses on such policies on STI landscape on National & Sub-national level. In addition, there are several policies linked with and impacting STI ecosystem (depicted below) which have also been captured in the present chapter.

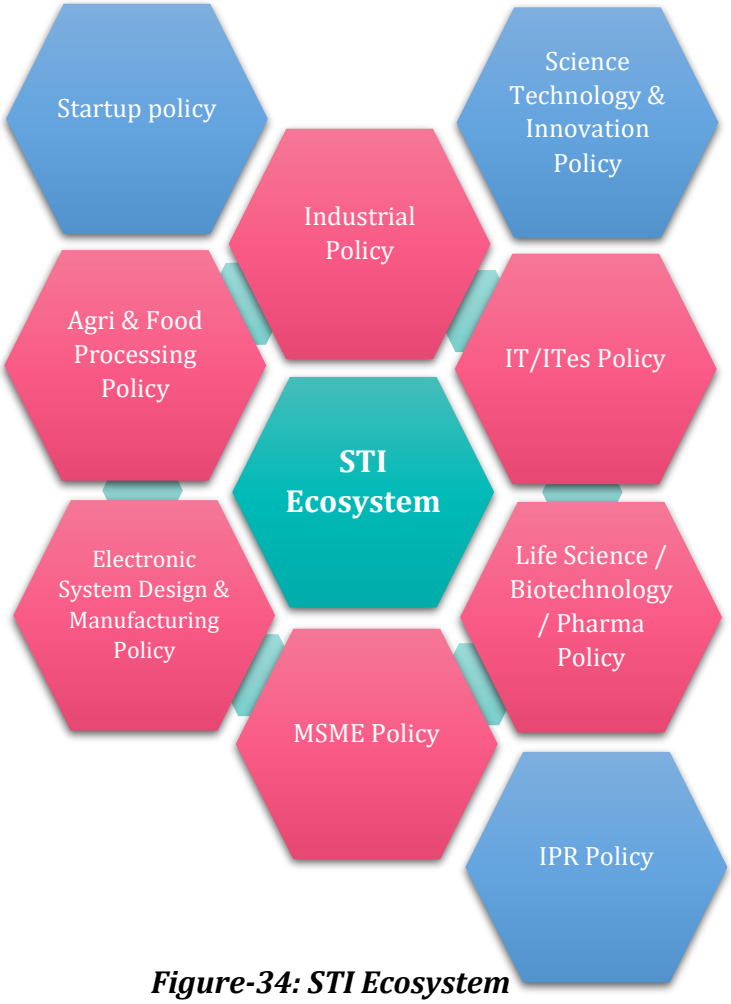


Figure-34: STI Ecosystem

6.1.1 Historical Perspective

India has successfully implemented science and technology policies over the years.

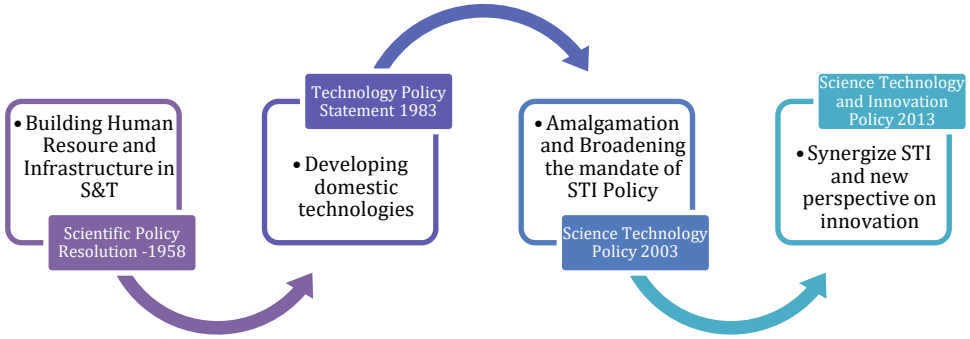


Figure-35: Evolution of STI Policies in India: A Timeline

6.1.2 Scientific Policy Resolution (SPR 1958)

The Scientific policy resolution was drafted on the imminent realization that an independent sovereign state needs to develop scientific approach, method and imbibe scientific knowledge to bring socio-economic transformation through investment in science and technology. The policy aimed at reducing the burden of capital drain for acquisition of technologies and use of the raw material resources through industrialization and investments. The Policy emphasized on creation of research scientists, encourage individual initiative for the acquisition, dissemination and discovery of new knowledge. The SPR 1958 led to emergence of multiple scientific organization (IITs, CSIR etc.); National Research and Development (R&D) Laboratories and laid strong foundation for R&D in Higher education.

6.1.3 Technology Policy Statement (TPS 1983)

Three decades of planning and implementation of SPR 1958 created scientific and skilled manpower especially in agricultural and industrial base. The primary objective of the new technology policy was self-reliance (Atmanirbharta) through the development of indigenous technology, efficient absorption & adaptation of imported technology appropriate to national priorities and resources. The TPS 1983 stressed on strengthening the technology base in newly emerging and frontier areas such as information and materials sciences, electronics and biotechnology, building Centre of Excellence (CoE) with substantial financial investments and collaboration among between educational institutions, R&D establishments, industry and governmental machinery. To boost development on indigenous technologies Technology Development Fund to provide financial assistance to Indian industries and Technology Information Forecasting and Assessment Council (TIFAC) were established.

6.1.4 Science and Technology Policy (STP 2003)

The STP 2003 brought science and technology together, stressed on the need for investment in R&D and integration of Socio-economic programmes with national R&D system to address the national challenges and create innovation system. It aimed at encouraging investments in R&D to 2% of the GDP; need to modernize the existing S&T infrastructure, development of incentive

mechanisms to attract overseas scientists and engineers to contribute, new funding mechanism for strengthening Basic research, innovative schemes to attract and nurture young talent, establish an Intellectual Property Rights (IPR) regime, increase women participation in S&T, creation of Scientific and Engineering Research Board (SERB) under the ambit of DST to promote scientific and engineering research in the country. There was a significant rise in R&D investments, India's Publication ranking, increase in institutional and human capacity-establishment of IISERs, New IITs, AIIMS etc, IPR Filings.

6.1.5 Science, Technology and Innovation Policy (STIP 2013)

The decade of 2010-2020 was declared as the decade of the innovation and to stay globally competitive it was necessary to transition to knowledge-based economy. The STI policy aimed to synergize science technology and innovation, bring in new perspectives on innovations and integration of STI for new value creation. The policy introduced development of performance linked incentive schemes and rewards, attracting private investments in R&D, creation of National Science, Technology and Innovation Foundation in PPP mode, Gender Parity – New and Flexible schemes to address the mobility challenges of employed women, identification of sectors of high impact potential for directed STI Intervention, launching newer mechanism for nurturing Technology Business Incubators and Science led entrepreneurship, incentives for commercialization with focus on green manufacturing. Mechanism for mobility of experts for fostering academia-research-industry partnerships, prioritizing critical R&D areas like agriculture, telecommunications, energy, water management, health and drug discovery, materials, environment, climate variability and change; innovation fund for social inclusion. The guiding principle was to accelerate the pace of discovery and delivery of science led solutions for sustainable and inclusive Growth in Indian STI enterprise.

6.1.6 STI Policy 2020 (Draft)

Department of Science and Technology and Office of the Principal Scientific Adviser, Government of India released draft of its 5th National Science, Technology and Innovation Policy. The policy aims to reorient STI in terms of priorities, sectoral focus, and strategies.

6.1.7 Key Policy Features

The key and novel policy features of the Policy follows core principle of being Decentralized, Bottom-up, Expert driven, and Evidence-Informed and Inclusive approach. It aims to be dynamic with periodic review, evaluating feedback and timely exit.

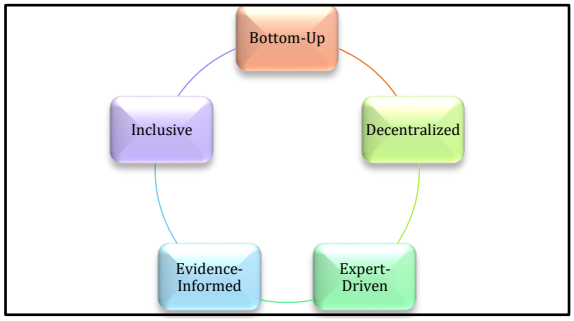


Figure-36: Draft STI Policy Key

6.1.8 STIP 2020 Vision

The new STI Policy strategizes to strengthen Indian STI Ecosystem to achieve larger goal of Atamnirbhar Bharat:

- To achieve technological self-reliance and position India among the top three scientific superpowers in the decade to come.
- To attract, nurture, strengthen and retain critical human capital through a 'people centric' science, technology and innovation ecosystem.
- To double the number of full-time equivalent (FTE) researchers, Gross Domestic Expenditure on R&D (GERD) and private sector contribution to the GERD every 5 years.
- To build individual and institutional excellence in STI with the aspiration to achieve the highest level of global recognitions and awards in the coming decade.
- To capture the aspirations of a new, future-ready India, by ensuring active participation, shared responsibility and equitable ownership of all stakeholders; transforming the national STI landscape maintaining the delicate balance between fortifying India's indigenous capacity and nurturing meaningful global interconnectedness.

6.1.9 STI Policies- States

Gujarat

Policy Name & Year of Notification*:* Science Technology and Innovation Policy, 2018

Vision*:* A self-reliant, innovative, healthy and prosperous society living in a clean, green and sustainable environment with adequate and nutritious food, clean water and other natural resources, valuing its own and globally available knowledge base by translating science and upgrading technology for faster, inclusive and sustainable development.

Policy Initiatives for "Atmanirbhar Bharat":

- Scheme for R&D, Technology Demonstration and Pilot Deployment under STI Innovation Fund
- Establishment of Regional and District Science Centres
- Innovation Clubs to encourage students towards STI
- Setting up of 26 Param Shavak supercomputing facilities across the state to create a network of shared R&D infrastructure
- Gujarat STEM Quiz for School students to promote STEM learning

Key Technology Focus Sectors: The policy identifies following key potential and emerging technologies

- Artificial Intelligence and Robotics
- Biotechnology
- Polymers and specialty materials
- Nano Technology
- IoT Solutions
- Energy Storage Solutions

Validity: 5 years

Implementation Partners: Department of Science and Technology (DST), Government of Gujarat; Gujarat Council of Science and Technology (GUJCOST); and Concerned Government Departments

Himachal Pradesh

Policy Name & Year of Notification: Science Technology and Innovation Policy, 2021

Vision: Strengthening and promoting STI in the State by providing the environment and opportunity to the innovators and stake holders for overall sustainable development of the mountain regions and the upliftment and betterment of the society by taking technology from lab to land in an eco-friendly manner with a decentralized and bottom-up approach

Policy Initiatives for "Atmanirbhar Bharat":

- Establishment of State Natural Resources Data Centre (NRDC)
- Development of Long-Term Ecological Monitoring (LTEM) tools
- Strengthening cryospheric studies for mitigation in Himachal Himalaya
- Establishment of Himachal Academy of Sciences
- Development of low-cost forecasting/early warning real-time system for environment monitoring (landslides, cloudbursts/flashfloods, forest fire, snow avalanche, GLOFs)
- Establishment of knowledge cells, incubation, IPRs and entrepreneurship skill centers

Key Technology Focus Sectors: The policy identifies following sector for frontier technologies

- Information and Communications Technology (ICT)
- Remote Sensing
- Geographic Information System (GIS)
- Artificial Intelligence (AI)
- Regional Climate Modeling (RCM)
- Disaster management of natural disasters
- Nanotechnology
- Synthetic and System Biology
- Meta genomics

Validity: 5 years

Implementation Partners: Department of Environment, Science and Technology (DEST), Government of Himachal Pradesh; Himachal Pradesh Council for Science, Technology & Environment (HIMCOSTE); and Concerned Government Departments.

Kerala

Policy Name & Year of Notification: Technology Innovation and Entrepreneurship Policy, 2017

Objectives: The major objective of the policy are:

- ✓ Increase R&D Intensity and Tech Commercialization
- ✓ Create Innovation Infrastructure to foster growth of ecosystem for knowledge-based economy
- ✓ Develop CoEs in frontier areas of science
- ✓ Promote Technology development and innovation in enterprises
- ✓ Green technology centres in panchayats
- ✓ Improvement of R&D governance
- ✓ Nurturing leadership and focus on research

Policy Initiatives for "Atmanirbhar Bharat":

- Technology Innovation Zone for tech innovation
- Fablab Kerala Network to encourage innovation, technology development, product prototyping and development
- Technology Commercialization Center to bridge the gap between the innovators and industry
- HRD–Focus on developing a pool of skilled manpower to stimulate entrepreneurship and industrial growth

Key Technology Focus Sectors: The policy identifies following sectors for future technologies

- Cyber security
- AI/ML/Big data
- Robotics & Automation
- AR/VR
- Internet of Things
- Civic Technology
- Space Technologies
- Renewable Energy
- Green Technology

Validity: 10 years

Implementation Partners: Kerala State Innovation Council (KSInC) and Board of Governor-Kerala Startup Mission, Government of Kerala

Tamilnadu

Policy Name and Year of Notification: Tamil Nadu R&D Policy 2022

Vision: Transform Tamil Nadu into a knowledge-based economy by 2030, driving manufacturing and service excellence.

Policy Initiatives for "Atmanirbhar Bharat":

- Creation of Knowledge Infrastructure – Innovation Clusters, Hi-Tech Corridor
- Research parks for State universities
- Work labs to enable the synergy between industries and academia
- University affiliated CoEs
- Scheme "Promotion of Centres of Excellence for Emerging Technologies in Manufacturing"
- 100 Talent Plan
- Technology Transfer Office (TTO) in technical colleges and universities
- iTNT Hub - India's first DeepTech Innovation Network to solve complex challenges in emerging technologies like Artificial Intelligence (AI), data analytics and blockchain
- Rs. 100 crore Research & Technology Fund

Key Technology Focus Sectors: The policy focuses on following sunrise sectors:

- Financial Services
- Hardware and Software Products
- Electronics System Design & Manufacturing
- Electric Vehicles, EV Cell & Battery Manufacturing, Green fuel technology
- Technical Textiles including Medical Textiles
- Aerospace and Defense
- Renewable Energy Components Manufacturing
- Pharmaceuticals, Bulk Drugs and Nutraceutical
- Petrochemicals and Speciality Chemicals

Validity: 10 years

Implementation Partners: Section 8 Company for Tamil Nadu R&D Mission ("Cognition"); Inter-Departmental Committee and SIPCOT

6.1.10 Start-up India Initiative

The Startup India initiatives announced by Hon'ble Prime Minister of India on 15th August, 2015, aims to build a strong eco-system for nurturing innovation and Startups in the country to drive drive sustainable economic growth and generate large scale employment opportunities. An Action Plan for Startup India was unveiled by Prime Minister of India on 16th January, 2016, which comprises of 19 action items. The salient features and accomplishments of Startup India are as follows:

Compliance Regime Based on Self - Certification
- 15+ States complied
- 36 white category industries for self-certifications

Startup India Hub
- 4.48+ Lakh users, 648 incubators and 163 accelerators connected for scaling-up
- 446 innovation funding assistance programs
- 109+ investors

Rolling-out of mobile app and portal
- 1.50+ lakh online queries addressed
- Learning and Development Program accessed by over 2.8 lakh aspiring entrepreneurs

Legal support & fast-tracking patent examination
- 3,618 patent applications filed; 336 patents granted
- 6,832 trademark applications filed
- 510+ patents and designs facilitators ;392 trademarks facilitators

Relaxed public procurement norms for startups
- 39,270 orders worth Rs.1,413 crores placed

Faster exit for startups
- Wind up operations within 90 days

Figure-37: Simplification and Handholding: Outcome

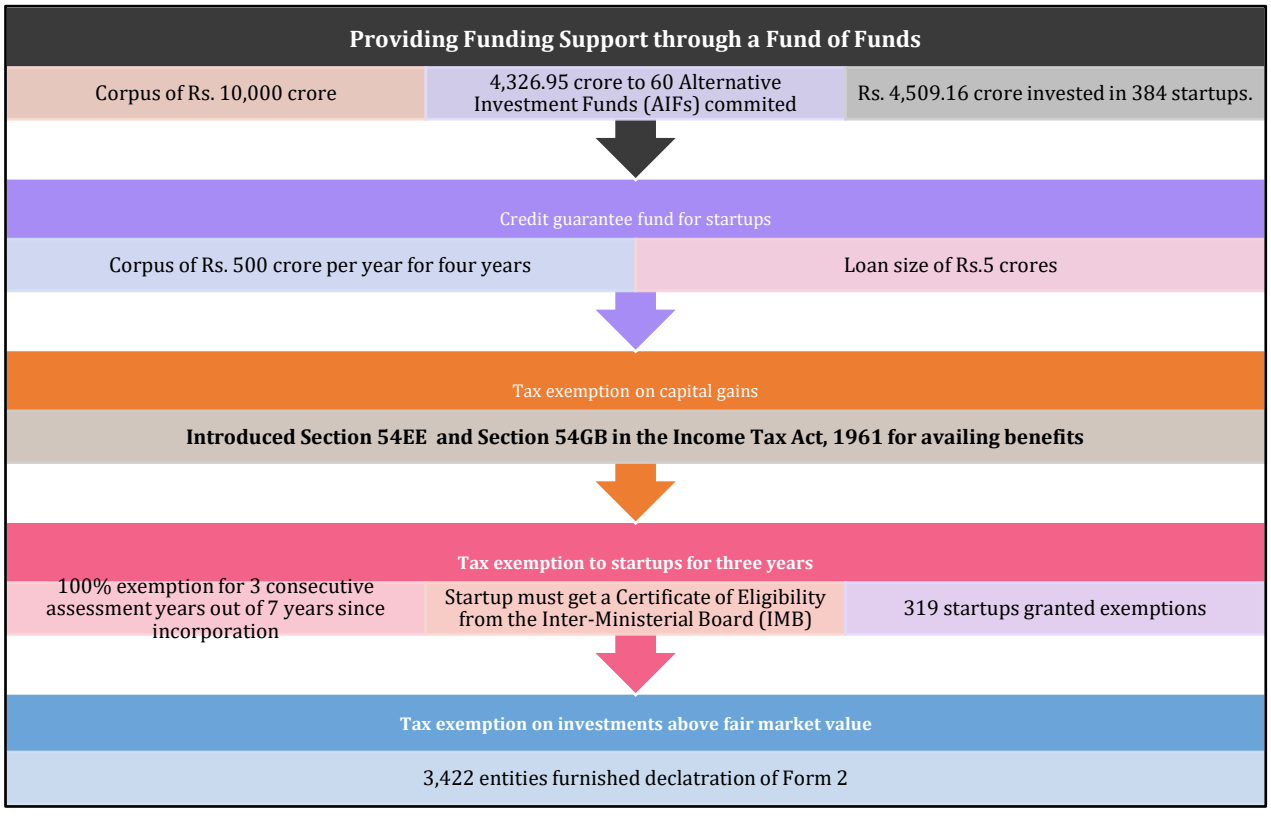


Figure-38: Funding support & incentives: Outcome

Startup fests for showcasing Innovations

- Startup India Global Venture Capital Summit : 700 delegates from 10+ countries
- 11 grand challenges organized by DPIIT

Atal Innovation Mission (AIM) with SelfEmployment and Talent Utilization (SETU) programme

- 14,916 schools selected for Atal Tinkering Laboratories
- 4,875 received Rs. 12 Lakhs grant each

Harnessing private sector expertise for incubator setup

- 86 incubators selected; Rs. 201 Crores to 68 incubators disbursed
- 1,000+ mentors; 2,200+ events and 700+ trainings
- 1,250+ startups incubated; 500 are women-led; 62+ crores of seed funding

Innovation centers at national institutes

- 11 Technology Business Incubators (TBIs) supported

Setting up of Research Parks

- Research parks at IIT Delhi ,Kanpur, Gandhinagar,Mumbai, Guwahati, Kharagpur, Hyderabad

Promoting startups in the biotechnology sector

- 3,325+ Biotech Startups;350 Crores by 75+ Startups; 130+ Products and Technologies
- 48 Bio-incubators; incubation space -5,23,449 sq. ft;650 Incubatees ; Rs. 150 Crores committed ;
- 4 bio-clusters; 4 BIRAC Regional Centres;200+ IPs filed

Innovation focussed programs for students

- 158 projects under under UAY and UAY-I
- National Initiative for Developing and Harnessing Innovations (NIDHI) to nurture startups
- INSPIRE,MANAK to motivate students

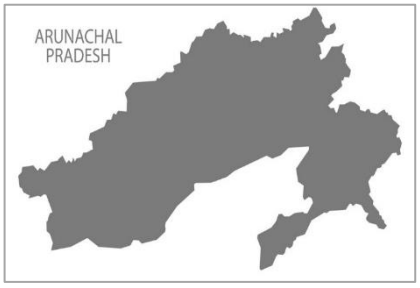
Annual Incubator Grand Challenge

- 16 incubators to provide financial support; disbursed ~Rs. 54.65 Crores to nine incubators

Figure-39: Industry academia partnerships and incubation: Outcome

6.1.11 Start-up Policy-States

Arunachal Pradesh



Arunachal Pradesh Start-up Policy, 2022

Initiatives for Atmanirbhar Bharat:

- Establish Incubation Centers in at least 50% of the districts within the next 5 years
- Facilitate 250 startups
- Arunachal Pradesh Investment Agency for Investment promotion, industrial facilitation, regulatory reforms, entrepreneurial development and investor feedback at Nitivihar, Itanagar
- "Arunachal Pradesh Start up Portal" for startups and ecosystem stakeholders containing all relevant information and resources.

Funding: There will be provision of

- Arunachal Pradesh Seed Fund Scheme
- Idea Support Fund
- Innovation Fund
- Infrastructure Fund
- Startup fund of funds

Gujarat

Student Start-ups and Innovation Policy, 2022

Initiatives for Atmanirbhar Bharat:

- A Hub & Spoke Innovation and Start-up ecosystem for Collaboration, Co-creation, Knowledge Exchange, Social Innovation and Industry Relations that would endow students to convert challenges into potential opportunities
- Enabling the educational institutes to actively engage students, faculty members, and staff members in innovation and entrepreneurship related activities.
- Providing end-to-end support mechanisms in activities related to innovation such as pre incubation, mentoring, knowledge resource pool, cohort support, industry expertise, procurement, and IPRs.
- Motivating innovators and Start-ups to contribute towards sustainable development goals and long-term inclusive development

Haryana

Entrepreneur and Startup Policy 2017

Initiatives for Atmanirbhar Bharat:

- 22Technology Business Incubators/Accelerators in different sectors in every district
- Encourage/Facilitate/Incubate at least 500 startups
- Infrastructure Augmentation
- Fiscal Support
- Fund of Fund
- Regulatory easing
- Student Entrepreneurship

Karnataka

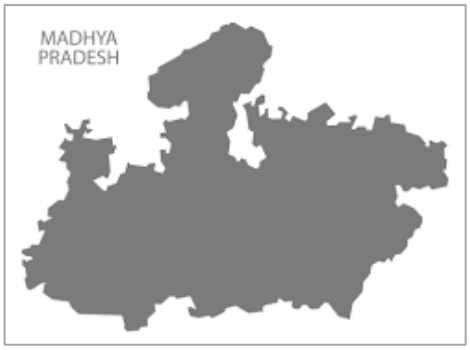
Karnataka Startup Policy, 2015

Initiatives for Atmanirbhar Bharat:

- Stimulate the growth of 20,000 technology-based startups including 6,000 product startups in Karnataka
- Achieve creation of 6 lakh direct and12 lakh indirect new employments in the sector
- Mobilize Rs. 2,000 Cr funding for investment in startups through Government intervention alone, by leveraging the Fund of Funds proposed to be put in place by the State Government
- Facilitate generation of at least 25 Innovative Technology solutions with a social impact in sectors like Health care, Food Security, Clean environment and Education for all etc.

Madhya Pradesh

Madhya Pradesh Startup Policy 2019, 2022
Madhya Pradesh Incubation Startup Policy 2016



Initiatives for Atmanirbhar Bharat:

- Ecosystem Infrastructure Enablement
- Human Capital Development
- Fostering Innovation and Entrepreneurship, Marketing support
- Incubator & Start up Promotion
- Promotion of product-based start-ups
- Access to Financial and non-financial assistance, Implementation and Governance Framework

Meghalaya

Meghalaya Startup Policy, 2018

Initiatives for Atmanirbhar Bharat:

- Startup portal and app to aggregate information related to the policy, its benefits and the procedure
- Grant of 75% of capital cost (max. of INR 5 Cr) to set up an incubator
- Capital Grant of INR 5 lakh for each successful startup
- Establish startup/innovation park for startups
- An innovation fund to foster research in information & communication technology, energy, tourism etc.
- At least 20% of the procurement by state government departments and PSUs through startups
- Create an enabling environment and ecosystem for 500 startups

Mizoram

Mizoram Entrepreneurship & Startup Policy, 2019

Initiative for Atmanirbhar Bharat:

- Institution building through setting up of entrepreneurship development centre and cells, incubation centre and providing need-based assistance to partner agencies
- 'Mizoram Outstanding Entrepreneurs Award' to promote entrepreneurs and inspire the youth
- Publish literature and manuals on entrepreneurship in the Mizo language.
- Provide up-skilling through exposure/study tours, workshops and training programme.
- Facilitate networking and mentoring through Master Trainer programme.
- Micro finance through competition to startups. "Mizoram Kailawn: Business Plan Competition" and "Mizoram Rahbi: Micro Startup Capital Competition"
- Coordinate regulatory frameworks for ease of doing business

Nagaland

Nagaland Startup Policy, 2019

Initiatives for Atmanirbhar Bharat:

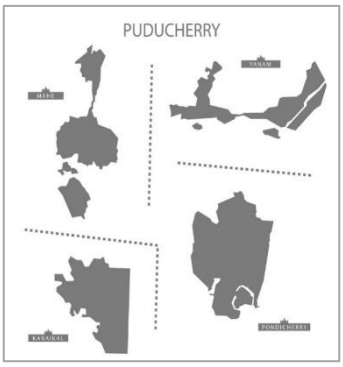
- Promote culture of innovation and entrepreneurship focused on sustainable rural and social enterprises.
- Develop human capital, by creating the environment and support systems for learning, experimentation and innovation
- Proactively engage industry to promote innovation.

- Create business, supply chain, financial linkages and provide necessary incentives.
- Facilitate500start-upswithafocuson establishing innovative "Made in Nagaland" products and services.
- Establish a world class State incubator, PPP mode to nurture, guide, support existing and aspiring Startups to become successful business ventures.
- Fund of Funds – Mobilize funding for Startups

Puducherry

Puducherry Innovation & Startup Policy, 2019

Initiatives for Atmanirbhar Bharat:



- Pre-incubation and incubation facilities (accessible 24x7) for nurturing innovations and startups
- Student entrepreneurs earn academic credits for creating an enterprise
- Inventors and institute could together license the product / IPR to any commercial organization, with inventors having the primary say
- Puducherry startup cell to assist startups through their life cycle
- Innovation and Entrepreneurship Development Cell (IEDC) to collaborate with educational institutions to identify and nurture ideas and handhold startups/entrepreneurs
- Facilitate IPR Filings
- Puducherry Startup Fund to support incubators

Punjab

Industrial and Business Development Policy, 2017

Initiatives for Atmanirbhar Bharat:

- Capital Grant for Setting Incubators for Govt. and Private Host Institutes.
- Operational Subsidy Assistance; Mentoring Assistance and Start-up Competition Assistance to Incubators.
- Seed Grant through Incubators Assistance for access to Finance, Technology and Market.
- Dedicated Startup Cell setup under the aegis of Department of Industries and Commerce, Govt. of Punjab for serving as a single point of contact for Start-ups
- Rs.150 Crore Investment as Punjab Innovation Fund for investing in Early-Stage Start-ups.
- Rs.100 Crore Corpus Fund in partnership with IKGPTU for scaling up.
- Neuron – Startup Punjab Hub set up in STPI, Mohali with investment of USD 1.3 million.
- Punjab Student Entrepreneurship Scheme for providing 20% attendance relaxation and 4% grace marks in academic courses for students pursuing entrepreneurship and innovation

Telangana

Telangana Innovation Policy 2016

Initiatives for Atmanirbhar Bharat:

- Physical infrastructure & program management capabilities
- Create sustainable funding models, through funds and other instruments
- T-Hub is a unique public/private partnership between the government of Telangana, 3 of India's premier academic institutes (IIIT-H, ISB & NALSAR)
- Innovation Infrastructure Development Fund & Innovation Infrastructure Maintenance Fund
- Telangana Startup council
- 'Phoenix Fund' in collaboration with the private sector to identify and attract entrepreneurs
- Encourage startups in the Rural and Social Enterprise space by providing additional incentive

Uttarakhand

Uttarakhand Startup policy, 2018

Initiatives forAtmanirbhar Bharat:

- Nurture the growth of 500 new Startups
- Access to investment for aspiring and existing entrepreneurs.
- Create a spirit of entrepreneurship by changing the trend of job seeking to job creating.
- Startup Council established
- Fiscal and Non-fiscal incentives, Marketing Assistance
- Entrepreneurship Development Cell- Two Focal Entrepreneurship promoting bodies at IIT Roorkee and IIM Kashipur for Technology Transfer and Technology Commercialization.
- Develop a Startup Portal and App which will aggregate all information related to the policy, its benefits and the procedure to avail them.
- Dedicated helpline to answer all Startup related queries will be started in English and Hindi
- Promotion of Uttarakhand as Startup destination.
- Review mechanism for the policy

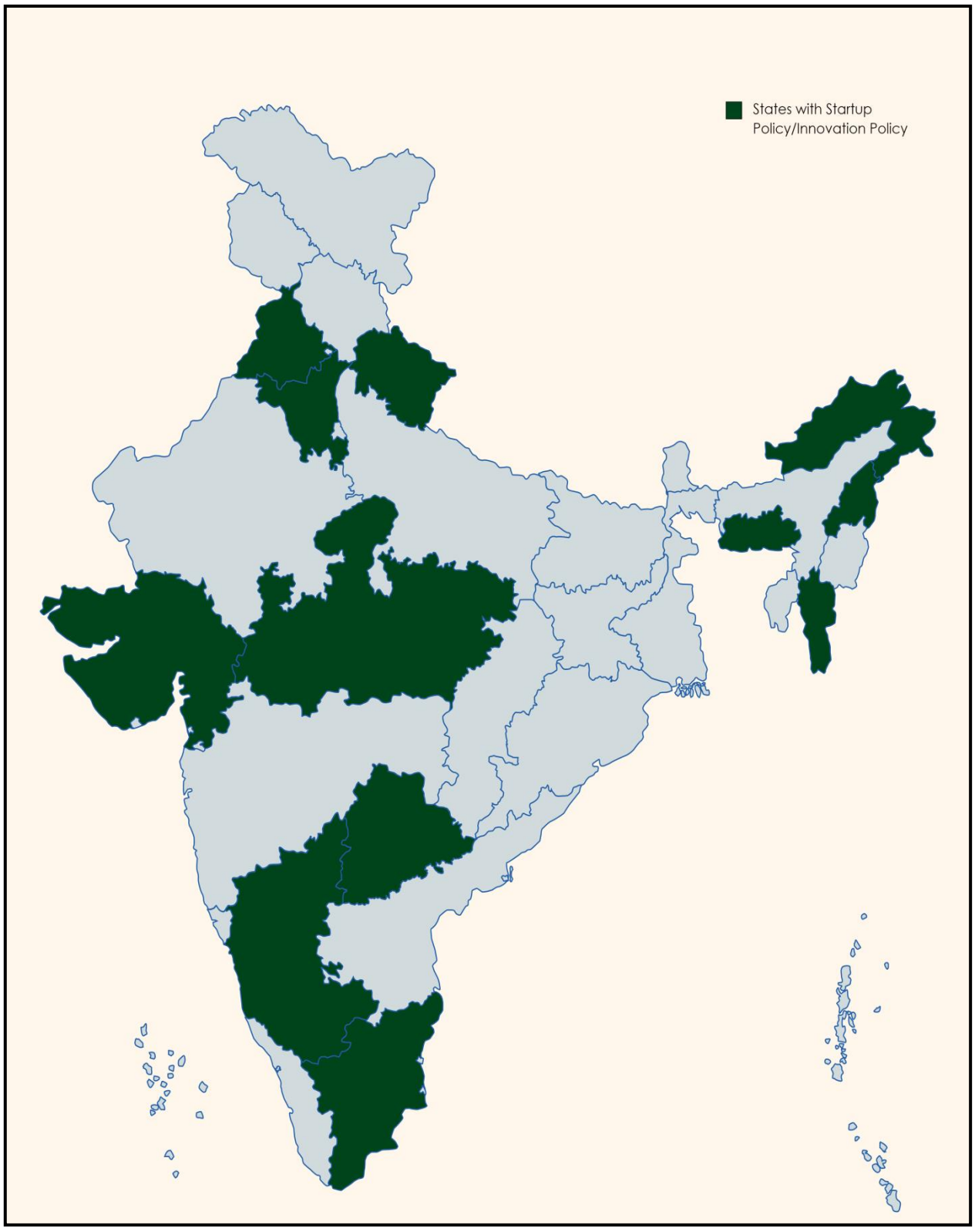


Figure-40: Start-up Policy Map

6.1.12 Policies across states

The states across India have certain common policies developed on the basis on national missions' goal and objectives. A set of policies with common features across have been summarized as follows:

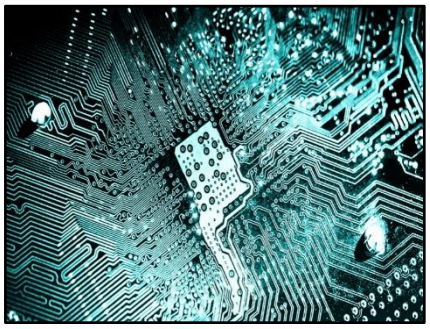
Industrial Policy

- Create robust infrastructure for smooth industrial growth and expansion (Industrial Parks, Special Economic Zones, Food Parks, Textile Parks, Integrated Parks, IT Parks, and Bio-technology Parks etc).
- Create an integrated ecosystem to nurture skill development, entrepreneurship, balanced & sustainable regional development and investment flow for employment generation.
- Institutional mechanisms, incentives & concessions, reforms, single window clearance and regulatory changes conducive for 'Ease of Doing Business'.
- Promote R&D in key thrust areas having huge potential for growth.
- Impart/develop requisite skill set among the local youth & create Industry ready talent.
- Increase competitiveness via cluster developments and Export Promotion (Export Promotion Industrial Parks).

IT/ITes Policy

- Enable stakeholder create state of the art IT infrastructure, Data Centers, Centre of Excellence and innovation centers in upcoming/emerging technologies
- Facilitate and create High-skilled IT human resources
- Encourage large scale investment in IT/ ITeS sector via Mega projects
- Promote innovation and increase IT export.

Electronic System Design and Manufacturing



- Dedicated infrastructure for development of Electronic Manufacturing Clusters
- Network of Common Instrumentation Facilities for prototype development facilities, testing facilities, characterization labs, compliance and certifications lab
- Centre of Excellence for R&D, evangelisation and promotion of industry, capacity building, incubation and consultancy services
- Promotion of next generation technologies, provide preferential market access to businesses
- Capacity building and skill development as per industry standards for various job roles
- Financial support, capital subsidy, interest subsidy for investment

Lifesciences/Biotech/Pharma Policy

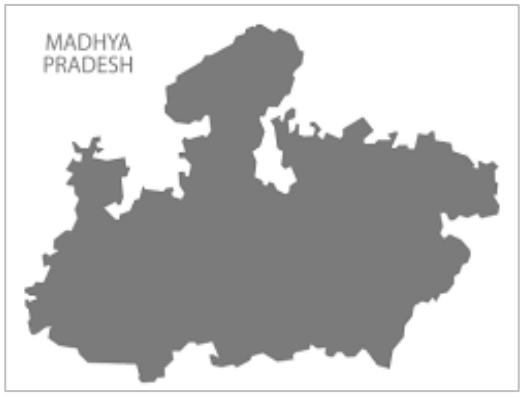
- Develop a hub for pharmaceutical manufacturing via infrastructure support (Pharma parks), augmentation and creation of holistic industry, academia and R&D ecosystem
- Promote and develop strategic and emerging biotechnology sectors
- Encourage sustainable adoption of biotechnologies, biotechnology products and services
- Attract investments and create employment opportunities
- Support businesses in biotechnology sector

MSME Policy

- Promote cluster level approach for development through geographical dispersal of industry.
- Facilitate MSMEs in accessing domestic and export markets.
- Provide conducive environment for promotion and growth of MSMEs in thrust areas-strengthen market linkages, industrial infrastructure through common facilitation centers, labs etc.
- Increase adoption of modern technologies and upgradation to enhance competitiveness, product quality, efficiency and productivity.
- Enhance credit flow through investment promotion, scheme incentives and credit facilitation.
- Capacity building and institutional strengthening of MSME through government interventions.

6.1.13 Unique Policy Initiatives

Haryana & Madhya Pradesh



Cyber Security Policy Initiatives:

- ✓ A safe cyber society by generating adequate trust and confidence in IT/ICT/Information process systems and enhance adoption of secured IT/ICT infrastructure.
- ✓ Cyber Security Framework for design of security policies and promotion for enabling actions for compliance to national and international standards for strengthen the regulatory framework
- ✓ Develop suitable indigenous security technologies by supporting research, proof of concept, pilot developments and encouraging business growth with the emerging global digital economy / network society.
- ✓ Computer Emergency Response Teams for obtaining strategic information towards IT/ICT infrastructure for creating incident response, crisis management through effective predictive, preventive, protective, response & recovery actions and support to protection & resilience of IT/ICT infrastructures.

- ✓ Enhance global cooperation by promoting shared understanding and leveraging relationships by creating culture of cyber security and privacy enabling responsible user behavior and actions

Haryana

Textile Policy Initiatives:

- ✓ Achieve balanced regional growth specially promoting growth in the regions that are lagging in development
- ✓ Facilitating new textile parks and cluster across state
- ✓ Initiatives for infrastructure augmentation.
- ✓ Support for skill training / entrepreneurship
- ✓ Interventions for khadi industry
- ✓ Fiscal incentives

Karnataka

Electric Vehicle and Energy Storage Policy

- ✓ Special Initiatives for EV manufacturing
- ✓ Support for charging infrastructure
- ✓ Support for Research Development and Skill Development
- ✓ Incentives and Concessions

Aerospace Policy

- ✓ Development of state-of-the-art infrastructure conducive for industries, research and capacity building
- ✓ Develop well balanced aerospace industrialization across the state through a process of inclusion
- ✓ Assist in developing Micro, Small, Medium and Large-scale industries equally in Aerospace sector
- ✓ Encourage private sector participation in a transparent manner to develop, operate and maintain aerospace infrastructure

Agri Business and Food Processing Policy

- ✓ Encouraging investments in the supply chain infrastructure to reduce post-harvest loss.
- ✓ Strengthening linkage between processing enterprises and Research & Development institutes.
- ✓ Fiscal incentives for setting up focused industrial clusters and food processing parks in potential food clusters.
- ✓ Encourage adoption of quality certifications, green and clean practices, energy efficient measures.
- ✓ Declaring the entire State as single zone for availing incentives and concessions.

Punjab

Data Policy 2020

- ✓ Enable the use of open access data
- ✓ Provide decision-makers with basic analytics (indicators, summary statistics) and visualizations (bar graphs, trend lines) and the flexibility to adapt analytics to their needs
- ✓ Incentivize departments and agencies to adopt data-driven decision and evidence based making.
- ✓ Data sharing and interoperability to reduce leakages and plug loopholes in the delivery of welfare services
- ✓ Management Information System (MIS) for data management and maintenance
- ✓ Metadata repositories to be built, published, and updated regularly. Datasets to be stored in standard machine-readable formats
- ✓ State Data Centre (SDC), SAS Nagar with adequate data management/security and with systems & procedures for access and use by stakeholders
- ✓ Department and District Data Cells for data digitization, management, processing, quality, and analysis.

New & Renewable Sources of Energy Policy (2012)

- ✓ Promoting Biomass/Agri- Residue/Bio- Fuel based Projects.
- ✓ Promoting use of Biomass for production of Bio-ethanol, Bio- diesel, Bio- CNG.
- ✓ Green Tech based Programmes.
- ✓ Technologies for utilization of new and renewable sources of energy.
- ✓ Energy Conservation & Energy Audit programmes.

Agriculture Policy (2013) Draft

- ✓ R&D interventions for augmenting sustainable growth of agricultural and allied sectors
- ✓ Innovative high tech agriculture
- ✓ Post harvest management of agri- crops and food security
- ✓ Crop breeding programs for better climate adaptability
- ✓ Livestock breeding improvement
- ✓ Promote environmentally sustainable plant health management practices

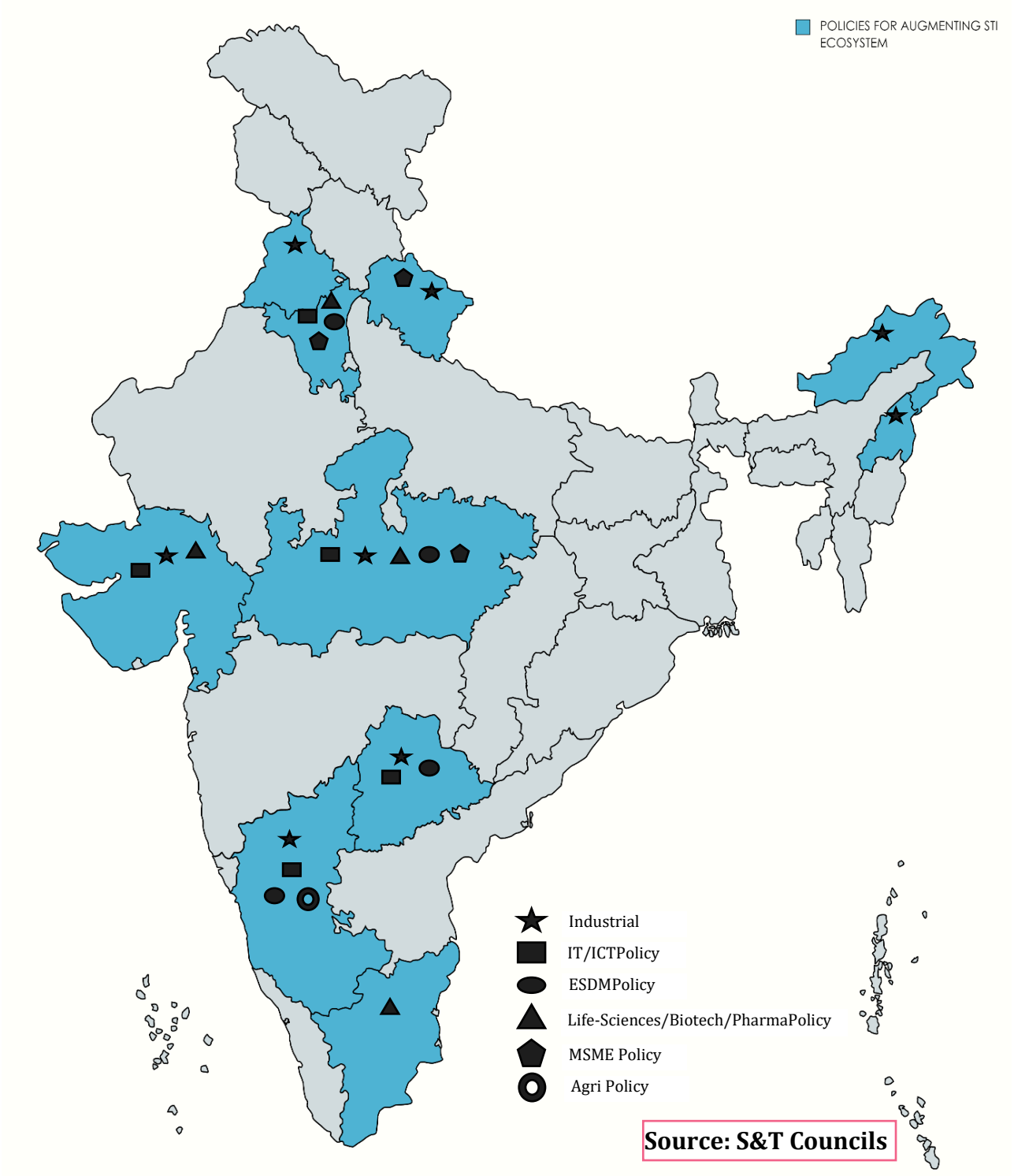


Figure-41: Map of state policies to augment STI ecosystem

The independent India's first STI policy came in the year 1958. **Scientific Policy Resolution** (SPR, 1958), which laid the foundation on cultivation of scientific enterprise and scientific temper. The policy focused on building human resources and requisite infrastructure in science and technology. SPR 1958 created scientific manpower impressive in quality, number and range of skills along with development of strong agricultural and industrial base. The Technology Policy Statement (TPS 1983) stressed on adoption of indigenous technologies to reduce vulnerability in the strategic & critical areas and strengthening the technology base in newly emerging & frontier areas such as information technology, materials sciences, electronics and bio-technology. The STP 2003 amalgamated science and technology, stressed on the investments in R&D to 2% of the GDP and established an Intellectual Property Rights (IPR) regime to strengthen the STI. Science, Technology and Innovation Policy (STIP 2013) aimed to synergize Science Technology and Innovation, bring in new perspectives on innovations and integration of STI for new value creation.

Way Forward

Azadi Ka Amrit Mahotsav

The demands of the 21st century, including improved access to sufficient food, clean water, sustainable energy and health care, can only be met by accelerating discovery and the transformation of discovery into applications.

Robust, sustained investments across the full spectrum of the scientific enterprise are essential for developing the S&T ecosystem that improve the human condition and drive economic growth.

The progress can be amplified with effective collaboration across sectors and disciplines. The new avenues for interaction between basic and applied research must be explored. The programs and policies should be designed and developed with broader participation and wider outreach in the state from every sector and demographic to meet today's needs and to help invent the future.

With its robust economic growth, youthful population and growing influence around the world, modern India is at a consequential moment in history. There is a growing sense that across the large, diverse country, India's innovative spirit is awakening.

Through the celebration of year long "Vigyan Utsav" programme as a part of the Azadi Ka Amrit Mahotsav, we had a great coordination among the scientific institutions, scientists and researchers, policy makers as well as the next generation about the scientific institutions and infrastructure, human resources, innovation, technology development and demonstrations, science promotion and popularisation along with state policies for the development of S&T ecosystem. The twelve-month Vigyan Utsav program and celebration gave a great opportunity to learn and explore the concerns, challenges and the collaborative approach at the state level for the strengthening of STI ecosystem for inclusive growth and development. It was a great exercise to explore the challenges and opportunities in each of the states and to share with other State S&T councils for further inputs and collaborations.

A long deliberations and discussions gave a way forward to make the state and nation self-reliance. The componentwise way forward is summarized as following:

1. Research & Development

Expenditure on the R&D needs to be increased as currently it is on the lower side.

A coordination between R&D projects undertaken by different Govt. departments will help in addressing issues of national importance which are interdisciplinary and interdepartmental.

Focus should be given to leverage the scientific diaspora and cultivate the culture of research at all levels starting from private sector, to state government, universities and national laboratories.

A mechanism is required to connect the Public Sector Undertaking (PSU) investment in R&D and academia.

Basic research in the field of agriculture and its education needs to be promoted in addition to addressing the climate change mitigation strategies, pollution abatement, special materials and the automation sector. S & T programs that promote futuristic AI based technologies and their applications should be streamlined.

Research methodology workshops at UG and PG levels will enhance research capabilities and help to serve as an interactive platform for young students/researchers and eminent scientists.

2. Institutional & Human Capacity Building

A regular assessment and accreditation of all the colleges in the State may be made mandatory. There should be a "State Level Advisory Committee" in each state for the assessment and accreditation of STI Institutions in terms of Human capacity development.

Regular training to the existing staff to keep them updated with the technology advancement must be implemented.

Interface between students, faculty and the academic administrators is necessary for proper planning of the teaching-learning process.

Intra- State, Inter- State, Centre-State and International Collaborations to be increased for scientific knowledge exchange. Create inter-state linkages which may include faculty exchange programs between the universities and affiliated colleges of through faculty exchange programs and participatory research activities.

It is important to establish a Technology Facilitation Cell which acts as an interface between academia and industry. The cell may help in linking the research requirement of industry and the industry requirement of the research.

A central facility for the establishment of international linkages may be established where any institute can approach for facilitation.

Cultivating and encouraging the future success of S&T human resources requires more than simply shedding light on the conditions surrounding human resources development and on career paths. It also requires work to accurately identify problems and issues at sites for human resources development and career-building and to find hints for resolving them. It also endeavours to discover, elucidate, and analyze problems affecting the human resources who advance and develop S&T in India.

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The number of vacancies in faculty positions is alarming both in the universities and affiliated colleges. To fill the gap the universities may like to start “Fresh Induction Programs” through which the bright students of UG and PG courses may be trained for taking up teaching professions.

Creation of an integrated database of the scientific manpower in different states across the country. Developing courses to impart skill education to improve output and to cater the needs of people in local industries. Women empowerment through S & T should be encouraged.

Launching schemes to inspire and engage students in science and technology education. It is also important to develop open-source training material and courses and make it digitally available.

3. Innovation

Innovation epitomizes the creation of new value in the form of technology or services for the world created through new technologies, new business models, new products and services, or new forms of social entrepreneurship. It is the key driver of both long-term economic growth and improvements in quality of life.

As we move forward, our challenge is not just to strengthen the research and translation base but to ensure sustainability and scalability. To promote innovation, it is important to streamline the flow of knowledge and technology through new networks driving production and innovation, strengthening the national value chain. Innovators need to be mentored to bring the innovation to the market.

There is a need for innovation and entrepreneurship, for the economic growth of the country. There appears a need for the Fabrication labs and a policy of funding to allow the innovator to test the market potential of the invention.

Creation of more IP cells across the country through a coalition of academic institutes, government organizations, Non-government organizations will lead to innovation, growth, and progress on key global challenges. Sensitization programs for IP awareness should be conducted for building a consensus on the importance of IP. Strong provision of IPR and incentivizing domestic innovation promotes local innovation and risk taking. By ensuring IP protection, innovators will freely come forward for technology transfer.

A dedicated portal for patent, geo-indicators and innovators on one platform, that reflects the state wise as well as national IP scenario.

For sustained socio-economic development, India needs to capitalize in various sectors such as artificial intelligence, digital network, energy, emerging technologies, fintech as well as start-up next-generation infrastructure.

While encouraging the PPP model to improvise the availability of healthcare services. PPPs to upgrade IT services for telemedicine super-specialties in cardiology, neurology, ortho, eye and kidney with leading worldwide chains are also being encouraged

Robust Industrial policy for aiming towards Self-Reliant India with focus on strengthening MSMEs, promoting cluster development, and fostering entrepreneurship should be prioritized.

All the states must build a culture of innovation, where citizens can embrace change and have the right skill sets and tools to leverage emerging opportunities to compete in the global economy.

4. Technology Deployment for Socio-economic development

The role of technology in business and society has grown at an accelerated pace in both developed and developing markets in the recent past. This has led to the study and use of digital technologies in a variety of fields, ranging from industry, finance and government policies to education, healthcare and social communication.

A successful technology deployment can enable the socio-economic development and identification of the weakest and strongest link of the livelihood system is crucial in this aspect.

Technology deployment involves interplay between “market pull” factors, where the marketplace is seeking to satisfy certain demands by drawing from the technology portfolio, and “science push” factors, where scientists, technology developers and vendors are seeking to increase the use of their products by offering new, better, or cheaper services.

Connecting Industry, academia and government departments to address societal issues. National program to support scientific research to increase domestic R&D capacity and engage in innovative activity leading to IP creation and deployment of indigenously developed technologies for socio economic development leading to Atmanirbhar Bharat.

Extensive skill development programme with marketing potential for local population for value creation and value addition of local products.

5. Science Communication & Popularisation

Science is not complete unless communicated. Science Communication is one of the most important means of bringing science into the general public domain through easier dissemination of scientific knowledge.

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To develop a scientific way of thinking among people and to make science more popular among masses, it is important to create a pool of science communicators.

Creation of training programs in science communication should be there. It is also important to provide platforms and schemes for the professional development of science communicators

Courses in Science Journalism should be promoted in colleges as well as Universities. Even certificate courses and distance courses for professional scientists may be started. This area has huge employment potential, and the science communication skill needs a constant update.

Development of the spoke and hub model of science communication involving all states. Developing STEM based activities which inculcate activities such as Quiz, exhibitions, Science Congress, Innovation Competitions, hackathons for ideation and even hackathon for problem solving.

Development of state of art education hubs/centres like Science City, Science Centres, Science Clubs, Innovation Clubs with Do-It-Yourself activities for students in each state will promote tourism for scientific destinations across the country. For rural and remote areas initiatives like Science on wheels/Mobile Science Lab, etc. will help young science learners in understanding concepts with a playful method, developing scientific thinking and knowledge about the latest discoveries and inventions.

6. State policies

For the STI development across the country it is important that the states should have their own state specific policy in line with the National Policy. The dedicated STI policy is already being implemented in certain states like Gujarat, Tamil Nadu, Himachal Pradesh and Maharashtra. The impact is visible with the increase in the score of NITI Aayog on the Sustainable Development Goals.

State STI policies should be complementary to the national STI policy related to trade, finance, investment and others, all coherently integrated into the state and country's national development strategy.

Mapping and implementation of state policies and budgetary allocations as per SDGs is required. Regular review and monitoring to be done to maintain system interconnectedness along with STI governance.

There is a requirement of specific policy support in the areas of renewable energy, application of the technologies such as AI, ML, Quantum Computing, IoT etc. It is also important to have a policy to support the projects who have filed a patent or developed a prototype.

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The policy has to be oriented towards the benefit of the common man and the promotion of the policy has to be done in a manner where the benefits are spread among the masses.

Annexure

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STI Institutes

Annexure-I

ANDHRA PRADESH		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	Central Herd Registration Scheme	Ongole, Prakasam
2.	Central Tobacco Research Institute	Rajahmundry, East Godavari
3.	Clinical Research Unit (Unani)	Kurnool, Kurnool
4.	Clinical Research Unit for Homeopathy	Tirupati, Chittoor
5.	Indian Institute of Oil Palm Research	West Godavari, West Godavari
6.	National Atmospheric Research Laboratory	Tirupati, Chittoor
7.	National Ship Design and Research Centre (Indian Maritime University)	Visakhapatnam
8.	Naval Science & Technological Laboratory	Visakhapatnam
9.	Regional Ayurveda ResearchInstitute for Skin Disorders	Vijayawada, Krishna
10.	Regional Research Institute (H)	Gudivada, Krishna
11.	Satish Dhawan Space Centre SHAR	Sri Harikota, SPSR Nellore
Central Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Bharat Heavy Plate & Vessels Limited	Visakhapatnam
2.	Hindustan Shipyard Limited	Visakhapatnam
3.	Rashtriya Ispat Nigam Limited (RINL)	Visakhapatnam
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Acharya N.G. Ranga Agricultural University	Guntur
2.	Agricultural Research Station	Amadalavalasa, Srikakulam
3.	Agricultural Research Station	Amaravathi, Guntur
4.	Agricultural Research Station	Anantapuramu
5.	Agricultural Research Station	Bapatla, Guntur
6.	Agricultural Research Station	Darsi, Prakasam
7.	Agricultural Research Station	Gajularega, Vizianagaram
8.	Agricultural Research Station	Garikapadu, Guntur
9.	Agricultural Research Station	Ghantasala, Krishna
10.	Agricultural Research Station	Jangamaheswarapuram, Palnadu
11.	Agricultural Research Station	Kadiri, Ananthapuram
12.	Agricultural Research Station	Kavali, Nellore
13.	Agricultural Research Station	Machilipatnam, Krishna
14.	Agricultural Research Station	Nellore
15.	Agricultural Research Station	Pandirimamidi, East Godavari
16.	Agricultural Research Station	Peddapuram, Kakinada
17.	Agricultural Research Station	Perumallapalli, Chittoor
18.	Agricultural Research Station	Podalakur, Nellore
19.	Agricultural Research Station	Ragolu, Srikakulam
20.	Agricultural Research Station	Reddipalli, Anantapur
21.	Agricultural Research Station	Seetampet, Parvatipuram
22.	Agricultural Research Station	Utkur, Kadapa
23.	Agricultural Research Station	Vijayarai, Eluru
24.	Agricultural Research Station	Vuyyuru, Krishna
25.	Agricultural Research Station	Yellamanchili, Anakapalli
26.	Banana Research Station	Pulivendula, YSR Kadapa
27.	Buffalo Research Station	Venkata Ramannagudem, W. G.
28.	Cashew Research Station	Bapatla, Bapatla
29.	Citrus Research Station	Petlur, Prakasam
30.	Citrus Research Station	Tirupati
31.	Dr YSR Horticultural University	Venkata Ramannagudem, W.G
32.	Fisheries Research Station	Kakinada, Kakinada
33.	Fisheries Research Station	Undi, West Godavari

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34.	Horticulture Research Station	Ambajipeta, East Godavari
35.	Horticulture Research Station	Ananthapuramu, Ananthapuramu
36.	Horticulture Research Station	Anantharajupet, Kadapa
37.	Horticulture Research Station	Bayyapagaripalli, Chittoor
38.	Horticulture Research Station	Chintapalli, Alluru Seetaramaraju
39.	Horticulture Research Station	Darsi, Prakasam
40.	Horticulture Research Station	Guntur
41.	Horticulture Research Station	Kovvur, East Godavari
42.	Horticulture Research Station	Mahanandi, Nandyal
43.	Horticulture Research Station	Pandirimamidi, East Godavari
44.	Horticulture Research Station	Peddapuram, Kakinada
45.	Horticulture Research Station	T. Venkupalem, Visakhapatnam
46.	Horticulture Research Station	Venkataramannagudem, W.G
47.	Horticulture Research Station	Vijayarai, West Godavari
48.	Instructional cum Research, Aquafarm	Balabhadrapuram, Eat Godavari
49.	Live Stock Research Station	Garividi, Vizayanagaram
50.	Live Stock Research Station	Guntur
51.	Live Stock Research Station	Mahanandi, Nandyal
52.	Live Stock Research Station	Palamaner, Chittoor
53.	Live Stock Research Station	Siddarampuram, Anantapuram
54.	Mango Research Station	Nuzvid, Krishna
55.	Network Project on Buffalo Improvement	Anthargaon, Karimnagar
56.	Post-Harvest Technology Research Station	Venkataramannagudem, W.G
57.	Post-Harvest Technology Research Station	Bapatla, Guntur
58.	Regional Agricultural Research Station	Anakapalle, Visakhapatnam
59.	Regional Agricultural Research Station	Chintapalli, Visakhapatnam
60.	Regional Agricultural Research Station	Maruteru, West Godavari
61.	Regional Agricultural Research Station	Nandyal
62.	Regional Agricultural Research Station	Tirupati
63.	Regional Agricultural Research Station	Guntur
64.	Saline Water Research Scheme	Bapatla, Bapatla
65.	Sheep & Goat Research Station	Banavasi, Kurnool
66.	Sri Venkateswara Veterinary University	Tirupati
State Public Sector Enterprises		
Sl. No	**Name of Enterprises**	**City**
1.	Andhra Pradesh Heavy Machinery & Engg. Limited	Vijayawada
Universities/ Deemed Universities/Institute of National Importance/Women S & T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Acharya Nagarjuna University	Guntur
2.	Adikavi Nannaya University	Rajamahendravaram, E.G
3.	Andhra University	Visakhapatnam
4.	Bhartiya Engineering Science and Technology Innovation University	Anathapur
5.	Dr. B.R. Ambedkar University	Srikakulam
6.	Dr. NTR University of Health Sciences	Vijayawada, NTR Dist.
7.	Dravidian University	Kuppam, Chittoor
8.	Gandhi Institute of Technology and Management (GITAM)	Visakhapatnam
9.	Indian Institute of Information Technology Sri City	Chittoor
10.	Indian Institute of Technology	Tirupati
11.	Jawaharlal Nehru Technological University	Anantapur
12.	Jawaharlal Nehru Technological University	Kakinada
13.	Koneru Lakshmaiah Education Foundation	Guntur
14.	KREA University	Sri City
15.	Krishna University	Machilipatnam, Krishna
16.	Rajiv Gandhi University of Knowledge Technologies	Nuzvid, Krishna
17.	Rayalaseema University	Kurnool
18.	Saveetha Amaravati University	Vijayawada, NTR Dist.
19.	School of Planning and Architecture	Vijayawada, NTR Dist.

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20.	Sri Krishnadevaraya University	Anantapur
21.	Sri Sathya Sai Institute of Higher Learning	Puttaparti, Sri Satya Sai
22.	Sri Venkateswara Institute of Medical Sciences	Tirupati
23.	Sri Venkateswara University	Tirupati
24.	SRM University	Amaravati, Guntur
25.	Vignan's Foundation for Science, Technology and Research	Guntur
26.	VikramaSimhapuri University	Nellore
27.	VIT-AP University	Amaravati, Guntur
28.	Yogi Vemana University	Kadapa
29.	Sri Padmavati Mahila Visvavidyalayam	Tirupati
Scientific and Industrial Research Organisation (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	Aditya Academy	Kakinada
2.	Aditya Institute of Technology and Management	Tekkali, Srikakulam
3.	Bio Valley Incubation Council	Visakhapatnam
4.	Chalapathi Institute of Pharmaceutical Sciences & Chalapathi Educational Society	Guntur
5.	Free Polio Surgical Research Foundation	Visakhapatnam
6.	GayatriVidyaParishad	Visakhapatnam
7.	Institute of Bioinformatics and Computational Biology	Visakhapatnam
8.	Lavu Educational Society	Hyderabad
9.	Madanapalle Institute of Technology & Science	Madanapalle, Annamayya
10.	Maharajah Alak Narayan Society of Arts and Science (MANSAS)	Vizianagaram
11.	Narayana Medical College & Hospital	Nellore
12.	Raghavendra Educational and Rural Development Society	Anantapuram
13.	Rajeev Gandhi Memorial College of Engineering and Technology	Nandyal
14.	SagiRamakrishnam Raju Engineering College	Bhimavaram, West Godavari
15.	Shafa Educational Society	Nandyal
16.	Siddhartha Academy of General and Technical Education	Vijayawada, NTR Dist.
17.	Sri Sathya Sai Institute of Higher Learning Vidyagiri	Putaparthi, Sri Satya Sai
18.	Sri Venkateswara Institute of Medical Sciences	Tirupati
19.	Srinivasa Educational Academy	Visakhapatnam
20.	Vasantha Lakshmi Charitable Trust	Nellore
DSIR registered Private Sector R&D		
Sl. No	**Name of the Institution**	**City**
1.	A S R Seeds (P) Ltd.	Vijayawada, NTR Dist.
2.	Amara Raja Batteries Ltd.	Chittoor
3.	Anvitha life Care Pvt. Ltd.	Nellore
4.	Ardee Hi-Tech Pvt. Ltd.	Visakhapatnam
5.	Bharathi Seeds Pvt. Ltd.	Kurnool
6.	Dhanalakshmi Seeds Pvt. Ltd.	Adoni, Kurnool
7.	Efftronics Systems Pvt. Ltd.	Vijayawada, NTR Dist.
8.	Eisai Pharmaceuticals India Pvt. Ltd. (Formerly Eisai Pharmatechnology and Manufacturing Pvt. Ltd.)	Visakhapatnam
9.	Genomix Carl Pvt. Ltd.	Vijayawada, NTR Dist.
10.	Gensynth Fine Chemicals Pvt. Ltd.	New Delhi
11.	Indo-National Ltd.	Chennai, Tammil Nadu
12.	International Healthcare Ltd	Vijayawada, NTR Dist.
13.	International Paper APPM Ltd.	Rajamendravaram, East Godavari
14.	K C P Sugar and Industries Corporation Ltd. (R&D Vuyyuru)	Vuyyuru, Krishna
15.	Kurnool Seeds Pvt. Ltd.	Kurnool
16.	Kusalava International Ltd.	Vijayawada, NTR Dist.
17.	Lotus Wireless Technologies India Pvt. Ltd.	Visakhapatnam
18.	Loyal Textiles Mills Ltd.	Vijayawada
19.	Nelcast Ltd.	Vijayawada
20.	Pathgene Health Care Pvt. Ltd.	Tirupati
21.	S S R Seeds Corporation Ltd.	Telangana
22.	Safe Parenterals Ltd.	Narasaraopeta, Guntur

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23.	Sri Rama Agri Genetics (India) Pvt. Ltd.	Kurnool
24.	Sugen Life Sciences (P) Ltd.	Tirupati
25.	Sumitra Seeds Pvt. Ltd.	Kurnool
26.	Surya Seeds Pvt. Ltd.	Vijayawada, NTR Dist.
27.	T G V SRAAC Ltd.	Adoni, Kurnool
28.	The Andhra Sugars Ltd.	West Godavari, West Godavari
29.	Tulasi Seeds Pvt. Ltd.	Guntur
30.	Veda Seed Sciences Pvt. Ltd.	Guntur
31.	Venkateswara Ayurveda Nilayam Ltd.	Chintaluru, East Godavari
CMIE Database Private Sector R&D Unit		
Sl. No	**Name of the Institution**	**City**
1.	Actimus Biosciences Pvt. Ltd.	Visakhapatnam
2.	Amara Raja Electronics Ltd.	Tirupati
3.	Andhra Paper Ltd.	Rajamahendravaram, E.G.
4.	Associated Engineering Works	Tanuku
5.	Avon Lifesciences Ltd.	Sadasivpet
6.	Gajavelli Spinning Mills Pvt. Ltd.	Narakoduru, Guntur
7.	Jocil Ltd.	Guntur
8.	K P R Agrochem Ltd.	Bala Bhadrapuram, East Godavari
9.	LalilaRdx (LailaImpex)	Vijayawada, NTR Dist.
10.	RaksPharma Pvt. Ltd.	Visakhapatnam
11.	S N J Sugars & Products Ltd.	Chittoor
12.	Sri Varsha Food Products India Ltd.	Tirupati
13.	TGV SRAAC Ltd.	Adoni, Kurnool
14.	The Waterbase Ltd.	Nellore
15.	V R V Asia Pacific Pvt. Ltd.	Chittoor
16.	Vasantha Industries Ltd.	Guntur

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Annexure-II

ARUNACHAL PRADESH		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	National Yak Research Centre	Dirang
2.	Regional Ayurveda Research Centre	Itanagar
3.	Central Institute of Himalayan Culture Studies	Dahung, West Kameng
4.	GBPIHED, North East Regional Institute	Itanagar
5.	North East Institute of Science & Technology	Naharlagun
6.	North Eastern Institute of Ayurveda & Folk Medicine Research (NEIAFMR)	Passighat
7.	IIM-Shillong Satellite Centre	Tawang
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	DBT-APSCST Centre of Excellence for Sustainable Development	Kimin
2.	State Forest Research Institute Itanagar (SFRI)	Itanagar
3.	Tippi Orchid Research Centre (SFRI)	Tippi
4.	Sessa Orchid Sanctury & Nursery (SFRI)	Sessa
Universities/ Deemed Universities/ Institute of National Importance/ Women S&T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Rajiv Gandhi University	Rono Hills, Doimukh
2.	Indira Gandhi Technological and Medical University (IGTMSU)	
3.	Arunachal University of Studies (AUS)	Namsai
4.	Venkateshwar Open University (VOU)	Itanagar
5.	Apex Professional University (APU)	Passighat
6.	Himalayan University (HU)	Bhalukpong
7.	North East Frontier Technical University (NEFTU)	Alo
8.	Arunodaya University	Jollung
9.	National Institute of Technology (NIT)	Jote
10.	North East Regional Institute of Science & Technology (NERIST)	Nirjuli
11.	College of Horticulture & Forestry	Passighat
Scientific and Industrial Research Organization (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	NEIST	Naharlagun
2.	CSIR- CMERI, Durgapur, Centre for Post Harvesting Unit	Passighat
3.	CSIR- CMERI, Durgapur, Centre for Post Harvesting Unit	Ziro
4.	North East Regional Centre of GB Pant Institute of Himalayan Environment, Itanagar	Itanagar

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Annexure-III

BIHAR		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	ICAR Research Complex for Eastern Region	Patna
2.	Mahatma Gandhi Integrated Farming Research Institute	Motihari
3.	National Research Centre on Litchi	Muzaffarpur
4.	Regional Research Institute of Unani	Guzri
5.	Rajendra Memorial Research Institute of Medical Sciences (RMRIMS)	Patna
6.	Clinical Verification Unit for Homeopathy	Patna
7.	Ayurveda Regional Research Institute	Patna
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Zonal Agriculture Research Station ,Bhagalpur	Purnea
2.	Zonal Agriculture Research Station Agwanpur	Patna
3.	Testing & Research Institute	Patna
4.	State Industrial Research Laboratory	Muzaffarpur
5.	Soil & Concrete Laboratory Investigation & Research Division	Patna
6.	Rice Research Sub Station Rohtas	Rohtas
7.	Regional Research Sub Station Munger	Munger
8.	Regional Research Sub Station Jalalgarh	Muzaffarpur
9.	Regional Research Station Sabaur	Sabaur
10.	Regional Research Station Chainki	Patna
11.	Regional Research Station Agwanpur	Saharsa
12.	Regional Research Institute Patna	Patna
13.	Regional Research Institute Muzaffarpur	Bikramganj
14.	Rajendra Agricultural University	Samastipur
15.	Zonal Agriculture Research Station Bikramganj	Patna
16.	Public Health Engineering Institute	Agwanpur
17.	Livestock Research Station Patna	Patna
18.	Banana Research Station Hariharpur	Vaishali
19.	Animal Production Research Institute Pusa	Samastipur
20.	Agriculture Research Institute Patna	Patna
21.	Agricultural Research Institute Mithapur	Patna
22.	Bihar Agricultural University	Bhagalpur
23.	Bihar Institute of Hydra & Allied Research	Samastipur
24.	Cattle Farm Pusa	Patna
25.	Jute Research Station, Katihar	Bhagalpur
26.	Irrigation Research Sub-Station, Araria	Araria
27.	Irrigation Research Station, Madhipura	Purnea
28.	Irrigation Research Station, Madhepura	Madhepura
29.	Irrigation Research Station, Bikramganj	Daltonganj
30.	Indian Institute of Sugarcane Research Regional Centre	Katihar
31.	Horticultural Research Station, Birauly	Madhepura
32.	Government Eri Seed Supply & Research Station, Patna	Patna
33.	Forensic Science Laboratory, Patna	Samastipur
34.	Flood Affected Rice Research Station, Jhanjharpur	Patna
35.	Fine Rice Research Sub Station, Tilaundha	Banka
36.	Fine Rice Research Station, Bikramganj	Bikramganj
37.	Central Tobacco Research Institute Regional Station	Jhanjharpur
38.	Central Potato Research Station Regional Station	Samastipur
Universities/ Deemed Universities/ Institute of National Importance/ Women S&T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Aryabhatta Knowledge University (AKU)	Patna
2.	Bhupendra Narayan Mandal University	Madhepura
3.	Babasaheb Bhimrao Ambedkar Bihar University	Muzaffarpur
4.	Chanakya National Law University	Patna
5.	Bihar Agricultural University	Bhagalpur

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6.	Jai Prakash University	Chhapra
7.	Kameshwar Singh Darbhanga Sanskrit University	Darbhanga
8.	Lalit Narayan Mithila University	Darbhanga
9.	Magadh University	Bodh Gaya
10.	Maulana Mazharul Haque Arabic and Persian University	Patna
11.	Nalanda Open University	Patna
12.	Patna University	Patna
13.	Tilka Manjhi Bhagalpur University	Bhagalpur
14.	Veer Kunwar Singh University	Arrah
15.	Patliputra University, Kankarbagh	Patna
16.	Munger University	Munger
17.	Bihar Animal Sciences University	Patna
18.	Central University of South Bihar	Gaya, Bihar
19.	Indian Institute of Technology (IIT)	Patna
20.	National Institute of Technology (NIT)	Patna
21.	Mahatma Gandhi Central University	Motihari
22.	Nalanda University	Rajgir, Nalanda
23.	Dr. Rajendra Prasad Central Agriculture University	Pusa, Samastipur
24.	Nava Nalanda Mahavihara	Nalanda
25.	Bihar Yoga Bharati	Munger
26.	Sandip University, Sijoul	Madhubani
27.	K. K. University, Beraunti	Nalanda
28.	Amity University	Patna
29.	Dr. C. V. Raman University	Vaishali
30.	Gopal Narayan Singh University, Jamuhar	Rohtas
Scientific and Industrial Research Organisation (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	Balaji Utthan Sansthan	Patna
2.	Magadh Human Resource Development Trust	Patna
3.	Mahavir Cancer Sansthan	Patna
DSIR registered Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	Tulip Lab Pvt. Ltd.	Patna
CMIE database Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	Kalyanpur Cement Pvt. Ltd.	Patna

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Annexure-IV

GOA		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	Central Coastal Agricultural Research Institute (CCARI)	Ela Goa
2.	Institute of Petroleum Safety, Health and Environment Management (IPSHEM)	Betul, Goa
3.	National Centre for Polar and Ocean Research (NCPOR)	Headland Sada
4.	National Institute of Oceanography (NIO)	Dona Paula
Central Public Sector Enterprises		
Sl.No	**Name of the Enterprises**	**City**
1.	Goa Shipyard Limited	Vasco da Gama
State Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	Estuarine Fish Research Farm	Ela Goa
2.	Goa State innovation Council	Margao
Universities/ Deemed Universities/ Institute of National Importance/ Women S & T Universities		
Sl.No	**Name of the Institution**	**City**
1.	Goa University	Taleigao Plateau
2.	Indian Institute of Technology	Ponda
3.	National Institute of Technology	Ponda
4.	BITS Pilani, Goa	Sancoale
Scientific and Industrial Research Organisation (SIROs)		
S.No.	**Name of the Institution**	**City**
1.	Sangath	Saligao, Bardez
DSIR registered Private Sector R&D Units		
Sl.No	**Name of the Institution**	**City**
1.	Automobile Corporation of Goa Ltd. (ACGL)	Bhuimpal
2.	Cipla Biotec Pvt. Ltd.	Verna
3.	Codon Biosciences Pvt. Ltd.	Panaji
4.	Marksans Pharma Ltd.	Verna
5.	STP Ltd.	Cuncolim
6.	VerGo Pharma Reseach Laboratories Pvt. Ltd	Panaji
7.	Wallace Pharmaceuticals Pvt. Ltd.	Panaji
8.	Watson Pharma Pvt. Ltd	Panaji
CMIE database Private Sector R&D Units		
Sl.No	**Name of the Institution**	**City**
1.	GKB Opthalmics Ltd	Mapusa, Bardez
2.	Goa Electricals and Fans Ltd	Ponda
3.	Goa Glass Fibre Ltd	Bardez
4.	Goa Telematics Ltd	Panaji
5.	Kartik Inductions Ltd	Kundaim
6.	Myko Tech Pvt. Ltd	Mapusa
7.	Pliva Research India Pvt. Ltd	Corlim
8.	Ratiopharm India Pvt. Ltd	Verna
9.	Sesa Goa Ltd	Panaji
10.	Smartlink Network Systems Ltd	Verna
11.	Geno Pharmaceuticals Pvt. Ltd	Mapusa
12.	Cosme Farma Laboratories Ltd	Panaji
13.	CG-PPI Adhesive Products Ltd	Kundaim
14.	Birla Furukawa Fibre Optics Pvt. Ltd	Verna

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Annexure-V

GUJARAT		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	Central University of Gujarat	Gandhinagar
Central Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Indian Institute of Information Technology, Surat	Surat
2.	Indian Institute of Information Technology, Vadodara	Vadodara
3.	Indian Institute of Management, Ahmedabad	Ahmedabad
4.	Indian Institute of Technology Gandhinagar	Gandhinagar
5.	National Institute of Design	Ahmedabad
6.	National Institute of Fashion Technology	Gandhinagar
7.	National Institute of Pharmaceutical Education and Research	Ahmedabad
8.	International Institute of Management and Technical Studies	Ahmedabad
9.	Central Salt and Marine Chemicals Research Institute	Bhavnagar
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Anand Agricultural University	Anand
2.	Bhakta KaviNarsinh Mehta University	Junagadh
3.	BirsaMunda Tribal University	Rajpipla, Narmada district
4.	Children's University	Gandhinagar
5.	Dharamsinh Desai University	Nadiad
6.	Dr.BabasahebAmbedkar Open University	Ahmedabad
7.	Gujarat University	Ahmedabad
8.	Gujarat Ayurved University	Jamnagar
9.	Gujarat Technological University	Ahmedabad
10.	Hemchandracharya North Gujarat University	Patan
11.	Junagadh Agricultural University	Junagadh
12.	Kamdhenu University	Gandhinagar
13.	KrantiguruShyamji Krishna VermaKachchh University	Bhuj
14.	Maharaja Krishnakumarsinhji Bhavnagar University	Bhavnagar
15.	Maharaja Sayajirao University of Baroda	Vadodara
16.	Navsari Agricultural University	Navsari
17.	Sardar Patel University	VallabhVidyanagar
18.	SardarkrushinagarDantiwada Agricultural University	Palanpur
19.	Saurashtra University	Rajkot
20.	Shri Govind Guru University	Godhra
21.	Shree Somnath Sanskrit University	Veraval
22.	Swarnim Gujarat Sports University	Gandhinagar
23.	Veer Narmad South Gujarat University	Surat
24.	Kaushalya - The Skill University	Ahmedabad
State Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Birla Vishwakarma Mahavidyalaya	Anand
2.	MICA	Ahmedabad
3.	Sardar Vallabhbhai National Institute of Technology	Surat
4.	Institute for Plasma Research	Gandhinagar
5.	Physical Research Laboratory	Ahmedabad
6.	Bhaskaracharya Institute For Space Applications and Geo-	Gandhinagar

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7.	Ahmedabad Textile Industry's Research Association	Ahmedabad
Universities/ Deemed Universities/ Institute of National Importance/ Women S&T Universities		
Sl. No	**Name of the Institution**	**City**
1.	All India Institute of Medical Sciences	Rajkot
2.	Indian Institute of Information Technology	Surat
3.	Indian Institute of Information Technology	Vadodara
4.	Indian Institute of Management	Ahmedabad
5.	Indian Institute of Technology	Gandhinagar
6.	National Forensic Sciences University	Gandhinagar
7.	National Institute of Design	Ahmedabad, Gandhinagar
8.	National Institute of Pharmaceutical Education and Research	Ahmedabad
9.	Sardar Vallabhbhai National Institute of Technology	Surat
10.	Gujarat Vidyapith	Ahemedabad
11.	National Rail and Transportation Institute	Vadodara
12.	SumandeepVidyapeeth	Piparia, Waghodia, Vadodara
13.	Ahmedabad University	Ahmedabad
14.	Auro University	Surat
15.	CEPT University	Ahmedabad
16.	Charotar University of Science and Technology	Anand
17.	Dharamsinh Desai University	Nadiad
18.	Dhirubhai Ambani Institute of Information and Communication	Gandhinagar
19.	Ganpat University	Mehsana
20.	Indus University	Ahmedabad
21.	Kadi SarvaVishwavidyalaya	Gandhinagar
22.	C.U.Shah University	Surendranagar
23.	Marwadi University	Rajkot
24.	Nirma University of Science and Technology	Ahmedabad
25.	P P Savani University	Surat
26.	Pandit Deendayal Petroleum University	Gandhinagar
27.	Parul University	Vadodara
28.	Rai University	Ahmedabad
29.	GLS University	Ahmedabad
30.	RK University	Rajkot
31.	Uka Tarsadia University	Bardoli
32.	Smt. Parvatiben Puranchand Patil Arts College	Patan
33.	Smt. Taraben Sunderlal Raichand Commerce College	Patan,
34.	Government Polytechnic College	Ahmedabad
35.	Government Polytechnic for Girls	Ahmedabad
36.	Government Polytechnic for Girls	Surat
37.	F. D. Arts and Commerce College for Women	Ahmedabad
38.	Gandhinagar Charitable Trust Sanchalit Arts and Commerce	Gandhinagar
39.	Shri Smt P K Kotawala Arts College	Patan
Scientific and Industrial Research Organisation (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	DA-IICT	Gandhinagar
2.	Gujarat Energy Research and Management Institute (GERMI)	Gandhinagar,
3.	Institute of Infrastructure Technology Research and	Ahmedabad
4.	SPRERI	Anand
5.	Gujarat Council on Science And Technology	Ahmedabad
6.	Synchron Research Services Pvt Ltd	Shantigram
7.	Adani Institute of Infrastructure Management	Vadodara

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8.	Gujarat Industrial Research & Development Agency	Ahmedabad
9.	Indus University	Ahmedabad
10.	Gujarat Science Academy	Ahmedabad
11.	Nirma University	Ahmedabad
12.	LJ Institute of Pharmacy	Ahmedabad
13.	JDM Scientific Research Organisation Pvt. Ltd	Vadodara
14.	Space Applications Centre	Ahmedabad
15.	Atmiya University	Rajkot
16.	Institute of Teaching & Research in Ayurveda (ITRA)	Jamnagar
17.	CEPT University	Ahmedabad
DSIR registered Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	CSIR-Central Salt & Marine Chemicals Research Institute	Bhavnagar
2.	Gujarat Pollution Control Board	Gandhinagar
3.	Gujarat Technological University	Ahemedabad
4.	Gujarat Vidyapith	Ahmedabad
5.	Gujarat Engineering Research Institute	Vadodara
6.	ICAR-Directorate of Medicinal and Aromatic Plants	Anand
7.	Directorate of Groundnut Research (ICAR)	Junagadh
8.	Indian Institute of Management	Ahmedabad
9.	Indian Institute of Technology	Gandhinagar
10.	Institute of Seismological Research	Gandhinagar
11.	Junagadh Agricultural University	Junagadh
12.	National Dairy Development Board	Anand
13.	National Institute of Occupational Health	Ahmedabad
14.	Navasari Agricultural University	Navasar
15.	Raksha Shakti University	Ahemedabad
16.	Sardar Patel University	VallabhVidyanagar
17.	SardarVallabhbhai National Institute of Technology	Surat
18.	Sardar Krushinagar Dantiwada Agricultural University	Dantiwada , Banaskantha
19.	Saurashtra University	Rajkot
20.	Veer Narmad South Gujarat University	Surat
21.	Govt. Eng. College	Ahmedabad
CMIE database Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	A B G Shipyard Ltd.	Surat
2.	Aarkay Food Products Ltd.	Ahmedabad
3.	Adarsh Chemicals & Fertilisers	Surat
4.	Adjavis Venture Ltd.	Ahmedabad
5.	Agrocel Industries Ltd.	Kachchh
6.	Aksharchem (India) Ltd.	Mehsana
7.	Akshay Seed Tech Company	Junagadh
8.	Kweng Alloys Pvt. Ltd.	Bilimora
9.	Paramount Ltd.	Vadodara
10.	Paras Pharmaceuticals Ltd.	Ahmedabad
11.	Patwa Kinariwala Electronics Ltd.	Baroda
12.	Piramal Water Pvt. Ltd.	Ahmedabad
13.	Polylink Polymers (India) Ltd.	Ahmedabad
14.	Quintiles Spectral (India) Ltd.	Ahmedabad
15.	Ramdev Food Products Ltd.	Ahmedabad
16.	Refnol Resins & Chemicals Ltd.	Ahmedabad

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17.	Rolcon Engineering Co. Ltd.	Vidyanagar
18.	Rushil Decor Ltd.	Ahmedabad
19.	Sabero Organics Gujarat Ltd.	Bulsar
20.	Sacheta Metals Ltd.	Mahiyal Talod
21.	Sam Fine O Chem Ltd.	Rajkot
22.	Samruddhi Cement Ltd.	Bharuch
23.	SAR Auto Products Ltd.	Rajkot
24.	Panchmahal District Co-op. Milk Producers Union Ltd.	Godhra
25.	Oneiro Chemicals Pvt Ltd.	Vadodara
26.	Link PharmaChem Ltd.	Baroda
27.	Mahindra Gujarat Tractor Ltd.	Vadodara
28.	Mahindra Sar Transmission Pvt. Ltd.	Rajkot
29.	Maize Products	Ahmedabad
30.	Mardia Chemicals Ltd.	Ahmedabad
31.	Megha Insulations Pvt. Ltd.	Bhavnagar
32.	Meghmani Industries Ltd.	Ahmedabad
33.	Meril Life Sciences Pvt. Ltd.	Vapi
34.	Metrochem Industries Ltd.	Ahmedabad
35.	Micro Inks Pvt. Ltd.	Vapi
36.	Monarch Dyestuff Industries And Exports Ltd.	Ahmedabad
37.	Namastey Chemicals Ltd.	Vadodara
38.	Neesa Agritech & Foods Ltd.	Ahmedabad
39.	New Nandi Seed Corporation	Ahmedabad
40.	Novodigm Ltd.	Vadodara
41.	Schlafhorst Engineering (India) Ltd.	PanchMahal
42.	Sundek India Ltd.	Ahmedabad
43.	Synthetics & Polymer Industries	Ahmedabad
44.	Texspin Bearings Ltd	Ahmedabad
45.	TML Industries Ltd.	Vadodara
46.	ToniraPharma Ltd.	Vadodara
47.	Uniphos Enterprises Ltd.	Vapi
48.	Vadilal Industries Ltd.	Ahmedabad
49.	Vardhman Acrylics Ltd.	Bharuch
50.	Veer Energy & Infrastructure Ltd.	Ahmedabad
51.	Videsh Sanchar Nigam Ltd.	Ahmedabad
52.	Vikram Thermo (India) Ltd.	Ahmedabad
53.	Vipor Chemicals Pvt. Ltd.	Vadodara
54.	Vivante Pure Foods Pvt. Ltd.	Ahmedabad
55.	Welspun-Gujarat Stahl Rohren Ltd.	Kutch
56.	Windsor Machines Ltd.	Ahmedabad
57.	Sun PolytronInds. Ltd.	Ankleshwar
58.	Sun Pharma Advanced Research Co. Ltd.	Vadodara
59.	Semitronik Instruments	Ahmedabad
60.	Shilchar Technologies Ltd.	Vadodara
61.	Shilp Gravures Ltd.	Gandhinagar
62.	Shree Digvijay Cement Co. Ltd.	Jamnagar
63.	Shreeyam Power & Steel Industries Ltd.	Gandhidham
64.	Shreno Ltd.	Vadodara
65.	Shri Navkar Metals Ltd.	Ahmedabad
66.	Shroffs Engineering Ltd.	Vadodra
67.	Siddharth Chlorochem Pvt. Ltd.	Ahmedabad

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68.	Sidmak Laboratories (India) Pvt. Ltd.	Valsad
69.	Sintex Industries Ltd.	Kalol
70.	Solvay Specialities India Pvt Ltd.	Bharuch
71.	Sterling Biotech Ltd.	Vadodara
72.	Styrolution ABS (INDIA) Ltd.	Vadodara
73.	Sun AgrigeneticsPvt. Ltd.	Surat
74.	Zydus Wellness Ltd.	Ahmedabad
75.	Alembic Ltd.	Vadodara
76.	Bhageria Dye-Chem Ltd.	Vapi
77.	Bhagwati Spherocast Ltd.	Ahmedabad
78.	Bharuch Enviro Infrastructure Ltd.	Bharuch
79.	Bilag Industries Pvt. Ltd.	Vapi
80.	Bluemoon Engineers Ltd.	Surat
81.	Bundy India Ltd.	Vadodara
82.	Casil Health Products Ltd.	Ahmedabad
83.	Celestial Biologicals Ltd.	Ahmedabad
84.	Chemcon Speciality Chemicals Pvt. Ltd.	Vadodara
85.	Cibatul Ltd.	Valsad
86.	Claris Injectables Ltd	Ahmedabad
87.	Computer Skill Ltd.	Ahmedabad
88.	Crown Television Ltd.	Ahmedabad
89.	Dairy Den Ltd.	Ganghinagar
90.	DDE Org Systems Pvt Ltd.	Ahmedabad
91.	Baroda Electric Meters Ltd.	Anand
92.	Avani Seeds Ltd.	Ahmedabad
93.	Amar Dye Chem	Ahmedabad
94.	Ambuja Cements Ltd.	GirSomanath
95.	Amtrex Hitachi Appliances Ltd.	Surat
96.	Anil Bioplus Ltd.	Ahmedabad
97.	Anil Mines and Minerals Ltd.	Ahmedabad
98.	Anil Starch Products Ltd.	Ahmedabad
99.	Ankleshwar Research & Analytical Infrastructure Ltd.	Ankleshwar
100.	Anup Engineering Ltd.	Ahmedabad
101.	Apothecon Pharmaceuticals Pvt. Ltd.	Vadodara
102.	Asian Granito India Ltd.	Ahmedabad
103.	Asiatic Colour-Chem Industries	Ahmedabad
104.	Astral Pipes	Ahmedabad
105.	Astron Research Ltd.	Ahmedabad
106.	Atic Industries Ltd.	Valsad
107.	Atul Auto Ltd.	Rajkot
108.	Decolight Ceramics Ltd.	Ahmedabad
109.	Digjam Ltd.	Jamnagar
110.	Gujarat Sidhee Cement Ltd.	Junagadh
111.	Gujarat Tea Processors & Packers Ltd.	Ahmedabad
112.	Gujarat Themis Biosyn Ltd.	Vapi
113.	Hindusthan Engineering &Inds. Ltd.	Surat
114.	Indian Petrochemicals Corporation Ltd.	Vadodara
115.	Inductotherm (India) Pvt. Ltd.	Sanand
116.	Indus Biotherapeutics Ltd.	Ahmedabad
117.	Ineos ABS (India) Ltd.	Vadodara
118.	IneosStyrolution India Ltd.	Vadodara

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119.	Ishita Drugs &Inds. Ltd.	Ahmedabad
120.	Jem Industries Ltd.	Anand
121.	K. S. Diesels Ltd.	Rajkot
122.	Kalpana Chemicals Pvt Ltd.	Ahmedabad
123.	Kandla Energy & Chemicals Ltd.	Ahmedabad
124.	Kemrock Industries & Exports Ltd.	Vadodara
125.	Gujarat Lyka Organics Ltd.	Ankleshwar
126.	Gujarat Forgings Ltd.	Rajkot
127.	DMCC Oil Terminal Ltd.	Ahmedabad
128.	Doshion Ltd.	Ahmedabad
129.	Dynemic Products Ltd.	Ahmedabad
130.	Ecoplast Ltd.	Valsad
131.	Einfochips Ltd.	Ahmedabad
132.	Electrotherm (India) Ltd.	Ahmedabad
133.	Essar Oil Ltd.	Jamnagar
134.	FAG Bearings India Ltd.	Vadodara
135.	Flour & Foods Ltd.	Ahmedabad
136.	GMM Pfaudler Ltd.	Karamsad
137.	Garden Silk Mills Ltd.	Surat
138.	Genesis Organics Pvt. Ltd.	Vadodara
139.	Golden Tobacco Ltd.	Vadodara
140.	Gujarat Ambuja Cements Ltd.	Junagadh
141.	Gujarat Ambuja Exports Ltd.	Ahmedabad
142.	Kiri Industries Ltd.	Ahmedabad

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Annexure-VI

HARYANA		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	Central University of Haryana	Mahendragarh
2.	Indian Institute of Information Technology	Sonepat
3.	Indian Institute of Management	Rohtak
4.	National Institute of Design	Kurukshetra
5.	National Institute of Technology	Kurukshetra
6.	Central Institute for Cotton Research	Sirsa
7.	Central Ground Water Board	Faridabad
8.	Central Herd Registration Unit	Rohtak
9.	Central Institute for Research on Buffaloes	Hisar
10.	Central Sheep Breeding Farm	Hisar
11.	Central Soil Salinity Research Institute	Karnal
12.	Global Centre for Nuclear Energy Partnership	Bahadurgarh
13.	Indian Institute of Wheat and Barley Research	Karnal
14.	Institute of Pesticide Formulation Technology	Gurugram
15.	National Brain Research Centre	Gurugram
16.	National Bureau of Animal Genetic Resources	Karnal
17.	National Council for Cement and Building Materials	Faridabad
18.	National Dairy Research Institute	Karnal
19.	National Institute of Food Technology Entrepreneurship and Management	Sonipat
20.	National Institute of Solar Energy	Gurugram
21.	National Research Centre for Equines	Hisar
22.	Regional Centre for Biotechnology	Faridabad
23.	Regional Station for Forage Production & Demonstration	Hisar
24.	Translational Health Science and Technology Institute	Faridabad
Central Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Indian Drugs & Pharmaceuticals Ltd.	Gurugram
2.	Indian Oil Corporation Ltd.	Faridabad
3.	National Handicapped Finance & Development Corporation	Faridabad
4.	National Hydroelectric Power Corporation Ltd.	Faridabad
5.	Power Grid Corporation of India Ltd.	Gurugram
6.	Rites Limited	Gurugram
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Vegetable Research Station-Sohna	Gurugram
2.	Sugarcane Breeding Institute Regional Centre	Karnal
3.	Rice Research Station- Kaul	Kaithal
4.	Regional Research Station -Uchani	Karnal
5.	Regional Research Station –Rohtak	Rohtak
6.	Regional Research Station -Rewari	Rewari
7.	Regional Research Station –Buria	Yamuna Nagar
8.	Public Health Laboratory	Karnal
9.	Northern Region Farm Machinery Training and Testing Institute	Hisar
10.	Instruments Design Development & Facilities Centre	Ambala
11.	Government Industrial Development Centre for Tools and Dies	Jagadhri
12.	Government Industrial Development Centre for Anodizing of Aluminium Goods	Jagadhri
13.	Electronics Research & Development Facilities Centre	Gurugram
14.	Dry Farming Research Centre- Bawal	Mahendergarh
15.	Cotton Research Station	Sirsa
16.	Regional research centre on Foot & Mouth Disease	Hisar
State Public Sector Enterprises		
Sl. No	**Name of the Institution**	**City**
1.	Haryana State Electronics Dev.Corp. Ltd.	Chandigarh

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2.	Haryana Leather Chemicals Limited	Gurugram
3.	Haryana Power Generation Corporation Limited	Panchkula
Universities/ Deemed Universities/ Institute of National Importance/ Women S&T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Chaudhary Charan Singh Haryana Agricultural University	Hisar
2.	Chaudhary Bansi Lal University	Bhiwani
3.	Chaudhary Devi Lal University	Sirsa
4.	Chaudhary Ranbir Singh University	Jind
5.	Deenbandhu Chhotu Ram University of Science and Technology	Sonepat
6.	Gurugram University	Gurugram
7.	Guru Jambheshwar University of Science and Technology	Hisar
8.	Haryana Institute of Civil Aviation	Hisar, Karnal and Kalka
9.	Haryana Vishwakarma Skill University	Dudhola village, Palwal
10.	ICAR CIFE Rohtak (campus of Central Institute of Fisheries Education)	Lahli village, Rohtak
11.	Shri Krishna AYUSH University	Kurukshetra
12.	Kurukshetra University	Kurukshetra
13.	Lala Lajpat Rai University of Veterinary and Animal Sciences	Hisar
14.	Maharana Pratap Horticultural University	Karnal
15.	Maharishi Balmiki Sanskrit University	Kaithal
16.	Maharshi Dayanand University	Rohtak
17.	Maharishi Markandeshwar University	Mullana, Ambala
18.	Manav Rachna International Institute of Research and Studies	Faridabad
19.	National Brain Research Centre	Manesar
20.	National Dairy Research Institute	Karnal
21.	National Institute of Food Technology Entrepreneurship and Management	Sonipat
22.	National Law University	Sonipat
23.	National Institute of Fashion Technology	Panchkula
24.	NIILM University	Kaithal
25.	Pandit Bhagwat Dayal Sharma University of Health Sciences	Rohtak
26.	Pandit Deen Dayal Upadhayaya University of Health Sciences	Karnal
27.	State University of Performing And Visual Arts	Rohtak
28.	YMCA University of Science and Technology	Faridabad
29.	Al-Falah University	Faridabad
30.	Amity University	Gurugram
31.	Ansal University	Gurugram
32.	Apeejay Stya University	Sonepat
33.	Ashoka University	Sonepat
34.	Baba Mast Nath University	Rohtak
35.	Bharti Vidyapeeth, Sonipat Campus	Sonipat
36.	BML Munjal University	Gurugram
37.	GD Goenka University	Gurugram
38.	IILM University	Gurugram
39.	Jagan Nath University, NCR	Jhajjar
40.	KR Mangalam University	Gurugram
41.	Lingaya's University	Faridabad
42.	Manav Rachna University	Faridabad
43.	MVN University	Palwal
44.	O. P. Jindal Global University	Sonipat
45.	Om Sterling Global University	Hisar
46.	PDM University	Bahadurgarh Jhajjar
47.	Rishihood University	Sonipat
48.	Shree Guru Gobind Singh Tricentenary University, Budhera	Gurugram
49.	Skyline Business School	Sonipat
50.	SRM University	Sonipat
51.	Starex University	Gurugram
52.	The NorthCap University	Gurugram
53.	National Institute of Technology	Kurukshetra
54.	Indian Institute of Information Technology	Sonipat
55.	Indian Institute of Management	Rohtak

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56.	National Institute of Food Technology Entrepreneurship and Management	Sonipat
57.	Bhagat Phool Singh Mahila Vishwavidyalaya	Sonipat
Scientific and Industrial Research Organisation (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	Artemis Education and Research Foundation Artemis Health Institute	Gurugram
2.	Centre for Chronic Disease Control (CCDC)	Gurugram
3.	Maharishi Markandeshwar University Trust	Ambala
4.	Mirpur Institute of Medical Science (Dr. S.S. Yadav Ram-Bhagwan Charitable Trust)	Rewari
5.	NATRIP Implementation Society	Gurugram
6.	Pragya India	Gurugram
7.	S.M. Sehgal Foundation	Gurugram
DSIR registered Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	A2z Filtration Specialities Pvt. Ltd.	Gurugram
2.	Accuster Technologies Pvt. Ltd.	Gurugram
3.	Advanced Microdevices Pvt. Ltd.	Cantt
4.	Alchem International Ltd.	Ballabgarh
5.	ALP Nishikawa Co. Ltd.	Gurugram
6.	ALP Overseas Pvt. Ltd.	Gurugram
7.	Anand Motor Products (P) Ltd.	Gurugram
8.	Anand NVH Products Pvt. Ltd.	Gurugram
9.	Apollo Tyres Ltd.	Gurugram
10.	Atlas Cycles(Haryana) Ltd.	Sonepat
11.	Auto Ignition Ltd.	Faridabad
12.	Avery India Ltd.	Ballabgarh
13.	AVL Technical Center Pvt .Ltd.	Gurugram
14.	Ballarpur Industries Ltd.	Gurugram
15.	Bayer Seeds Pvt. Ltd.	Gurugram
16.	Beri Udyog Pvt. Ltd.	Karnal
17.	Bharat Seats Ltd.	Gurugram
18.	Bony Polymers Pvt. Ltd.	Faridabad
19.	Boortmalt India Holdings Pvt. Ltd.	Gurugram
20.	BryAir (Asia) Pvt. Ltd.	Gurugram
21.	Chemical Resources	Panchkula
22.	ClaasIndia Pvt.Ltd.	Faridabad
23.	Clutch Auto Ltd.	Fridabad
24.	CNH Industrial India Pvt. Ltd.	Gurugram
25.	Comviva Technologies Ltd.	Gurugram
26.	Cryobanks International India Pvt. Ltd.	Gurugram
27.	Delphi Automotive System Ltd.	Gurugram
28.	Desiccant Rotors International Pvt. Ltd.	Gurugram
29.	Dhanuka Agritech Ltd.	Gurugram
30.	Ecocat India Pvt. Ltd.	Faridabad
31.	EI Dupont India Pvt.Ltd.	Gurugram
32.	Elofic Industries Ltd.	Faridabad
33.	Emkay Automobile Industries Ltd.	Gurugram
34.	Erol Exports Pvt.Ltd.	YamunaNagar
35.	Escorts Ltd.	Faridabad
36.	Fiem Industries Ltd.	Sonipat
37.	Fire Safety Devices Pvt. Ltd.	Faridabad
38.	Flowmore Ltd.	Gurugram
39.	Harsoria Healthcare Pvt. Ltd.	Gurugram
40.	Hema Engineering Industries Ltd.	Gurugram
41.	Hindustan Gum & Chemicals Ltd.	Bhiwani
42.	Hi-Tech Gears Ltd.	Gurugram
43.	Huber Suhner Electronics Pvt. Ltd.	Gurugram
44.	Imperial Auto Industries Ltd.	Faridabad
45.	Innovative Life Discoveries Pvt. Ltd.	Gurugram

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46.	Instapower Ltd.	Gurugram
47.	Jamna Auto Inds. Ltd.	Yamunanagar
48.	Jay Ushin Ltd.	Gurugram
49.	JNS Instruments Ltd.	Gurugram
50.	JSL Ltd. (Formerly Jindal Stainless Ltd.)	Hisar
51.	Krishna Maruti Ltd.	Gurugram
52.	KSS Abhishek Safety Systems Pvt. Ltd.	Gurugram
53.	Lakshmi Precision Screws Ltd.	Rohtak
54.	Lifecare Innovations Pvt. Ltd.	Gurugram
55.	Machino Polymers Ltd.	Gurugram
56.	MAHLE Filter Systems(India) Ltd.	Gurugram
57.	Mark Exhaust Systems Ltd.	Gurugram
58.	Matrix Clothing Pvt. Ltd.	Gurugram
59.	Mindarika Pvt. Ltd.	Gurugram
60.	Nano Gen Health Care Pvt. Ltd.	Manesar
61.	Napino Autoand Electronics Ltd.	Gurugram
62.	New Age Instruments & Materials Pvt. Ltd.	Gurugram
63.	Nunhems India Pvt.Ltd.	Gurugram
64.	Omax Autos Ltd.	Gurugram
65.	Oriental Carbon and Chemicals Ltd.	Rewari
66.	Oriental Engineering Work Pvt. Ltd.	YamunaNagar
67.	Orkash Services Pvt. Ltd.	Gurugram
68.	Osaw Industrial Products Pvt. Ltd.	Ambala
69.	Padmini VNA Mechatronics Pvt. Ltd.	Gurugram
70.	Pan India Consultants Pvt. Ltd.	Gurugram
71.	Pharmaffiliates Analytics & Synthetics(P) Ltd.	Panchkula
72.	Pluss Advanced Technologies Pvt.Ltd.	Gurugram
73.	Poly Medicure Ltd.	Faridabad
74.	Polyplastics Industries Pvt.Ltd.	YamunaNagar
75.	Premas Biotech Pvt.Ltd.	Gurugram
76.	Psychotropics India Ltd.	Haryana
77.	Radio Design India Pvt. Ltd.	Gurugram
78.	Rasi Hyveg Pvt. Ltd.	Gurugram
79.	Rico Auto Industries Ltd.	Gurugram
80.	Sahib Seeds Ltd.	Karnal
81.	Sakata Seed India Pvt.Ltd.	Gurugram
82.	SandenVikas India Pvt. Ltd.	Faridabad
83.	Sandhar Technologies Ltd.	Gurugram
84.	Saurav Chemicals Ltd.	Panchkula
85.	Savannah Seeds Pvt.Ltd.	Gurugram
86.	Shahi Exports Pvt. Ltd.	Faridabad
87.	Shakti Vardhak Hybrid Seeds Pvt. Ltd.	Hisar
88.	Siddharth Grease & Lubes Pvt. Ltd.	Gurugram
89.	Signet Crop Sciences India Pvt. Ltd.	Karnal
90.	SM Creative Electronics Ltd.	Gurugram
91.	Somany Ceramics Ltd.	Jahajjar
92.	Sona Koyo Steering Systems Ltd.	Gurugram
93.	Sona Okegawa Precision Forgings Ltd.	Gurugram
94.	Spectross Digital Systems Pvt. Ltd.	Gurugram
95.	Sphaera Pharma Pvt. Ltd.	Gurugram
96.	Spray Engineering Devices Ltd.	Panchkula
97.	SRF Ltd.	Gurugram
98.	SSP Pvt.Ltd.	Faridabad
99.	Su-Kam Power Systems Ltd.	Gurugram
100.	Sunbeam Auto Ltd.	Gurugram
101.	Super Seeds (Pvt.) Ltd.	Hisar
102.	Talbros Automotive Components Ltd.	Faridabad
103.	Techno Auto Components(I) Pvt. Ltd.	Faridabad
104.	The Hi-Tech Robotic Systemz Ltd.	Gurugram

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105.	Unitech Machines Ltd.	Gurugram
106.	Venus Remedies Ltd.	Panchkula
107.	Vihan Networks Ltd.	Gurugram
108.	Voith Paper Fabrics India Ltd.	Faridabad
109.	VVDN Technologies Pvt. Ltd.	Gurugram
110.	Yamuna Power & Infrastructure Ltd.	YamunaNagar
CMIE database Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	Acme Tele Power Ltd.	Gurugram
2.	Akzo Nobel India Ltd.	Gurugram
3.	Allied Medical Services Pvt. Ltd.	Gurugram
4.	ANS Steel Tube Ltd.	Faridabad
5.	ARA Healthcare Pvt. Ltd.	Gurugram
6.	Atotech India Ltd.	Gurugram
7.	Avaya Global Connect Ltd.	Gurugram
8.	BCH Electric Ltd.	Faridabad
9.	Bell Labs Research, India Lucent Technologies India Ltd.	Gurugram
10.	Bharat Starch Industries Ltd.	Yamuna Nagar
11.	Bharti Healthcare Ltd.	Rewari
12.	Cairn India Ltd.	Gurugram
13.	Carrier Airconditioning & Refrigeration Ltd.	Gurugram
14.	ChangYun India Ltd	Gurugram
15.	Continental Profiles Ltd.	Faridabad
16.	Cosco India Ltd.	Gurugram
17.	Crew B.O.S. Products Ltd.	Gurugram
18.	Daiichi Sankyo India Pharma Pvt. Ltd.	Gurugram
19.	Devyani Food Industries Ltd.	Gurugram
20.	E.I.Dupont Ltd.	Gurugram
21.	Eco Auto ComponentLtd.	Faridabad
22.	EKL Appliances Ltd.	Gurugram
23.	Electrolux Kelvinator Ltd.	Gurugram
24.	Ericcson India (Pvt) Ltd.	Gurugram
25.	Escorts Construction Equipment Ltd.	Faridabad
26.	Espn Software India Pvt.Ltd.	Gurugram
27.	Essen Connectors Ltd.	Panchkula
28.	Evinix Accessories Ltd.	Faridabad
29.	FCC India Manufacturing Pvt. Ltd.	Gurugram
30.	Fieldfresh Foods Pvt. Ltd.	Gurugram
31.	Foundation Brake Manufacturing Ltd.	Gurugram
32.	Frick India Ltd.	Faridabad
33.	General Motors India Pvt.Ltd.	Gurugram
34.	GET&D India Ltd.	Noida
35.	GKN Driveline(India) Ltd.	Faridabad
36.	Glaxo Smith Kline Consumer Healthcare Ltd.	Gurugram
37.	Goodyear India Ltd.	Faridabad
38.	Haryana Biotech Ltd.	Gurugram
39.	Hindustan Everest Tools Ltd.	Sonepat
40.	Honda Motorcycle & Scooter India (Pvt) Ltd.	Gurugram
41.	Imperial Life Sciences Pvt. Ltd.	Gurugram
42.	Indication Instruments Ltd.	Faridabad
43.	Indo Autotech Ltd.	Faridabad
44.	Indus Towers Ltd	Gurugram
45.	ITW India Pvt.Ltd.	Gurugram
46.	JC B India Ltd.	Ballabgarh
47.	Jagsonpal Pharmaceuticals Ltd.	Faridabad
48.	Jay Bharat Maruti Ltd.	Gurugram
49.	Johnson Controls Automotive Ltd.	Gurugram
50.	Kamdhenu Ispat Ltd.	Gurugram
51.	Kevin Power Solutions Ltd.	Gurugram

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52.	Khaitan Electricals Ltd.	Faridabad
53.	Khanna Paper Mills Ltd.	Gurugram
54.	KLG Systel Ltd.	Gurugram
55.	L M L Ltd.	Gurugram
56.	Lambda Microwave Pvt. Ltd.	Faridabad
57.	Leakless Gasket India Pvt. Ltd.	Rewari
58.	Lectrix Motors Pvt. Ltd.	Gurugram
59.	Liberty Shoes Ltd.	Gurugram
60.	Lumax DK Auto Industries Ltd.	Gurugram
61.	Mauria Udyog Ltd.	Faridabad
62.	Mawana Sugars Ltd.	Gurugram
63.	Micromax Informatics Ltd.	Gurugram
64.	Mitsuba Sical India Pvt. Ltd.	Gurugram
65.	Modern Food Industries(India) Ltd.	Gurugram
66.	Motorola India Pvt. Ltd.	Gurugram
67.	Munjal Showa Ltd.	Gurugram
68.	N K Jain Instruments Pvt. Ltd.	Ambala
69.	Neolite ZKW Lightings Pvt.Ltd.	Jhajjar
70.	Nortel Networks India Pvt. Ltd.	Gurugram
71.	Nuchem Ltd.	Faridabad
72.	Oracle India Pvt. Ltd.	Gurugram
73.	Orient Craft Ltd.	Gurugram
74.	Penam Laboratories Ltd.	Rewari
75.	Pernod Ricard (Seagram) India Pvt.Ltd.	Gurugram
76.	Polymer Papers Ltd.	Faridabad
77.	Porritts & Spenser (Asia) Ltd.	Faridabad
78.	Prasha Technologies Ltd.	Gurugram
79.	Purolator India Ltd.	Gurugram
80.	Q H Talbros Ltd.	Gurugram
81.	Ranbaxy Laboratories Ltd. (Majeedia HospitalNewDelhi)	Gurugram
82.	Ranbaxy Laboratories Ltd. (Mohali,Punjab)	Gurugram
83.	Ranbaxy Laboratories Ltd. (Noida U.P)	Gurugram
84.	Ranbaxy Laboratories Ltd. (Ponda,Goa)	Gurugram
85.	Reckitt Benckiser (India) Ltd.	Gurugram
86.	Regent Drugs Ltd.	Faridabad
87.	Roop Automotives Ltd.	Gurugram
88.	SM Creative Electronics Ltd.	Gurugram
89.	SOM Phytopharma (India) Ltd.	Gurugram
90.	SSP (Pvt) Ltd.	Faridabad
91.	Samsung India Electronics Pvt. Ltd.	Gurugram
92.	Sandeep Axles Pvt. Ltd.	Palwal
93.	Saraswati Sugar Mills Ltd.	Yamunanagar
94.	Schneider Electric India Pvt. Ltd.	Gurugram
95.	Shyam Telecom Ltd.	Gurugram
96.	Technology Plastics Ltd.	Gurugram
97.	Theon Pharmaceuticals Ltd.	Panchkula
98.	TREN Design Technical Center (P) Ltd.	Faridabad
99.	UM Green Lighting Pvt. Ltd.	Gurugram
100.	V X L Technologies Ltd.	Faridabad
101.	Veljan Hydrair Ltd.	Gurugram
102.	Wrigley India Pvt. Ltd.	Gurugram

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Annexure-VII

KARNATAKA		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	Advanced Centre for Ayurveda In Mental Health and Neuro Sciences Ayurvedic Research Unit	Bengaluru
2.	Aeronautical Development Establishment	Bengaluru
3.	All India Institute of Speech & Hearing	Mysore
4.	Armament Research & Development Establishment	Bengaluru
5.	Central Cattle Breeding Farm Bengaluru	Bengaluru
6.	Central Coffee Research Institute	Chickmagalur
7.	Central Food Technological Research Institute	Mysore
8.	Central Frozen Semen Production & Training Institute	Bengaluru
9.	Central Manufacturing Technology Institute	Bengaluru
10.	Central Poultry Development Organization & Training Institute	Bengaluru
11.	Central Power Research Institute	Bengaluru
12.	Central Sericultural Research and Training Institute Mysore	Mysore
13.	Central Silk Technological Research Institute	Bengaluru
14.	Centre for Air Borne Systems	Bengaluru
15.	Centre for Animals and Environment	Bengaluru
16.	Centre for Artificial Intelligence & Robotics	Bengaluru
17.	Centre for Development of Advanced Computing Bengaluru	Bengaluru
18.	Centre for Ecological Science	Bengaluru
19.	Centre for Military Air-Worthiness & Certification	Bengaluru
20.	Centre for Nano and Soft Matter Science	Bengaluru
21.	Clinical Research Unit (Siddha) Bengaluru	Bengaluru
22.	Clinical Research Unit (Unani) Bengaluru	Bengaluru
23.	Defence Bio-Engineering and Electro-Medical Laboratory	Bengaluru
24.	Defence Food Research Laboratory	Mysore
25.	Directorate of Cashew Research (Formerly National Research Centre for Cashew)	Uttara Kannada
26.	Electronics & Radar Development Establishment	Bengaluru
27.	Foundation for Revitalization of Local Health Traditions	Bengaluru
28.	Fourth Paradigm Institute	Bengaluru
29.	Gas Turbine Research Establishment	Bengaluru
30.	Indian Institute of Astrophysics	Bengaluru
31.	Indian Institute of Horticultural Research	Bengaluru
32.	Indian Plywood Industries Research & Training Institute	Bengaluru
33.	Indian Space Research Organisation Headquarters	Bengaluru
34.	Institute for Stem Cell Biology and Regenerative Medicine	Bengaluru
35.	Institute of Aerospace Medicine	Bengaluru
36.	Jawaharlal Nehru Centre for Advanced Scientific Research	Bengaluru
37.	Laboratory for Electro-Optics Systems (LEOS)	Bengaluru
38.	Liquid Propulsion Systems Centre Bengaluru	Bengaluru
39.	Microwave Tube Research & Development	Bengaluru
40.	National Aerospace Laboratories	Bengaluru
41.	National Ayurveeda Dietetics Research Institute	Bengaluru
42.	National Bureau of Agriculturally Important Insects	Bengaluru
43.	National Centre for Diseases Informatics and Research	Bengaluru
44.	National Institute of Animal Nutrition & Physiology	Bengaluru
45.	National Institute of Mental Health & Neuro Sciences	Bengaluru
46.	National Institute of Rock Mechanics	Kolar
47.	National Institute of Traditional Medicine	Belgaum
48.	National Institute of Veterinary Epidemiology and Disease Informatics	Bengaluru
49.	National Silkworm Seed Organisation	Bengaluru
50.	National Tuberculosis Institute	Bengaluru
51.	Raman Research Institute	Bengaluru

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52.	Seribiotech Research Laboratory	Bengaluru
53.	Silkworm Seed Technology Laboratory	Bengaluru
Central Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Antrix Corporation	Bengaluru
2.	BEML Limited (Formerly Bharat Earth Movers Limited)	Bengaluru
3.	Bharat Electronics Limited	Bengaluru
4.	Hindustan Aeronautics Limited	Bengaluru
5.	HMT Limited	Bengaluru
6.	Indian Telephone Industries Bangaluru	Dooravaninagar
7.	Karnataka Antibiotics & Pharmaceuticals Limited	Bengaluru
8.	KIOCL Ltd.	Bengaluru
9.	Tungabhadra Steel Products Limited	Tungabhadra Dam
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Agricultural & Horticultural Research Station	Madikeri,Bavikere,Kathlagere, Ponnampet, Sringeri,Thirthahalli, DakshinaKannada
2.	Agricultural Research Station	Vijayapura,Gadag, Belgaum,Arsikere, Bagalkot,Bailhongal, Belgaum, Dharwad, Bidar,Vijayapura, Chintamani,Chittapur,Dhades ugu, Dharwad, Gadag, Koppal, Kalburgi, Bellary, Bidar, Hanumanamatti, Haveri, Tarikere, Chitradurga, Hassan, Gadag, Belgaum, Mangalore, Karwar, Uttara Kannada,Shimoga, Thintini,Tiptur, Hubballi
3.	Agricultural Technology Information Centre Hebbal	Hebbal
4.	Agriculture Clinic & Agriculture Business Centre Hebbal	Hebbal
5.	Agriculture Research Station	Hassan, Kolar, Kodagu, Mysore, Belgaum, Raichur,Shimoga
6.	Biofuel Park Madenur	Hassan
7.	Canine Research & Information Center Bagalkot	Bagalkot
8.	Fisheries Research & Information Center (Inland)	Bengaluru,Vijayapura
9.	Horticultural Research and Extension CenterArsikere	Arsikere, Vijayapura, Hassan, Haveri,Belgavi, Kolar, Uttara Kannada
10.	Horticultural Research Station Kapikad	Mangalore, Shimoga
11.	Institute of Pulses and Oilseeds Research Kalburgi	Kalburgi
12.	Institute of Wildlife Veterinary Research Doddaluvara	Kodagu
13.	Karnataka Electricity Board	Bengaluru
14.	Karnataka Veterinary, Animal and Fisheries Sciences University	Bidar
15.	Kidwai Memorial Institute of Oncology	Bengaluru
16.	Livestock Research & Information Center	AandyaMandya,Tiptur,Bidar, Mandya
17.	Main Agricultural Research Station	Dharwad,Raichur,
18.	Main Research Station	Hebbal Bengaluru
19.	Marine Fisheries Research & Information CenterBela	Ankola
20.	Organic Farming Research Centre	Shimoga
21.	Population Research Centre	Dharwad
22.	Project Planning & Monitoring Cell	Bengaluru
23.	Regional Agricultural Research Station	Vijayapura, Raichur
24.	Research and Development Centre, KPTCL	Bengaluru

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25.	Zonal Agricultural & Horticultural ResearchStation	Udupi, Hiriyur, Shimoga, Mudigere, Bagalkot, Bengaluru, Dharwad
26.	Zonal Agricultural Research Station	Udupi,Chithradurga,Mandya,Chickmagalur,Shimoga,Tumkur, Bangaluru, Mandya

State Public Sector Enterprises		
Sl. No	**Name of Enterprises**	**City**
1.	Hutti Gold Mines Co. Ltd.	Raichur
2.	Karnataka Power Transmission Corpn. Ltd.	Bengaluru
3.	Karnataka Soaps & Detergents Ltd.	Bengaluru
4.	Karnataka VidyuthKarkhaneLtd.(KaViKa)	Bengaluru
5.	Mysore Electrical Industries Ltd.	Bengaluru
6.	Mysore Paints and Varnish Ltd.	Mysuru
7.	Karnataka State Textile Infrastructure Development Corporation Ltd.	Belagavi
8.	Mysore Paper Mills Ltd.	Bengaluru
9.	Karnataka Handloom Development Corporation Ltd.	Bengaluru
10.	Karnataka State Minerals Corporation Ltd.	Bengaluru
11.	Karnataka State Small Industries Development Corporation Ltd.	Bengaluru
12.	Karnataka State Handicrafts Development Corporation Ltd.	Bengaluru
13.	Mysore Sugar Company Ltd.	Mandya
14.	Karnataka State Coir Development Corporation Ltd.	Bengaluru
15.	Karnataka State Beverages Corporation Ltd.	Bengaluru
16.	Bangalore Electricity Supply Company Ltd.	Bengaluru
17.	Hubli Electricity Supply Company Ltd.	Hubli
18.	Karnataka Power Corporation Ltd.	Bengaluru
19.	Mangalore Electricity Supply Company Ltd.	Mangalore
20.	Chamundeswari Electricity Supply Company Ltd.	Mysuru
21.	Gulbarga Electricity Supply Company Ltd.	Kalburgi
22.	Bangalore Metropolitan Transport Corporation Ltd.	Bengaluru
23.	Karnataka State Road Transport Corporation Ltd.	Bengaluru
24.	North East Karnataka Road Transport Corporation	Raichur
25.	North West Karnataka Road Transport Corporation Ltd.	Hubali
26.	CauveriNeeravari Nigam Ltd.	Mysuru
27.	Karnataka Neeravari Nigam Ltd.	Bengaluru
28.	Krishna Bhagya Jala Nigama Ltd.	Bengaluru
29.	Karnataka Rural Infrastructure Development Ltd.	Raichur
30.	Karnataka Silk Industries Corporation Ltd.	Bengaluru
31.	Karnataka Compost Development Corporation Ltd.	Bengaluru
32.	Karnataka State Agricultural Produce Processing & Export Corporation Ltd.	Bengaluru
33.	Karnataka State Seeds Corporation. Ltd.	Bengaluru
34.	Karnataka Sate Pulses AbhivridhiMandali Ltd.	Bengaluru
35.	Karnataka Electronics Development Corpn. Ltd.	Bengaluru
36.	Karnataka State Industrial & Infrastructure Development Corp. Ltd.(KSIIDC)	Bengaluru

Universities/ Deemed Universities/Institute of National Importance/Women S & T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Bengaluru University	Bengaluru
2.	Central University of Karnataka	Kalburgi
3.	Davangere University	Davangere
4.	Kalburgi University	Kalburgi
5.	Indian Institute of Information Technology	Dharwad
6.	Indian Institute of Science	Bengaluru
7.	Institute of Transdisciplinary Health Sciences and Technology	Bengaluru
8.	Kannada University	Hampi

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9.	Karnataka State Rural Development and Panchayat Raj University	Gadag
10.	Karnataka University	Dharwad
11.	Kuvempu University	Shimoga
12.	Mangalore University	Mangalore
13.	National Institute of Technology Mangalore	Mangalore
14.	Rani Channamma University	Belagavi
15.	Tumkur University	Tumkur
16.	University of Mysore	Mysore
17.	University of Agricultural Sciences	Bengaluru, Dharwad, Raichur
18.	University of Agricultural and Horticultural Sciences	Shimoga
19.	University of Horticultural Sciences	Bagalkot
20.	Vijayanagara Sri Krishnadevaraya University	Ballari
21.	Visveswaraiah Technological University	Belagavi
22.	Alliance University	Bengaluru
23.	Azim Premji University	Bengaluru
24.	CMR University	Bengaluru
25.	Garden City University	Bengaluru
26.	KLE Technological University Nagar	Hubballi
27.	M. S. Ramaiah University of Applied Sciences	Bengaluru
28.	PES University	Bengaluru
29.	Presidency University Karnataka	Bengaluru
30.	Rai Technology University	Bengaluru
31.	Rajiv Gandhi University of Health Sciences	Bengaluru
32.	Reva University	Bengaluru
33.	Srinivas University	Mangaluru
34.	Adichunchanagiri University	Mandya
35.	B.L.D.E. University	Vijayapura
36.	Christ University	Bengaluru
37.	International Institute of Information Technology	Bengaluru
38.	Jain University	Bengaluru
39.	JSS Academy of Higher Education & Research	Mysore
40.	JSS Science and Technology University	Mysuru
41.	KLE Academy of Higher Education & Research	Belgaum
42.	Manipal Academy of Higher Education	Manipal
43.	Manipal University	Bengaluru
44.	NITTE University	Mangalore
45.	Sri Devaraj Urs Academy of Higher Education and Research	Kolar
46.	Sri Siddhartha Academy of Higher Education	Tumkur
47.	Yenepoya University	Mangalore
48.	Karnataka State Women's University	Vijayapura
Scientific and Industrial Research Organisation (SIROs)		
Sl.No	**Name of the Institution**	**City**
1.	Acharya & BM Reddy College of Pharmacy	Bengaluru
2.	Admar Mutt Education Foundation	Bengaluru
3.	Advanced Bioresidue Energy Technologies Society	Bengaluru
4.	Asha Foundation Bengaluru	Bengaluru
5.	Ashoka Trust for Research in Ecology and the Environment (ATREE)	Bengaluru
6.	Bengaluru Baptist Hospital	Bengaluru
7.	Bengaluru Medical Services Trust	Bengaluru
8.	CBCI Society for Medical Education	Bengaluru
9.	Centre for Brain Research	Bengaluru
10.	Centre for Cellular and Molecular Platforms (C-CAMP)	Bengaluru
11.	Centre for Human Genetics	Bengaluru
12.	Centre for Natural Biological Resources and Community Development (CNBRCD)	Bengaluru
13.	Centre for Study of Science Technology and Policy	Bengaluru
14.	Centre for Wildlife Studies	Bengaluru

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15.	CSI Holdsworth Memorial Hospital	Mysore
16.	Dayananda Sagar Institutions of Mahatma Gandhi Vidya Peeth Trust	Bengaluru
17.	Dystrophy Annihilation Research Trust	Bengaluru
18.	Father Muller Charitable Institution	Mangaluru
19.	Government Tool Room and Training Centre	Bengaluru
20.	Indian Academy of Sciences	Bengaluru
21.	Indian Institute of Management Bengaluru	Bengaluru
22.	Institute for Defence Scientists and Technologists	Bengaluru
23.	Institute of Bioinformatics	Bengaluru
24.	Institute of Bio-Informatics and Applied Biotechnology	Bengaluru
25.	Institute of Public Health	Bengaluru
26.	INYS Medical Research Society	Bengaluru
27.	Islamic Academy of Education	Mangalore
28.	JSS Medical College Mysore	Mysore
29.	Karnataka Haridasa Scientific Research Centre	Bengaluru
30.	Karnataka State Sericulture Research and Development Institute	Bengaluru
31.	LPG Equipment Research Centre	Bengaluru
32.	M P Birla Institute of Fundamental Research	Bengaluru
33.	M.S. Ramaiah Medical College & Hospitals	Bengaluru
34.	Maratha Mandal Trust	Belagavi
35.	Mazumdar Shaw Medical Foundation	Bengaluru
36.	Moogambigai Charitable & Educational Trust	Bengaluru
37.	Mount Carmel College	Bengaluru
38.	Narayana Hrudayalaya Foundation	Bengaluru
39.	Narayana Nethralaya Foundation	Bengaluru
40.	National Institute of Advanced Studies	Bengaluru
41.	National Institute of Technology	Mangalore
42.	National Law School of India University	Bengaluru
43.	Nature Conservation Foundation	Mysore
44.	Parkinsons& Ageing Research Foundation	Bengaluru
45.	Public Health Research Institute	Mysuru
46.	Samatvam Science and Research for Human Welfare Trust	Bengaluru
47.	Shri Dharmasthala Manjunatheshwara Educational Society	Dakshina Kannada
48.	Sir M Visvesvaraya Institute of Technology	Bengaluru
49.	Society for Biomedical Technology	Bengaluru
50.	Society for Innovation and Development	Bengaluru
51.	Soukya Foundation Charitable Trust	Bengaluru
52.	Spastics Society of Karnataka	Bengaluru
53.	Sri Venkateshwara Education Trust	Bengaluru
54.	St.Martha Hospitals	Bengaluru
55.	Swami Vivekananda Yoga Anusandhana Samsthana	Bengaluru
56.	The Department of Research & Development, Ved Vignan Mahavidya Peeth	Bengaluru
57.	The K J Somaiya Institute of Applied Agricultural Research	Bagalkot
58.	The Mount Carmel Educational Society	Bengaluru
59.	Thrombosis Research Institute of India	Bengaluru
60.	Varanashi Research Foundation	Bantwal
61.	VedVignan Maha Vidya Peeth	Bengaluru
62.	Vittal Mallya Scientific Research Foundation	Bengaluru
DSIR registered Private Sector R&D Units		
Sl.No	**Name of the Institution**	**City**
1.	Accord Software & Systems Pvt. Ltd.	Bengaluru
2.	Ace Designers Ltd.	Bengaluru
3.	Ace Manufacturing Systems Ltd.	Bengaluru
4.	Achira Labs Pvt. Ltd.	Bengaluru
5.	Advanced Neuroscience Allies Pvt. Ltd.	Bengaluru
6.	Alpha Design Technologies Pvt. Ltd.	Bengaluru
7.	Anglo-French Drugs & Industries Ltd.	Bengaluru

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8.	Anthem Biosciences Pvt. Ltd.	Bengaluru
9.	Aristogene Biosciences Pvt. Ltd.	Bengaluru
10.	Aron Universal Ltd.	Bengaluru
11.	Arunodaya Seeds Company	Bengaluru
12.	Ashoka Farm Aids	Bengaluru
13.	Aspartika Biotech Pvt Ltd.	Bengaluru
14.	Aura Semiconductor Pvt. Ltd.	Bengaluru
15.	Aurigene Discovery Technologies Ltd.	Bengaluru
16.	Autoliv IFB India Pvt. Ltd.	Bengaluru
17.	Automed Systems Pvt. Ltd.	Bengaluru
18.	Avasarala Technologies Ltd.	Bengaluru
19.	Avesthagen Ltd.	Bengaluru
20.	Aviohelitronics Infosystems Pvt. Ltd.	Bengaluru
21.	Bal Pharma Ltd.	Bengaluru
22.	BarrixAgro Sciences Pvt. Ltd.	Bengaluru
23.	Beloorbayir Biotech Ltd.	Bengaluru
24.	Bengaluru Biotech Labs Pvt. Ltd.	Bengaluru
25.	Bengaluru Integrated System Solutions (P) Ltd.	Bengaluru
26.	Bharat Fritz Werner Ltd.	Bengaluru
27.	Bharavi Laboratories (Pvt.) Ltd.	Bengaluru
28.	Bhat Bio-Tech India (Pvt.) Ltd.	Bengaluru
29.	Bigtec Pvt. Ltd.	Bengaluru
30.	Bio Organics & Applied Materials Pvt. Ltd.	Bengaluru
31.	Biocon India Ltd.	Bengaluru
32.	BioCOS Life Sciences Pvt. Ltd.	Bengaluru
33.	Bioneeds India Pvt. Ltd.	Peenya
34.	Bosch Ltd.	Bengaluru
35.	Buhler (India) Pvt. Ltd.	Bengaluru
36.	Canara Hydraulics Pvt Ltd	Bengaluru
37.	Centum Electronics Ltd.	Bengaluru
38.	Centum Rakon India Pvt. Ltd.	Bengaluru
39.	Charoen Pokphand Seeds	Bengaluru
40.	Chromous Biotech Pvt. Ltd	Bengaluru
41.	Coreel Technologies India Pvt. Ltd.	Bengaluru
42.	Criyagen Agri & Biotech Pvt.Ltd.	Dharwad
43.	Customised Technologies Pvt. Ltd.	Bengaluru
44.	Deepti Electronics & Electro-Optics Pvt. Ltd.	Bengaluru
45.	Delta Crop Sciences Pvt. Ltd.	Bennur
46.	Ducom Instruments Pvt. Ltd.	Bengaluru
47.	E I D Parry (India) Ltd.	Bengaluru
48.	ECL Agrotech Ltd.	Bengaluru
49.	Edgeverve Systems Ltd.	Bengaluru
50.	Elecon Measurements Pvt. Ltd.	Bengaluru
51.	Electro Systems Associates Pvt. Ltd.	Bengaluru
52.	Electronic Automation Pvt. Ltd.	Bengaluru
53.	Elpro Energy Dimensions Pvt. Ltd.	Bengaluru
54.	Em Electronix Pvt. Ltd.	Bengaluru
55.	Enzene Biosciences Pvt.Ltd.	Bengaluru
56.	Erkadi Medical Systems Pvt. Ltd.	Bengaluru
57.	Essae Digitronics Pvt. Ltd.	Bengaluru
58.	Essae Teraoka Ltd.	Bengaluru
59.	Forus Health Pvt. Ltd.	Bengaluru
60.	G7 SynergonPvt. Ltd.	Bengaluru
61.	Genotypic Technology Pvt. Ltd.	Bengaluru
62.	GEO Biotechnologies India Pvt. Ltd.	Bengaluru
63.	Global Calcium Pvt. Ltd	Bengaluru
64.	Glowtronics Ltd.	Mysore
65.	Gokak Textiles Ltd.	Bengaluru
66.	H&V Advanced Materials India Pvt Ltd	Kadakola

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67.	Healthline Pvt.Ltd.	Bengaluru
68.	Hind High Vacuum Company Pvt. Ltd.	Bengaluru
69.	I & B SeedsPvt. Ltd.	Bengaluru
70.	IFB Automotive Pvt. Ltd.	Bengaluru
71.	Indfrag Ltd.	Bengaluru
72.	Indo-American Hybrid Seeds (India) Pvt. Ltd.	Bengaluru
73.	Ingersoll Rand (India) Ltd.	Bengaluru
74.	Intent Design India Pvt. Ltd.	Bengaluru
75.	IPA Pvt. Ltd.	Bengaluru
76.	Ittiam Systems Pvt. Ltd.	Bengaluru
77.	Jindal Aluminium Ltd.	Bengaluru
78.	JSW Steel Ltd.	Bellary
79.	Jubilant Biosya Ltd.	Bengaluru
80.	Karnataka Hybrid Micro Devices Ltd.	Bengaluru
81.	Karnataka-Hi-Tech Agro Enterprises	Gadag
82.	Kaypeeyes Biotech Pvt. Ltd.	Mysore
83.	Kemwell Biopharma Pvt. Ltd.	Bengaluru
84.	Kennametal India Ltd.	Bengaluru
85.	Kluber Lubrication India Pvt. Ltd.	Bengaluru
86.	Kumar Organic Products Pvt. Ltd.	Bengaluru
87.	L&T Construction Equipment Ltd.	Bengaluru
88.	Labland Biotech Pvt. Ltd.	Mysore
89.	Lablinks Biotech Pvt. Ltd.	Bengaluru
90.	Lake Chemicals Pvt. Ltd.	Bengaluru
91.	Mahindra Reva Electrical vehicles Pvt Ltd.	Bengaluru
92.	Manjushree Technopack Ltd.	Bengaluru
93.	Mann & Hummel Filter Pvt. Ltd.	Bengaluru
94.	Maxwatt Turbines Pvt Ltd.	Bengaluru
95.	Medreich Ltd.	Bengaluru
96.	Meritor HVS (India) Ltd.	Mysore
97.	Merlinhawk Aerospace Pvt. Ltd.	Bengaluru
98.	Metahelix Life Sciences Pvt. Ltd.	Bengaluru
99.	Micro Labs Ltd.	Bengaluru
100.	Milltec Machinery Pvt. Ltd.	Bommasandra
101.	Mitra Biotech Pvt. Ltd.	Bengaluru
102.	MKS Systems	Bengaluru
103.	Mro-Tek Ltd.	Bengaluru
104.	Multiplex Bio-Tech Pvt. Ltd.	Bengaluru
105.	Namdhari Seeds Pvt. Ltd.	Bengaluru
106.	Natural Capsules Ltd.	Bengaluru
107.	Natural Remedies Pvt. Ltd.	Bengaluru
108.	Navya Biologicals Pvt. Ltd.	Bengaluru
109.	Neurosynaptic Communications Pvt. Ltd.	Bengaluru
110.	Olive Lifesciences Pvt. Ltd.	Bengaluru
111.	Oracle Financial Services Software Ltd.	Bengaluru
112.	Organica Aromatics (Bengaluru) Pvt. Ltd.	Bengaluru
113.	Oriental Biotech Ltd.	Bengaluru
114.	Panacea Medical Technologies Pvt. Ltd	Bengaluru
115.	Park Controls and Communications Ltd.	Bengaluru
116.	Pathpartner TechnologyPvt. Ltd.	Bengaluru
117.	PathShodh Healthcare Pvt Ltd.	Bengaluru
118.	Pentavalent Bio Sciences Pvt Ltd.	Bengaluru
119.	PhytoMyco Research Pvt. Ltd.	Mysore
120.	Point Red Telecom Ltd.	Bengaluru
121.	Prakruti Products Pvt. Ltd.	Bengaluru
122.	Praras Biosciences Pvt. Ltd.	Bengaluru
123.	Precimeasure Controls Pvt. Ltd.	Bengaluru
124.	Promptec Renewable Energy Solutions Pvt. Ltd.	Bengaluru
125.	Provimi Nutrition India Pvt. Ltd.	Bengaluru

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126.	Prudent Communication System Pvt. Ltd.	Bengaluru
127.	Rapsri Engg. Industries Pvt. Ltd.	Bengaluru
128.	Remidio Innovative Solutions Pvt. Ltd.	Bengaluru
129.	Resil Chemicals Pvt. Ltd.	Bengaluru
130.	Resonance Laboratories Pvt. Ltd.	Bengaluru
131.	Richcore Lifesciences Pvt. Ltd.	Bengaluru
132.	Robust Materials Technology Pvt. Ltd.	Bengaluru
133.	S3v Vascular Technologies Pvt Ltd.	Mysore
134.	Sagas Autotec Pvt. Ltd.	Mysore
135.	Sami Labs Ltd.	Bengaluru
136.	Samleen Bioengineering Pvt. Ltd.	Bengaluru
137.	San Engg& Locomotive Co. Ltd.	Bengaluru
138.	Sasken Communication Technologies Ltd.	Bengaluru
139.	Sea6 Energy Pv.t Ltd.	Bengaluru
140.	Semler Research CenterPvt. Ltd.	Bengaluru
141.	Sequent Scientific Ltd.	Mangalore
142.	Shilpa Medicare Ltd.	Raichur
143.	Siddhi Vinayak Agro Tech	Bengaluru
144.	Sika Interplant Systems Ltd.	Bengaluru
145.	Silvan Innovation Labs Pvt. Ltd.	Bengaluru
146.	Skanda Life Sciences Pvt. Ltd.	Bengaluru
147.	Skanray Healthcare Pvt. Ltd.	Mysore
148.	SLN Technologies Pvt. Ltd.	Bengaluru
149.	Sonarome Pvt Ltd	Bengaluru
150.	Sri Research for Tissue Engineering Pvt. Ltd.	Bengaluru
151.	Stabicon Life Sciences Pvt Ltd	Bengaluru
152.	Steer Engineering Pvt. Ltd.	Bengaluru
153.	Stelis Biopharma Pvt Ltd	Bengaluru
154.	StellencePharmscience Ltd	Bengaluru
155.	Stempeutics Research Pvt. Ltd.	Manipal
156.	Strand Life Sciences Pvt. Ltd.	Bengaluru
157.	Strides Arcolab Ltd.	Bengaluru
158.	Stumpp, Schuele & Somappa Pvt. Ltd.	Bengaluru
159.	Syngene International Ltd.	Bengaluru
160.	System Controls Technology Solutions Pvt. Ltd.	Bengaluru
161.	Tadimety Aromatics Pvt. Ltd.	Bengaluru
162.	Tally Solutions Pvt. Ltd.	Bengaluru
163.	Tata Advanced Materials Ltd.	Bengaluru
164.	Tata Coffee Ltd.	Kodagu
165.	Tata Elxsi Ltd.	Bengaluru
166.	TD Power Systems Ltd.	Bengaluru
167.	Tejas Networks India Ltd.	Bengaluru
168.	The Himalaya Drug Company	Bengaluru
169.	The Ugar Sugar Works Ltd.	Belgaum
170.	The West Coast Paper Mills Ltd.	Uttar Kannada
171.	Thinture Technologies Pvt. Ltd.	Bengaluru
172.	Tokita Seed India Pvt. Ltd.	Bengaluru
173.	Triesta Sciences (India) Pvt. Ltd.	Bengaluru
174.	Triton Valves Ltd.	Bengaluru
175.	Triveni Turbine Ltd.	Bengaluru
176.	Tropica Seeds Pvt. Ltd.	Bengaluru
177.	TTK Prestige Ltd	Hosur
178.	TTP Technologies Pvt. Ltd.	Bengaluru
179.	UCAM Ltd	Bengaluru
180.	United Genetics India Pvt. Ltd.	Bengaluru
181.	United Spirits Ltd., Formerly Mcdowell & Company Ltd.	Bengaluru
182.	United Telecoms Ltd.	Bengaluru
183.	V S T Tillers Tractors Ltd.	Bengaluru
184.	Veera Vahana Udyog Pvt. Ltd.	Bengaluru

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185.	Vidya Herbs Pvt. Ltd.	Bengaluru
186.	Welcome Crop Science Pvt. Ltd.	Bengaluru
187.	Wendt (India) Ltd.	Bengaluru
188.	Wipro GE Healthcare Pvt. Ltd.	Bengaluru
189.	Wipro Infrastructure Engineering Ltd.	Bengaluru
190.	Wipro Ltd.	Bengaluru
191.	X Cyton Diagnostics Pvt. Ltd.	Bengaluru
192.	Zuari Seeds Ltd.	Bengaluru
CMIE database Private Sector R&D Units		
Sl.No	**Name of the Institution**	**City**
1.	3i Infotech Ltd.	Bengaluru
2.	3M India Ltd.	Bengaluru
3.	A B B Ltd.	Bengaluru
4.	A C E Designers Ltd.	Bengaluru
5.	Abexome Bioscience Pvt. Ltd.	Bengaluru
6.	ACC Rio Tinto Exploration Ltd.	Bengaluru
7.	Acumac Machine Tools Pvt. Ltd.	Bengaluru
8.	Aditya Birla Minacs IT Services Ltd.	Bengaluru
9.	Ador Technologies Ltd.	Bengaluru
10.	Advance Neuroscience Allies Pvt. Ltd.	Bengaluru
11.	Agro Extracts Ltd.	Bengaluru
12.	Akozo Nobel Car Refinishes India Pvt. Ltd.	Bengaluru
13.	Ananth Technologies Ltd. (R&D Bengaluru)	Bengaluru
14.	Anveshan Telecom Pvt. Ltd.	Bengaluru
15.	Apotex Research Pvt. Ltd.	Bengaluru
16.	Araco Polyflex Pvt. Ltd. (Sakura Capital India Ltd.)	Bengaluru
17.	Ashchem Agrotech Pvt. Ltd.	Bengaluru
18.	ASL Advanc ed Systems Pvt. Ltd.	Bengaluru
19.	ASM Technologies Ltd.	Bengaluru
20.	Astrazeneca Pharma India Ltd.	Bengaluru
21.	Auma India Pvt. Ltd.	Bengaluru
22.	Automotive Axles Ltd.	Mysore
23.	Avasarala Tungsten Ltd.	Mysore
24.	Aztec Software and Technology Services Ltd.	Bengaluru
25.	B P L Engineering Ltd.	Bengaluru
26.	B P L Ltd.	Bengaluru
27.	B P L Sanyo Pvt. Ltd.	Bengaluru
28.	B S Appliances Ltd.	Bengaluru
29.	Balan Natural Food Pvt. Ltd.	Bengaluru
30.	Bharat Technologies Auto Components Ltd.	Hosur
31.	Biovel Life Sciences Pvt. Ltd.	Bengaluru
32.	Biovet Pvt. Ltd.	Malur
33.	Bloom Energy India Pvt. Ltd.	Bengaluru
34.	Bluefish Pharmaceuticals India Pvt. Ltd.	Bengaluru
35.	BPL Techno Vision Pvt. Ltd.	Bengaluru
36.	Brantford Chemicals Pvt. Ltd.	Bengaluru
37.	Burns Philip India Ltd.	Bengaluru
38.	Camson Bio Technologies Ltd.	Bengaluru
39.	Cerebra Integrated Technologies Ltd.	Bengaluru
40.	Cisco Global Development	Bengaluru
41.	Clinigene International Ltd.	Bengaluru
42.	Connexios Life Science Pvt. Ltd.	Bengaluru
43.	Cranes Software International Ltd. (R&D BTM Layout)	Bengaluru
44.	Cranes Software International Ltd. (R&D)	Bengaluru
45.	Delphi Research Services Pvt. Ltd.	Bengaluru
46.	DSQ Biotech Ltd.	Bengaluru
47.	Dynamatic Technologies Ltd.	Bengaluru
48.	E M Electronix Pvt. Ltd.	Bengaluru
49.	EICL Ltd.	Bengaluru

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50.	Enercon Systems Pvt. Ltd.	Bengaluru
51.	Epcos India Pvt. Ltd.	Bengaluru
52.	Exasense Lads Ltd.	Bengaluru
53.	Falcon Tyres Ltd.	Mysore
54.	FMC Agriculture Products Group	Bengaluru
55.	G M R Industries Ltd.	Bengaluru
56.	Ganga Gen Inc.,Gangagen Biotechnologies Pvt. Ltd.	Bengaluru
57.	GE Fanuc Systems Pvt. Ltd.	Bengaluru
58.	GE India Technology Centre Pvt. Ltd.	Bengaluru
59.	GE Plastics	Bengaluru
60.	Gem Sugars Ltd.	Bengaluru
61.	Genovo Development Services Ltd.	Bengaluru
62.	Glentec International, Biocon India Ltd.	Bengaluru
63.	Heidelberg Cement India Ltd.	Tumkur
64.	Helix Biotech Pvt. Ltd.	Bengaluru
65.	Hewlett-Packard Globalsoft Ltd.	Bengaluru
66.	HimatsingkaSeide Ltd.	Bengaluru
67.	Hycom Engineering (India) Pvt. Ltd.	Bengaluru
68.	IBM India Ltd.	Bengaluru
69.	Imergent Technologies Pvt. Ltd. (Now Icelerate Technologies)	Bengaluru
70.	Inbiopro Solutions Pvt. Ltd.	Bengaluru
71.	India Sugars & Refineries Ltd.	Ballard
72.	Indus Seeds (India) Pvt. Ltd.	Bengaluru
73.	Industrial Research Corporation	Bengaluru
74.	Infosys Ltd.	Bengaluru
75.	Instrument Research Associates	Bengaluru
76.	Intel Asia Electronics, Inc.	Bengaluru
77.	Intel Technology	Bengaluru
78.	IQ Infotech Ltd.	Bengaluru
79.	IQF Foods Ltd	Bengaluru
80.	J K Industries Ltd.	Mysore
81.	J K M Daerim Automotive Ltd.	Bengaluru
82.	Jagdale Industries Pvt. Ltd.	Bengaluru
83.	John Fowler (India) Ltd.	Bengaluru
84.	JVS Electronics Pvt. Ltd.	Ramanagara
85.	K C Das Pvt. Ltd.	Bengaluru
86.	K I O C L Ltd.	Bengaluru
87.	Kalki Communication Technologies Ltd.	Bengaluru
88.	Karnataka Emta Coal Mines Ltd.	Bengaluru
89.	Kaveri Industrial Engineers Ltd	Mangalore
90.	Kaveri Telecoms Products Ltd.	Bengaluru
91.	Keltech Energies Ltd.	Bengaluru
92.	Kems Forging Ltd.	Bengaluru
93.	Kirloskar Electric Co. Ltd.	Bengaluru
94.	L and T Komatsu Ltd.	Bengaluru
95.	LG Software Development Centre	Bengaluru
96.	Lipi Data Systems Ltd Bengaluru	Bengaluru
97.	Lotus Clinical Research Academy Pvt. Ltd.	Bengaluru
98.	M S P L Ltd.	Hospet
99.	Madura Coats Pvt. Ltd.	Bengaluru
100.	Maestro Motors Ltd.	Bengaluru
101.	Maini Materials Movement Pvt. Ltd.	Bengaluru
102.	Maini Precision Products (Pvt.) Ltd.	Bengaluru
103.	Manjushree Plantations Ltd.	Bengaluru
104.	Mcdowell& Co. Ltd.	Bengaluru
105.	Medgene Pharmaceuticals Pvt. Ltd.	Bengaluru
106.	Micro Therapeutic Research Lab Pvt. Ltd. (R&D)	Begaluru
107.	Microland Ltd.	Bengaluru
108.	Micrologix Embedded Controls (Pvt.) Ltd.	Bengaluru

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109.	Microsoft Corporation (I) Pvt. Ltd.	Bengaluru
110.	Miven Machine Tools Ltd.	Hublli
111.	Mulberry Silks Ltd.	Bengaluru
112.	Murudeshwar Ceramics Ltd.	Hubli
113.	Mysore Kirloskar Ltd.	Harihar
114.	Mysore Polymers & Rubber Products Pvt. Ltd.	Mysore
115.	Mysore Stoneware Pipes and Potteries Ltd.	Bengaluru
116.	Nalco Champion Dai-Ichi India Pvt. Ltd.	Mumbai
117.	Naturo Food and Fruit Products Pvt. Ltd.	Bengaluru
118.	Onmobile Global Ltd.	Bengaluru
119.	Ontop Pharmaceuticals Ltd.	Bengaluru
120.	Opto Circuits (India) Ltd.	Bengaluru
121.	Otis Elevator Co. (India) Ltd.	Bengaluru
122.	P S I Data Systems Ltd.	Bengaluru
123.	Pampasar Distillery Ltd.	Bellary
124.	Polyclone Bioservices Pvt. Ltd.	Bengaluru
125.	Prism Hydraulics Pvt. Ltd.	Belagavi
126.	Priyaraj Electronics Ltd.	Bengaluru
127.	Process Pumps (I) Pvt. Ltd.	Bengaluru
128.	Processor Systems (India) Pvt. Ltd.	Bengaluru
129.	Quintiles Research (India) Pvt. Ltd.	Bengaluru
130.	R P G Cables Ltd.	Mysore
131.	Rajapalayam Mills Ltd.	Bengaluru
132.	Raman Fibre Science Pvt. Ltd.	Mysore
133.	Reametrix India Pvt. Ltd.	Bengaluru
134.	Rinac India Ltd.	Bengaluru
135.	Royal Philips, Philips Software Centre Ltd.	Bengaluru
136.	Sap Labs India Pvt. Ltd.	Bengaluru
137.	Shakti Precision Components (India) Pvt. Ltd.	Bengaluru
138.	Sharp Software India Pvt. Ltd.	Bengaluru
139.	Shree Renuka Sugars Ltd.	Belgaum
140.	Siemens Information Systems Ltd.	Bengaluru
141.	Siemens V D O Automotive Ltd.	Bengaluru
142.	Silktex Ltd.	Bengaluru
143.	Siltex International Ltd.	Bengaluru
144.	SLK Software Services Pvt. Ltd.	Bengaluru
145.	Southern Electronics (Bengaluru) Pvt. Ltd.	Bengaluru
146.	Spectrum Infotech Pvt. Ltd.	Bengaluru
147.	Sri Raghavendra Biotechnologies Pvt. Ltd	Bengaluru
148.	SSB Industries Ltd	Bengaluru
149.	Stanley Black & Decker India Ltd.	Bengaluru
150.	Star Drugs & Research Labs Ltd.	Bengaluru
151.	Star Spin & Twist Mach Ltd.	Dharwad
152.	Subex Ltd.	Bengaluru
153.	Suprajit Engineering Ltd	Bengaluru
154.	Swede (India) Teletronics Ltd.	Bengaluru
155.	Synopsys India Pvt. Ltd.	Bengaluru
156.	Synplicity Software India Pvt. Ltd.	Bengaluru
157.	Taneja Aerospace and Aviation Ltd.	Bengaluru
158.	Tata Global beverages Limited	Bengaluru
159.	Tata Hitachi Construction Machinery Company Ltd.	Bengaluru
160.	Tech Mahindra (R & D Services) Ltd.	Bengaluru
161.	Telco Construction Equipment Co. Ltd.	Bengaluru
162.	Texas Instruments (India) Pvt. Ltd.	Bengaluru
163.	The Mysore Paper Mills Ltd.	Bengaluru
164.	Toyota Kirloskar Motors Ltd.	Bengaluru
165.	Tummala Electronics Pvt. Ltd.	Bengaluru
166.	Turbotech Precision Engg (Pvt.) Ltd.	Bengaluru
167.	V X L Instruments Ltd.	Bengaluru

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168.	Vintek Rf Products	Bengaluru
169.	Volvo India Pvt. Ltd.	Bengaluru
170.	Weir Minerals India Operations	Bengaluru
171.	Welcast Steels Ltd.	Bengaluru
172.	Wep Peripherals Ltd.	Bengaluru
173.	Wintac Ltd.	Bengaluru
174.	Yuken India Ltd.	Bengaluru

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Annexure-VIII

KERALA		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	Centre for Development of Advanced Computing	Vellayambalam Thiruvananthapuram
2.	Centre for Materials for Electronics Technology	Thrissur
3.	Centre for Marine Living Resources and Ecology	Kochi
4.	National Centre for Earth Science Studies	Akkulam , Thiruvananthapuram
5.	Vikram Sarabhai Space Centre	Thiruvananthapuram
6.	Indian Institute of Space Science and Technology	Valiamala , Thiruvananthapuram
7.	ISRO Inertial Systems Unit	Vattiyoorkavu, Thiruvananthapuram
8.	Rajiv Gandhi Centre for Biotechnology	Thiruvananthapuram
9.	Sree Chitra Tirunal Institute for Medical Sciences & Technology	Thiruvananthapuram
10.	Directorate of Cashew nut and Coca Development	Kochi
11.	National Ayurveda Research Institute for Panchakarma	Thrissur
12.	Regional Ayurveda Research Institute for Life style related Disorders	Poojappura, Thiruvananthapuram
13.	National Homoeopathy Research Institute in Mental Health	Kottayam
14.	Siddha Regional Research Institute	Thiruvananthapuram
15.	Clinical Research Unit (Unani)	Aluva
16.	Rubber Research Institute of India	Kottayam
17.	Fluid Control Research Institute	Palakkad
18.	Central Coir Research Institute	Kalavoor, Alappuzha
19.	Central Institute of Fisheries Technology	Kochi
20.	Central Marine Fisheries Research Institute	Kochi
21.	Central Plantation Crops Research Institute	Kudlu , Kasaragod
22.	Central Tuber Crops Research Institute	Sreekariyam, Thiruvananthapuram
23.	Indian Institute of Spices Research	Kozhikode
24.	Liquid Propulsion Systems Centre	Thiruvananthapuram
25.	BrahMos Aerospace	Thiruvananthapuram
26.	National Institute for Interdisciplinary Science and Technology	Pappanamcode Thiruvananthapuram
27.	Naval Physical & Oceanographic Laboratory	Kochi
Central Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	The Fertilizers and Chemicals Travancore Limited Research and Development Centre	Udyogamandal, Ernakulam.
2.	HLL Lifecare Limited	Poojappura, Thiruvananthapuram
3.	Hindustan Newsprint Limited	Kottayam
4.	Cochin Shipyard Limited	Kochi
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Agricultural Research Station	Anakkayam, Malappuram
2.	Agricultural Research Station	Mannuthy Thrissur
3.	Agricultural Research Station	Kallungal, Pathanamthitta
4.	Agronomic Research Station	Chalakudy Thrissur
5.	Aromatic & Medicinal Plants Research Station	Odakkali, Perumbavoor
6.	Banana Research Station	Kannara, Thrissur
7.	Cardamom Research Station	Idukki
8.	Cashew Research Station	Madakkathara Thrissur
9.	Cattle Breeding Farm	Thumburmuzhi, Thrissur
10.	Cattle Infertility Scheme	Vellimadukunnu , Kozhikode
11.	Cocoa Research Station	Vellanikkara Thrissur
12.	Coconut Research Station	Balaramapuram, Thiruvananthapuram
13.	College of Agriculture	Kasaragod
14.	College of Agriculture	Thiruvananthapuram

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15.	College of Horticulture	Thrissur
16.	Cropping Systems Research Centre	Karamana, Thiruvananthapuram
17.	Farming Systems Research Station	Sadananthapuram, Kottarakkara
18.	Fruit Crops Research Station	Vellanikkara, Thrissur
19.	Integrated Farming Systems Research Station	Karamana.
20.	Kelappaji College of Agricultural Engineering & Technology	Tavanur, Malappuram
21.	National Fish Seed Farm	Palakkad
22.	Onattukara Regional Agricultural Research Station	Kayamkulam
23.	Pepper Research Station	Panniyur, Kannur
24.	Pesticide Residue Research and Analytical Lab	Vellayani
25.	Pineapple Research Station	Vazhakulam,Muvattupuzha
26.	Plant Propagation & Nursery Management	Vellanikkara ,
27.	Regional Agricultural Research Station	Ambalavayal, Wayanad.
28.	Regional Agricultural Research Station	Kumarakom, Kottayam
29.	Regional Agricultural Research Station	Nileswar
30.	Regional Agricultural Research Station	Pattambi,Palakkad
31.	Regional Agricultural Research Station	Pilicode, Kasaragod-
32.	Regional Agricultural Research Station	Vellayani
33.	Regional Shrimp Hatchery	Thrissur
34.	Rice Research Station	Moncompu
35.	Rice Research Station	Vyttila , Kochi
36.	Soil Conservation Research Centre	Konni, Pathanamthitta
37.	College of Fisheries	Panangad, Ernakulam
38.	Fisheries Station	Puduveypu , Kochi
39.	All India Co-ordinated Research Project on Poultry	Mannuthy
40.	Avian Research Station	Thiruvazhamkunnu
41.	Base Farm	Idukki, Kolahalamedu
42.	Cattle Breeding Farm	Thumburmuzhy
43.	Centre for Advanced Studies in Animal Breeding Genetics and Biostatistics	Mannuthy
44.	Centre for Advanced Studies in Poultry Science	Mannuthy
45.	Centre for Ethnopharmacology	Pookode
46.	Centre for Livestock Development and Policy Research	Thiruvanthapuram
47.	Centre for One Health Education Advocacy Research & Training	Pookode
48.	Centre for Pig Production and Research	Mannuthy, Thrissur
49.	Centre for Wild Life Studies	Pookode
50.	College of Veterinary & Animal Sciences	Mannuthy
51.	College of Veterinary & Animal Sciences	Pookode
52.	Dairy Plant	Mannuthy
53.	Goat and Sheep Farm	Mannuthy
54.	Instructional Livestock Farm Complex	Pookode
55.	Livestock Research Station	Thiruvazhamkunnu, Palakkad
56.	Meat Technology Unit	Mannuthy
57.	University Livestock Farm and Fodder Research and Development Scheme	Mannuthy
58.	University Poultry & Duck Farm	Mannuthy
59.	Agency for Non-Conventional Energy & Rural Technology	Vikas Bhavan
60.	Centre for Development of Imaging Technology	Thiruvallam
61.	Centre for Mathematical and Statistical Sciences	Peechi
62.	Centre for Water Resources Development and Management	Kunnamangalam
63.	Kerala Engineering Research Institute	Peechi
64.	Kerala Highway Research Institute	Kariyavattom
65.	Kerala State Council for Science, Technology & Environment	Pattom
66.	LBS Centre for Science & Technology	Thiruvananthapuram
67.	Malabar Botanical Garden	Kozikode
68.	Marine Biological Station	Kozhikode
69.	National Transportation Planning and Research Centre	Thiruvananthapuram
70.	Regional Cancer Centre	Thiruvananthapuram

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71.	School of Marine Sciences Cochin University of Science & Technology	Kochi
72.	Kerala Agricultural University	Thrissur
73.	Kerala University of Fisheries and Ocean Studies	Panangad
74.	Kerala Veterinary and Animal Sciences University	Pookode
75.	Jawaharlal Nehru Tropical Botanic Garden & Research Institute	Palode, Thiruvananthapuram
76.	The Institute for Climate Change Studies	Kottayam
77.	Srinivasa Ramanujan Institute for Basic Science	Kottayam
78.	Kerala Forest research Institute	Peechi
79.	Kerala School of Mathematics	Kozhikode
80.	Malabar Botanical Garden & Institute for Plant Sciences	Kozhikode
81.	Centre for Water Resources Development and Management	Kozhikode
82.	Institute of Advanced Virology	Thiruvananthapuram

State Public Sector Enterprises

Sl. No	Name of the Institution	City
1.	Keltron Component Complex Limited	Kalliassery, Kannur
2.	Kerala Agro Machinery Corporation Limited	Athani, Ernakulam
3.	Kerala Automobiles Limited	Thiruvananthapuram
4.	Kerala Electrical & Allied Engg. Co. Limited	Kochi
5.	Kerala Minerals & Metals Limited	Chavara
6.	Kerala State Drugs and Pharmaceuticals Limited	Kalavoor
7.	Kerala State Electricity Board	Pattom
8.	Transformers and Electricals Kerala Limited	Ernakulam
9.	Travancore Titanium Products Limited	Thiruvananthapuram

Universities/ Deemed Universities/ Institute of National Importance/ Women S&T Universities

Sl. No	Name of the Institution	City
1.	Central University of Kerala	Kasaragod
2.	APJ Abdul Kalam Technological University	Thiruvananthapuram
3.	Cochin University of Science & Technology	Kochi
4.	Kerala University of Health Sciences	Thrissur
5.	Kannur University	Kannur
6.	Mahatma Gandhi University	Kottayam
7.	National University of Advanced Legal Studies	Ernakulam
8.	University of Calicut	Malappuram
9.	University of Kerala	Thiruvananthapuram
10.	Indian Institute of Information Technology	Kottayam
11.	Indian Institute of Science Education and Research	Thiruvananthapuram
12.	Indian Institute of Technology	Palakkad
13.	National Institute of Technology	Calicut
14.	Kerala Kalamandalam	Thrissur
15.	Indian Institute of Space Science and Technology	Thiruvananthapuram
16.	Sri Chitra Tirunal Institute of Medical Science and Technology	Thiruvananthapuram

Scientific and Industrial Research Organization (SIROs)

Sl. No	Name of the Institution	City
1.	Amala Cancer Research Centre Society	Thrissur
2.	Arya Vaidya Sala	Malappuram
3.	Cancer and Allied Ailments Research Foundation	Kozhikode
4.	Centre for Environment and Development	Thiruvananthapuram
5.	Centre for Innovation in Science and Social Action	Thiruvananthapuram
6.	Chinmaya International Foundation	Ernakulam
7.	Dharmagiri Jeevas Social Centre	Kannur
8.	Environmental Resources Research Centre	Thiruvananthapuram
9.	Health Action by People	Thiruvananthapuram
10.	Indian Institute of Information Technology and Management Kerala	Thiruvananthapuram
11.	Institute for Communicative and Cognitive Neurosciences	Palakkad
12.	International Centre for Free & Open Source Software	Thiruvananthapuram

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13.	Jubilee Mission Medical College & Research	Thrissur
14.	Malabar Cancer Centre	Kannur
15.	MIMS Research Foundation	Kozhikode
16.	Nansen Environmental Research Centre	Kochi
17.	Peermade Development Society	Idukki
18.	Pushpagiri Medical Society	Tiruvalla
19.	Sahrdaya College of Engineering and Technology	Thrissur
20.	Santhigiri Ashram	Thiruvananthapuram
21.	SCMS Institute of Bioscience and Biotechnology Research & Development	Kochi
22.	St James Hospital Trust Pharmaceutical Research Center	Chalakudy
23.	The Cashew Export Promotion Council of India	Kollam
24.	The Corporate Educational Agency of the Catholic Diocese of Tiruvalla	Tiruvalla
25.	Toc H Institute of Science and Technology	Ernakulam
DSIR registered Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	A V T Natural Products Ltd.	Aluva, Ernakulam
2.	Active Char Products Pvt. Ltd.	Edayar Ernakulam
3.	Agappe Diagnostics Ltd.	Ernakulam
4.	Agri Genome Labs Pvt. Ltd.	Ernakulam
5.	Akay Natural Ingredients Pvt. Ltd.	Ernakulam
6.	Arjuna Natural Ltd.	Ernakulam
7.	Confederation for Ayurvedic Renaissance-Keralam Ltd.	Thrissur
8.	E I C L Ltd.	Thiruvananthapuram
9.	Eddy Current Controls (India) Ltd.	Thrissur
10.	Hykon India Ltd.	Thrissur
11.	Indriyam Biologics Pvt. Ltd.	Thiruvananthapuram
12.	Industron Nanotechnology Pvt. Ltd.	Thiruvanthapuran
13.	Kanan Devan Hills Plantations	Munnar
14.	Kancor Ingredients Ltd.	Ernakulam
15.	Kerala Ayurveda Ltd.	Ernakulam
16.	KSB MIL Controls Ltd.	Thrissur
17.	Manjilas Food Tech Pvt. Ltd.	Thrissur
18.	Mediatronix Pvt. Ltd.	Thiruvananthapuram
19.	Nagarjuna Herbal Concentrates Ltd.	Idukki
20.	Nitta Gelatin India Ltd.	Kochi
21.	O/E/N India Ltd.	Kochi
22.	Oxide (India) Pvt. Ltd.	Alappuzha
23.	Pelican Biotech and Chemical Labs Pvt. Ltd.	Alleppey
24.	Plant Lipids Pvt. Ltd.	Ernakulam
25.	Primus Gloves Pvt. Ltd.	Kochi
26.	S F O Technologies Pvt. Ltd.	Kochi
27.	Sascan Meditech Pvt. Ltd.	Thiruvananthapuram
28.	SciGenom Labs Pvt. Ltd.	Kochi
29.	Sitaram Ayurveda Pharmacy Ltd.	Thrissur
30.	SUD Chemie India Ltd.	Kochi
31.	Symega Food Ingredients Ltd.	Ernakulam
32.	Synthite Industries Ltd.	Kochi
33.	Terumo Penpol Ltd.	Thiruvananthapuram
34.	The Western India Plywoods Ltd.	Kannur
35.	Ubio Biotechnology Systems Pvt. Ltd.	Kochi
36.	Vaidyaratnam Oushadhasala Pvt. Ltd.	Thrissur
37.	V-Guard Industries Ltd.	Kochi
38.	Vinvish Technologies Pvt. Ltd.	Thiruvanthapuram
CMIE database Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	Aluminium Industries Ltd.	Kollam
2.	Autokast Ltd.	Alappuzha

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3.	Chillar Payment Solutions Pvt. Ltd.	Kakkanad
4.	Choice Trading Corpn. Pvt. Ltd.	Ernakulam
5.	Cochin Minerals and Rutile Ltd.	Aluva
6.	Eastern Condiments Pvt. Ltd.	Kochi
7.	F C I OEN Connectors Ltd.	Vyttila
8.	Geojit Financial Services Ltd.	Kochi
9.	Guardian Controls Ltd.	Kochi
10.	Mobme Wireless Solutions Ltd.	Kochi
11.	Thaikkattu Mooss E T M Oushadhasala (India) Ltd.	Thrissur

Annexure-IX

MADHYA PRADESH		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	All India Institute of Medical Science (AIIMS)	Bhopal
2.	Bhopal Memorial Hospital andResearch Centre (ICMR)	Bhopal
3.	CCRAS- Regional Ayurveda Research Institute for Drug Development	Gwalior
4.	Central Forensic Science Laboratory	Bhopal
5.	Central Institute of Plastics Engineering and Technology (CIPET)	Bhopal
6.	Clinical Research Unit (Unani)	Bhopal
7.	Clinical Research Unit (Unani)	Burhanpur
8.	CSIR-Advanced Materials and Processes Research Institute (AMPRI)	Bhopal
9.	Defence Research and Development Organisation	Gwalior
10.	Dr. Harisingh Gour Vishwavidyalay (A Central University)	Sagar
11.	ICAR- Central Institute of Agricultural Engineering	Bhopal
12.	ICAR- Directorate of Weed Research	Jabalpur
13.	ICAR- Indian Institute of Soil Science	Bhopal
14.	ICAR-Indian Institute of Pulses Research	Bhopal
15.	ICMR- National Institute for Research in Environmental Health	Bhopal
16.	Indian Institute of Forest Management	Bhopal
17.	Indian Institute of Information Technology, Design and Manufacturing	Jabalpur
18.	Indian Institute of Science Education and Research (IISER)	Bhopal
19.	Indian Institute of Soybean Research	Indore
20.	Indian Institute of Technology	Indore
21.	Indira Gandhi National Tribal University	Amarkantak
22.	Maulana Azad National Institute of Technology (MANIT)	Bhopal
23.	National Institute for Research on Tribal Health	Jabalpur
24.	National Institute of High Security Animal Diseases	Bhopal
25.	National Institute of Technical Teachers' Training and Research	Bhopal
26.	National Law University	Bhopal
27.	Raja Ramanna Centre for Advanced Technology (RRCAT)	Indore
28.	School of Planning and Architecture	Bhopal
29.	Tropical Forest Research Institute	Jabalpur
Central Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Bharat Heavy Electricals Ltd. (BHEL)	Bhopal
2.	Bharat Petroleum Corporation Limited (BPCL)	Bina
3.	Govt. Opium and Alkaloid Factory	Neemuch
4.	Gun Carriage Factory	Jabalpur
5.	Narmada Hydroelectric Development Corporation (NHDC)	Khandwa
6.	National Textile Corporation Ltd.	Burhanpur
7.	NEPA Limited	Nepanagar, Burhanpur
8.	Northern Coalfields Ltd.	Singrauli
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Water Resources Department	Bhopal
2.	R&D Cell, Madhya Pradesh Power Generating CompanyLtd.	Jabalpur
3.	State Forest Research Institute	Jabalpur
4.	Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV)	Jabalpur
5.	Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya (RVSKVV)	Gwalior
6.	Regional Agricultural Research Station- JNKVV	Rewa, Sagar, Dindori, Waraseoni (Balaghat) = 04 (Nos.)
7.	Zonal Agricultural Research Station- JNKVV	Tikamgarh, Powarkheda (Hoshangabad), Chhindwara, Jabalpur= 04 (Nos.)

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8.	Agricultural Research Station- JNKVV	Chhattarpur, Sagar, Chhindwara= 03 (Nos.)
9.	Regional Agricultural Research Station – RVSKVV	Gwalior, Khandwa, Ujjain, Mandsaur= 04 (Nos.)
10.	Zonal Agricultural Research Station –RVSKVV	Indore, Jhabua, Khargone, Morena, Sehore= 05 (Nos.)
11.	Special/ Horticultural Research Station- RVSKVV	Bhopal, Jaora, Bagwai, Badwah= 04 (Nos.)
12.	Special Research Centers – JNKVV	Narsinghpur, Orai (Mandla)= 02 (Nos.)
13.	College of Agriculture	Khandwa
14.	RAK College of Agriculture	Sehore
15.	College of Agriculture	Jabalpur
16.	College of Horticulture	Mandsaur
17.	Nanaji Deshmukh Veterinary Science University (NDVSU)	Jabalpur
18.	College of Veterinary Science & Animal Husbandry	Jabalpur
19.	College of Veterinary Science & Animal Husbandry	Indore
20.	College of Veterinary Science& Animal Husbandry	Mhow, Indore
21.	Vindhya Herbals, MFP- PARC	Bhopal
22.	Barkatullah University	Bhopal
23.	M.P. Bhoj (Open) University	Bhopal
24.	Rajiv Gandhi ProudyogikiVishwavidyalaya	Bhopal
25.	Maharaja ChhatrasalBundelkhand Vishwavidyalaya	Chhatarpur
26.	Chhindwara University	Chhindwara
27.	Mahatma Gandhi Chitrakoot Gramoday Vishwavidyalaya	Chitrakoot, Satna
28.	Jiwaji Vishwavidyalaya	Gwalior
29.	Raja Mansingh Tomar Music & Arts University	Gwalior
30.	Devi Ahilya Vishwavidyalaya	Indore
31.	Madhya Pradesh MedicalScience University	Jabalpur
32.	Rani Durgavati Vishwavidyalaya	Jabalpur
33.	Awadhesh Pratap SinghUniversity	Rewa
34.	Pandit S.N. Shukla University	Shahdol
35.	Vikram University	Ujjain
36.	UGC-DAE Consortium for Scientific Research	Khandwa
37.	Birla Research Institute forApplied Sciences	Nagda, Ujjain
38.	Pt. Khushilal Sharma Govt. Ayurveda College and Institute	Bhopal
39.	Shri G.S. Institute of Technology and Science- Govt. Autonomous	Indore
40.	Madhav Institute of Technology and Science- Govt. Autonomous I	Gwalior
41.	Institute for excellence in Higher Education (IEHE)- Govt. Autonomous	Bhopal
42.	Sarojini Naidu Government Girls Post Graduate College- Govt. Autonomous	Bhopal
43.	Govt. Holkar Science College- Govt. Autonomous	Indore
44.	Government M. H. College of Home Science & Science for Women- Govt. Autonomous	Jabalpur
45.	Samrat Ashok Technological Institute- Govt. Autonomous	Vidisha
Total Nos. = 64		
State Public Sector Enterprises		
Sl. No	**Name of Enterprises**	**City**
1.	Madhya Pradesh State Co-operative Dairy Federation Limited	Bhopal
2.	Madhya Pradesh State Minor Forest Produce Processing & Research Centre (MFP- PARC)	Bhopal
3.	Madhya Pradesh State Seeds and Farms Development Corporation	Bhopal
4.	Madhya Pradesh Agro Oils and Cattle Feed Limited	Bhopal
5.	Madhya Pradesh Agro Pesticides Limited	Bhopal
6.	Madhya Pradesh Audyogik Kendra Vikas Nigam (Bhopal) Limited	Bhopal
7.	Madhya Pradesh Audyogik Kendra Vikas Nigam (Gwalior) Limited	Gwalior
8.	Madhya Pradesh Audyogik Kendra Vikas Nigam (Indore) Limited	Indore

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9.	Madhya Pradesh Audyogik Kendra Vikas Nigam (Jabalpur) Limited	Jabalpur
10.	Madhya Pradesh Audyogik Kendra Vikas Nigam (Raipur) Limited	Raipur
11.	Madhya Pradesh Audyogik Kendra Vikas Nigam (Rewa) Limited	Rewa
12.	Madhya Pradesh Export Corporation Limited	Bhopal
13.	Madhya Pradesh Film Development Corporation Limited	Bhopal
14.	Madhya Pradesh Hastshilp Evam Hathkargha Vikas Nigam Limited	Bhopal
15.	Madhya Pradesh Laghu Udyog Nigam Limited	Bhopal
16.	Madhya Pradesh Leather Development Corporation Limited	Bhopal
17.	Madhya Pradesh Pichhra Varg Tatha Alpsankhyak Vitta Evam Vikas Nigam	Bhopal
18.	Madhya Pradesh Police Housing Corporation Limited	Bhopal
19.	Madhya Pradesh Rajya Van Vikas Nigam Limited	Bhopal
20.	Madhya Pradesh State Agro Industries Development Corporation Limited	Bhopal
21.	Madhya Pradesh State Civil Supplies Corporation Limited	Bhopal
22.	Madhya Pradesh State Electronics Development Corporation Limited	Bhopal
23.	Madhya Pradesh State Industrial Development Corporation Limited	Bhopal
24.	Madhya Pradesh State Industries Corporation Limited	Bhopal
25.	Madhya Pradesh State Mining Corporation Limited	Bhopal
26.	Madhya Pradesh State Textile Corporation Limited	Bhopal
27.	Madhya Pradesh State Tourism Development Corporation Limited	Bhopal
28.	Madhya Pradesh Urja Vikas Nigam Limited	Bhopal
29.	Optel Telecommunications Limited	Bhopal
30.	Rajiv Gandhi Primary Education Mission	Chhatarpur, Panna,Datia, Satna, Tikamgarh
31.	State Economic Offences Investigation Bureau	Bhopal
32.	The Provident Investment Company Limited	Mumbai
33.	Vindhya Telelinks Ltd.	Rewa

Universities/ Deemed Universities/Institute of National Importance/Women S & T Universities

Sl. No	Name of the Institution	City
1.	Atal Bihari Vajpayee Hindi Vishwavidyalaya	Bhopal
2.	Awadhesh Pratap Singh University	Rewa
3.	Barkatullah University	Bhopal
4.	Chhindwara University	Chhindwara
5.	Devi Ahilya Vishwavidyalaya	Indore
6.	Dr. B.R. Ambedkar Universityof Social Sciences	Mhow
7.	Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV)	Jabalpur
8.	Jiwaji Vishwavidyalaya	Gwalior
9.	M.P. Bhoj (Open) University	Bhopal
10.	Madhya Pradesh MedicalScience University	Jabalpur
11.	Maharaja ChhatrasalBundelkhand Vishwavidyalaya	Chhatarpur
12.	Maharishi Mahesh Yogi VedicVishwavidyalaya	Katni
13.	Maharishi Panini Sanskrit Vishwavidyalaya, Ujjain	Ujjain
14.	Mahatma Gandhi ChitrakootGramoday Vishwavidyalaya	Chitrakoot
15.	Makhanlal Chaturvedi Rashtriya Patrakarita -NationalUniversity of Journalism	Bhopal
16.	Nanaji Deshmukh Veterinary Science University	Jabalpur
17.	Pandit S.N. Shukla University	Shahdol
18.	Raja Mansingh Tomar Music & Arts University	Gwalior
19.	Rajiv Gandhi ProudyogikiVishwavidyalaya	Bhopal
20.	Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya (RVSKVV)	Gwalior
21.	Rani Durgavati Vishwavidyalaya	Jabalpur
22.	Sanchi University of Buddhist- Indic Studies	Sanchi
23.	Vikram University	Ujjain
24.	Aisect University / Rabindranath TagoreUniversity	Bhopal
25.	AKS University	Satna
26.	Amity University	Gwalior
27.	Avantika University	Ujjain
28.	Bhabha University	Bhopal

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29.	Dr A P J Abdul KalamUniversity	Indore
30.	Dr. C.V. Raman University	Khandwa
31.	Eklavya University	Damoh
32.	G H Raisoni University	Chhindwara
33.	I.E.S. University	Bhopal
34.	ITM University	Gwalior
35.	Jagran Lake City University	Bhopal
36.	Jaypee University of Engineering and Technology	Guna
37.	LNCT University	Bhopal
38.	Madhyanchal ProfessionalUniversity	Bhopal
39.	Malwanchal University	Indore
40.	Mandsaur University	Mandsaur
41.	Mansarovar Global University	Bhopal
42.	Medi-Caps University	Indore
43.	Oriental University	Indore
44.	People's University	Bhopal
45.	PK University	Shivpuri
46.	Renaissance University	Indore
47.	RKDF University	Bhopal
48.	Sage University	Bhopal
49.	Sage University	Indore
50.	Sardar Patel University	Balaghat
51.	Sarvepalli Radhakrishnan University (SRK) University	Bhopal
52.	Shri Krishna University	Chattarpur
53.	Shri Vaishnav Vidyapeeth University	Indore
54.	Sri Satya Sai University ofTechnology and Medical Sciences	Sehore
55.	SVN University	Sagar
56.	Swami Vivekanand University	Sagar
57.	Symbiosis University ofApplied Sciences	Indore
58.	Techno Global University	Vidisha
59.	VIT Bhopal University	Sehore
60.	Lakshmi Bai National Institute of Physical Education	Gwalior
61.	All India Institute of Medical Sciences (AIIMS)	Bhopal
62.	Atal Bihari Vajpayee Indian Institute of Information Technology and Management	Gwalior
63.	Birla Research Institute forApplied Sciences	Nagda, Ujjain
64.	Central Institute of Plastics Engineering and Technology (CIPET)	Bhopal
65.	Dr. Harisingh Gour Vishwavidyalaya Sagar (A Central University)	Sagar
66.	H.K. Kalchuri Education Trust	Bhopal
67.	Indian Institute of Forest Management	Bhopal
68.	Indian Institute of Information Technology, Design and Manufacturing	Jabalpur
69.	Indian Institute of ScienceEducation and Research	Bhopal
70.	Indian Institute of Technology	Indore
71.	Indira Gandhi National Tribal University	Amarkantak
72.	International Institute ofWaste Management	Bhopal
73.	Maulana Azad NationalInstitute of Technology	Bhopal
74.	National Law University	Bhopal
75.	Sambhavna Trust Clinic	Bhopal
76.	School of Planning andArchitecture	Bhopal
77.	Society for Institute of Development Management	Bhopal
78.	Sri Aurobindo Institute of Medical Sciences	Indore
79.	Sri Shyam Sundar 'Shyam' Institute of Public Cooperation and CommunityDevelopment	Bhopal
80.	UGC-DAE Consortium for Scientific Research	Khandwa
81.	Ujjain Charitable Trust Hospital & Research Centre	Ujjain
Scientific and Industrial Research Organization (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	B.R. Nahata College of Pharmacy	Mandsaur
2.	Birla Research Institute for Applied Sciences	Ujjain

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3.	H.K. Kalchuri Education Trust	Bhopal
4.	International Institute of Waste Management	Bhopal
5.	Sambhavna Trust Clinic	Bhopal
6.	Society for Institute of Development Management Bhopal	Bhopal
7.	Sri Aurobindo Institute of Medical Sciences	Indore
8.	Sri Shyam Sundar 'Shyam' Institute of Public Cooperation and Community Development	Bhopal
9.	UGC-DAE Consortium for Scientific Research	Indore
10.	Ujjain Charitable Trust Hospital & Research Centre	Ujjain
DSIR registered Private Sector R&D		
Sl. No	**Name of the Institution**	**City**
1.	Aartech Solonics Ltd.	Bhopal
2.	D & H India Ltd.	Indore
3.	D and H Secheron Electrodes Ltd.	Indore
4.	Eagle Seeds & Biotech Ltd.	Indore
5.	Eicher Motors Ltd.	Dhar
6.	G G Automotive Gears Ltd.	Dewas
7.	Gajra Gears Ltd.	Dewas
8.	Grasim Industries Ltd.	Neemuch
9.	Indore Biotech Inputs and Research Pvt. Ltd.	Indore
10.	ITL Industries Ltd.	Indore
11.	Kilpest India Ltd.	Bhopal
12.	Maan Aluminium Ltd.	Dhar
13.	Mahakoshal Refractories Pvt. Ltd.	Katni
14.	Malav Seeds Pvt Ltd.	Indore
15.	Malwa Oxygen & Industrial Gases Pvt Ltd.	Ratlam
16.	Medilux Laboratories Pvt. Ltd.	Pithampur
17.	Narmada Gelatines Ltd. Jabalpur	Jabalpur
18.	Neo Corp International Ltd.	Dhar
19.	Nivo Controls Pvt. Ltd.	Indore
20.	Permali Wallace Ltd.	Bhopal
21.	Pinnacle Industries Ltd.	Dhar
22.	Ruchi Hi-Rich Seeds Pvt. Ltd.	Ujjain
23.	Scientific Mes-Technik Pvt. Ltd.	Indore
24.	Shakti Pumps (India) Ltd.	Pithampur
25.	Shree Pacetronix Ltd.	Pithampur
26.	Symbiotec Pharmalab Ltd.	Indore
27.	Tafe Motors and Tractors Ltd.	Raisen
28.	Tata International Ltd.	Dewas
29.	Tropilite Foods Pvt. Ltd.	Gwalior
30.	Universal Cables Ltd.	Satna
CMIE database Private Sector R&D Unit		
Sl. No	**Name of the Institution**	**City**
1.	Amsar Pvt. Ltd.	Indore
2.	Aristo Phramceuticals Pvt. Ltd.	Bhopal
3.	Avtec Ltd.	Dhar
4.	Bisen Biotech and Biopharma Pvt. Ltd.	Gwalior
5.	Cummins Technologies India Pvt. Ltd.	Dewas
6.	Dwekam Electrodes Ltd.	Indore
7.	Endo Labs Ltd.	Indore
8.	Enercon Systems Pvt. Ltd.	Indore
9.	Flexituff International Ltd.	Dhar
10.	General Foods Ltd.	Indore
11.	Gwalior Sugar Co. Ltd.	Gwalior
12.	H E G Ltd. Bhopal	Bhopal
13.	I T L Industries Ltd.	Indore
14.	Impetus Infotech (India) Pvt. Ltd.	Indore
15.	Indore Colour Organics Ltd.	Indore
16.	Karan Industries Ltd.	Bhopal

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17.	Kissan Products Ltd.	Indore
18.	Mahle Engine Components India Pvt. Ltd.	Pithampur
19.	Medilux Laboratories Pvt. Ltd.	Dhar
20.	Michigan Rubber (India) Ltd.	Betul
21.	Neo Corp International Ltd.	Pithampur
22.	Nikhil Sugar Ltd.	Harda
23.	Orient Paper Mills	Shahdol
24.	Panjon Pharma Ltd.	Indore
25.	Plethico Pharmaceuticals Ltd.	Indore
26.	Porwal Auto Components Ltd.	Pithampur
27.	Rajratan Global Wire Ltd.	Indore
28.	Rajratan Gustav Wolf Ltd.	Indore
29.	S T I Sanoh India Ltd.	Dewas
30.	Shree Pacetronix Ltd.	Dhar
31.	Shree Synthetics Ltd.	Ujjain
32.	Shriji Polymers India Ltd.	Ujjain
33.	Sonic Biochem Extractions Pvt. Ltd.	Indore
34.	Surya Agroils Ltd.	Bhopal
35.	Uniworks Business Solutions Pvt. Ltd.	Bhopal
36.	Vippy Industries Ltd.	Dewas

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Annexure- X

MANIPUR		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	Manipur University, Canchipur	Imphal
2.	Central Agricultural University, Iroisemba	Imphal
3.	Indian Council of Agricultural Research, Lamphelpat	Imphal
4.	Regional Sericulture Research Centre, Chingmeirong	Imphal
5.	Regional Institute of Medical Sciences, Lamphelpat	Imphal
6.	Institute of Bioresources and Sustainable Development, Takyelpat	Imphal
7.	Central Institute of Plastic Engineering Technology, Takyelpat	Imphal
8.	North East Institute of Science and Technology, Lamphelpat	Imphal
9.	National Institute of Electronicsand Information Technology, Akampat	Imphal
10.	National Institute of Technology, Langol	Imphal
11.	Manipur Institute of Technology, Manipur University Campus, Canchipur	Imphal
12.	Indian Institute of Information Technology, Mantripukhri	Imphal
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Dhanamanjuri University, Imphal	Imphal
2.	Manipur Technical University, Takyelpat	Imphal
3.	Manipur Science and Technology Council, Takyelpat	Imphal
4.	Manipur Remote Sensing Application Centre, Imphal	Imphal
5.	Manipur Renewable Energy Development Agency, North AOC	Imphal
6.	Tribal Research Institute, Chingmeirong Khongnang Karak	Imphal
7.	Jawaharlal Nehru Institute of Medical Sciences	Imphal
Universities/ Deemed Universities/Institute of National Importance/Women S & T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Sangai International University, Rengkai Road	Churachandpur
2.	Bir Tikendrajit University, Canchipur	Imphal
3.	Manipur International University, Ghari Airport Road	Imphal
Scientific and Industrial Research Organization (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	Regional Research Institute (H), New Checkon	Imphal
2.	Ardent Foundation, Phumgreithang	Ukhrul
3.	Kwaklei and Khonggunmelei Orchids Pvt. Ltd., Sagolband Vijaygobind	Imphal
DSIR registered Private Sector R&D		
Sl. No	**Name of the Institution**	**City**
1.	Foundation for Environment and Economic Development Services, Henbung Village	Kangpokpi

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Annexure- XI

MEGHALAYA		
Central Government Institutes		
Sl.No	**Name of the Institution**	**City**
1.	Clinical Research Unit for Homeophathy	Shillong
2.	ICAR Research Complex for NEH Region	Umiam, Ribhoi Dist
3.	North East Centre for Technology & Reach (NECTAR)	Shillong
4.	North Eastern Space Application Centre (NESAC)	Nongsder, Ribhoi Dist.
Central Public Sector Enterprises		
Sl.No	**Name of the Institution**	**City**
1.	North Eastern Electric Power Corporation Limited	Shillong
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Directorate of Health Services, Research, Vaccine Production	Shillong
2.	District & Local Research Station and Laboratory, Directorate of Agriculture.	Shillong
3.	District & Local Research Station and Laboratory, Jaintia Hills	Jowai
4.	State Seed Testing Laboratory	Shillong
5.	State Soil Testing Laboratory, Directorate of Agriculture	Shillong
State Public Sector Enterprises		
Sl. No	**Name of the Institution**	**City**
1.	Cement International Ltd.	Shillong
2.	Star Cement Meghalaya Ltd.	Shillong
Universities/ Deemed Universities/Institute of National Importance/Women S & T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Indian Institute of Management	Shillong
2.	Maharashtra Institute of Technology University	Nongthymmai, Shillong
3.	Martin Luther Christian University	Nongrah, Shillong
4.	National Institute of Technology	Laitumkhrah, Shillong
5.	North Eastern Hill University	Umshing Mawkynroh, Shillong
6.	William Carey University	Nongmensong Umkdait, Shillong
7.	CMJ University	GS Road , Jorabat
8.	Mahatma Gandhi University (Tura, West Garo Hills)	Khanapara, Ribhoi Dist.
9.	University of Science and Technology Meghalaya	Baridua, Ribhoi Dist.
10.	Institute of Chartered Financial Analysts of India University	Tura
11.	North East Adventist University	Khliehtyrshi, Thadlaskein, Jowai
12.	College of Post Graduate Studies In Agricultural Sciences	Umiam, Ribhoi Dist.

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Annexure- XII

MIZORAM		
Central Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Mizoram University (MZU)	Aizawl
2.	Pachhunga University College (PUC)	Aizawl
3.	National Institute of Technology (NIT Mizoram)	Aizawl
4.	National Institute of Electronics & Information Technology (NIELIT)	Aizawl
5.	College of Veterinary Sciences, CAU	Aizawl
6.	Regional Institute Paramedical & Nursing Sciences (RIPANS)	Aizawl
7.	Indian Council of Agricultural Research (ICAR)	Kolasib
8.	College of Horticulture, CAU	Thenzawl
9.	Forest Research Centre for Bamboo and Rattans (FRCBR)	Aizawl
10.	Institute of Bioresources & Sustainable Development (IBSD)	Aizawl
11.	MISTIC	Aizawl
12.	Clinical Research Unit for Homeopathy (CRUH)	Aizawl
Central Public Sector Enterprises		
Sl. No	**Name of the Institution**	**City**
1.	Krishi Vikash Kendra (KVK)	All districts
2.	Krishi Vikash Kendra (KVK), CAU	Aizawl
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Zoram Medical College	Aizawl
2.	Mizoram Science, Technology & Innovation Council	Aizawl
3.	Women Polytechnic	Aizawl
4.	State Council of Educational Research and Training	Aizawl
5.	Mizoram Food & Allied Industries Corporation	Aizawl
6.	Mizoram Remote Sensing Application Centre	Aizawl
7.	State Meteorological Centre	Aizawl
8.	Mizoram Polytechnic	Lunglei
Universities/ Deemed Universities/Institute of National Importance/Women S & T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Mizoram University	Aizawl
2.	National Institute of Technology	Aizawl
3.	ICFAI University	Aizawl
Scientific and Industrial Research Organization (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	Foods Myco Lab	Serchhip
2.	Mizoram Food Processing Research and Training Centre	Seling
3.	Zoram Mega Food Park	Khamrang

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Annexure-XIII

NAGALAND		
Central Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	ICAR Research Complex For NEH Region Nagaland Centre	Jharnapani, Medziphema
2.	NRC on Mithun	Jharnapani, Medziphema
3.	Central Institute Of Horticulture	Medziphema,
4.	MSME- Development Institute	Dimapur
5.	National Institute of Technology Nagaland (NIT)	Chümoukedima, Dimapur
6.	National Institute of E-Learning & Information Technology (NIELIT)	Meriema, Kohima
7.	Krishi Vigyan Kendras (KVK)	Wokha, Dimapur, Longleng, Peren, Kiphire, Porba, Zunheboto
Central Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Development of Bamboo, Cane & Woodwork clusters under NERTP (North East Regional Textile Promotion Scheme), Ministry of Textiles, Govt. of India	clusters under the project are as follows: ▪ Pfutsero, Phek District ▪ Lungwa, Mon District ▪ Ghathashi,Zunheboto District ▪ Longleng, Longleng District ▪ Jalukie, Peren District ▪ Tuli, Mokokchung District
2.	Apparel & Garment Making Center under Ministry of Textile, Government of India	Dimapur
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Nagaland Tool Room & Training Centre:	Dimapur
2.	VFA Training Institute, V&AH	Medziphema
3.	Government Polytechnic	Atoizu, Kohima, Chetheba, Dimapur, Wokha, Tuensang, , Mon, Peren
4.	Institute of Communication and Information Technology	Mokokchung
5.	Climate Change Study and Knowledge solution Centre	Kohima
6.	Krishi Vigyan Kendras (KVK)	Tseminyu, Yisemyong, Kuthur, Aboi,
7.	State Agricultural Research Station (SARS)	Yisemyong, Mokokchung
8.	Integrated Extension Training Centre (I.E.T.C.)	Medziphema
9.	The State Environment & Forestry Training Institute	Dimapur
10.	Silviculture Division (research, planning and utilization) Dept. of Environment, Forestry & Climate Change	Kohima
11.	Industrial Training Institute	11 districts
12.	Nagaland Pollution Control Board	Kohima
13.	Nagaland Bamboo Resource Centre	Dimapur
14.	Software Technology Park	Kohima
15.	Innovation Hub	Dimapur
State Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Nagaland Handloom & Handicrafts Dev. Corpn. Ltd. (NHHDC),	Dimapur
2.	Nagaland Industrial Development Corporation Ltd. (NIDC),	Dimapur

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3.	Nagaland State Mineral Development Corporation Ltd.	Kohima
Universities/ Deemed Universities/ Institute of National Importance/ Women S & T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Nagaland University	Meriema Campus, Lumami, Medziphema
2.	School of Agricultural Sciences and Rural Development	Medziphema
3.	ICFAI	Dimapur
4.	IGNOU	Kohima
5.	North East Christian University	Dimapur
6.	St. Joseph University	Dimapur
7.	Global Open University	Dimapur

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Annexure-XIV

PUNJAB		
Central Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Central Ayurveda Research Institute for Respiratory Disorders	Patiala
2.	Central Institute of Post-Harvest Engineering and Technology	Ludhiana
3.	Centre for Innovative and Applied Bioprocessing	Mohali
4.	Indian Institute of Maize Research, PAU Campus	Ludhiana
5.	Institute of Nano Science and Technology	Mohali
6.	National Agri-Food Biotechnology Institution	Mohali
7.	National Institute of Pharmaceutical & Education Research	Mohali
8.	National Institute of Secondary Steel Technology	Fatehgarh Sahib
9.	Sardar Swaran Singh National Institute of Bio-Energy	Jalandhar
10.	Semi-Conductor Laboratory	Mohali
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Guru Angad Dev Veterinary and Animal Sciences University	Ludhiana
2.	Punjab Agricultural University	Ludhiana
3.	Punjab State Council for Science & Technology	Chandigarh
4.	Department of Extension Education	Ludhiana
5.	Fruit Research Station, Gangian	Hoshiarpur
6.	Fruit Research Sub Station, Bahadurgarh	Patiala
7.	Fruit Research Sub-Station, Jallowal	Jalandhar
8.	Irrigation and Power Research Institute	Amritsar
9.	Punjab Pollution Control Board	Patiala
10.	Punjab PWD Building & Research Laboratory	Patiala
11.	Regional Livestock and Poultry Research and Training Centre, Talwara	Hoshiarpur
12.	Regional Research Station, Kaljharani	Bathinda
13.	Regional Research Station, Abohar	Fazilka
14.	Regional Research Station, Bathinda	Bathinda
15.	Regional Research Station, Faridkot	Faridkot
16.	Regional Research Station, Gangian	Hoshiarpur
17.	Regional Research Station, Gurdaspur	Gurdaspur
18.	Regional Research Station, Kandi	Nawan Shahar
19.	Regional Research Station, Kapurthala	Kapurthala
20.	Regional Research Station, Dyal Bharang	Amritsar
21.	Trade Waste & Effluents Research Unit	Patiala
22.	University Seed Farm, Nabha	Patiala
23.	University Seed Farm, Naraingarh	Fatehgarh Sahib
24.	Punjab Technology Incubator	Mohali
Universities/ Deemed Universities/ Institute of National Importance/ Women S&T Universities		
Sl. No	**Name of the Institution**	**City**
1.	All Indian Institute of Medical Sciences	Bathinda
2.	Dr. B. R. Ambedkar National Institute of Technology	Jalandhar
3.	Indian Institute of Management	Amritsar
4.	Indian Institute of Science Education & Research, Mohali	Mohali
5.	Indian Institute of Technology, Ropar	Ropar
6.	National Institute of Pharmaceutical, Educational and Research, Mohali	Mohali
7.	Central University of Punjab	Bathinda
8.	Sant Longowal Institute of Engineering and Technology	Sangrur
9.	Baba Farid University of Health Sciences	Faridkot
10.	Guru Nanak Dev University	Amritsar
11.	Guru Ravidas Ayurved University, Kharkan	Hoshiarpur
12.	Maharaja Ranjit Singh Punjab Technical University	Bathinda
13.	Punjab Technical University	Jalandhar
14.	Punjabi University	Patiala
15.	Guru Angad Dev Veterinary & Animal Sciences University	Ludhiana
16.	The Rajiv Gandhi National University of Law, Patiala	Patiala

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17.	Punjab Agricultural University	Ludhiana
18.	Maharaja Bhupinder Singh Punjab Sports University	Patiala
19.	Jagat Guru Nanak Dev Punjab State Open University	Patiala
20.	Sri Guru Teg Bahadur State University of Law	Tarantaran
21.	Sardar Beant Singh State University	Gurdaspur
22.	Shaheed Bhagat Singh State University	Ferozepur
23.	Adesh University, Buchu Kalan	Bathinda
24.	Akal University	Bathinda
25.	C. T. University	Ludhiana
26.	Chandigarh University	Mohali
27.	Chitkara University	Patiala
28.	DAV University	Jalandhar
29.	Desh Bhagat University	Fatehgarh Sahib
30.	GNA University	Kapurthala
31.	Guru Kashi University	Bathinda
32.	Lovely Professional University	Kapurthala
33.	Rayat Bahra University,Sahauran, Kharar	Mohali
34.	RIMT University	Fatehgarh Sahib
35.	Sant Baba Bhag Singh University, Khiala	Jalandhar
36.	Sri Guru Granth Sahib World University	Fatehgarh Sahib
37.	Sri Guru Ram Das University of Health Sciences	Amritsar
38.	Thapar Institute of Engineering & Technology	Patiala
39.	Plaksha University	Mohali
40.	Amity University	Mohali
Scientific and Industrial Research Organization (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	Avantha Centre for Industrial Research & Development	Patiala
2.	Centre for Research in Rural and Industrial Development	Chandigarh
3.	Chandigarh Educational Trust	Mohali
4.	Chitkara Educational Trust	Chandigarh
5.	Christian Medical College Ludhiana Society	Ludhiana
6.	Council of Pushpa Gujaral Science City	Kapurthala
7.	Dayanand Medical College & Hospital Managing Society	Ludhiana
8.	National Institute of Pharmaceutical Education and Research	Mohali
9.	Punjab Biotechnology Incubator	Mohali
10.	Punjab State Council for Science and Technology	Chandigarh
11.	Shri Guru Ram Dass Education Society	Mohali
12.	The Baba Jaswant Singh Trust	Ludhiana
	DSIR registered Private Sector R&D Units	
Sl. No	**Name of the Institution**	**City**
1.	A P Organics Ltd. (Formerly A P Organics Pvt. Ltd.)	Sangrur
2.	Amber Enterprises India Pvt. Ltd., Rajpura	Patiala
3.	Avon Cycles Ltd.	Ludhiana
4.	Avon Meters Pvt. Ltd., Dera Bassi	Mohali
5.	Clarity Medical Pvt. Ltd.	Mohali
6.	D C M Engineering Ltd.	Rupnagar
7.	Doctor Seeds Pvt. Ltd.	Ludhiana
8.	G V S Biotech Pvt. Ltd., Banga	Nawan Shahar
9.	GlaxoSmithKline Consumer Pvt. Ltd., Nabha	Patiala
10.	Healthcaps India Ltd.	Mohali
11.	Hero Cycles Ltd.	Ludhiana
12.	I O L Chemicals and Pharmaceuticals Ltd.	Ludhiana
13.	Indian Acrylics Ltd., Harkishanpura	Sangrur
14.	International Tractors Ltd., Chak Gujran	Hoshiarpur
15.	J C B L Ltd., Lalru	Mohali
16.	Khosla Machines Pvt. Ltd.	Mohali
17.	Kuantum Papers Ltd. (Earlier ABC Paper Ltd.)	Hoshiarpur
18.	Mahashakti Energy Ltd.	Bathinda
19.	Max Speciality Films Ltd., Rail Majra, S.B.S. Nagar	Nawan Shahar

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20.	Metalman Auto Pvt. Ltd.	Ludhiana
21.	Oniosome Healthcare Pvt. Ltd.	Mohali
22.	Quad Lifesciences Pvt. Ltd., Bhagwanpur Derabassi	Mohali
23.	Ralson (India) Ltd.	Ludhiana
24.	Rockman Industries Ltd.	Ludhiana
25.	S M L Isuzu Ltd.	Nawan Shahar
26.	Spray Engineering Devices Ltd.	Mohali
27.	Steel Strips Wheels Ltd.	Chandigarh
CMIE database Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	Avon Ispat & Power Ltd., Dhandari Kalan	Ludhiana
2.	B C L Industries Ltd.	Bathinda
3.	Cremica Food Inds. Ltd., Phillaur	Jalandhar
4.	Deepak International Ltd.	Ludhiana
5.	F M Hammerle Textiles Ltd.	Ludhiana
6.	Freewill Sports Pvt. Ltd.	Jalandhar
7.	G S Auto International Ltd., Dhandani Kalan	Ludhiana
8.	Hero Ecotech Ltd.	Ludhiana
9.	I O L Chemicals & Pharmaceuticals Ltd., Barnala	Sangrur
10.	Indian Sucrose Ltd., Mukerian	Hoshiarpur
11.	Jindal Fibres Pvt. Ltd.	Ludhiana
12.	Kapsons Industries Ltd., Suranuss	Jalandhar
13.	Majestic Auto Ltd.	Ludhiana
14.	Malwa Industries Ltd., Harian	Ludhiana
15.	Marshall Machines Ltd.	Ludhiana
16.	Metro Tyres Ltd.	Ludhiana
17.	Molind Engineering Ltd.	Mohali
18.	Nahar Industrial Enterprises Ltd.	Ludhiana
19.	Oswal Woollen Mills Ltd.	Ludhiana
20.	Pact Industries Ltd.	Ludhiana
21.	Patiala Distillers & Mfrs. Ltd.	Patiala
22.	Punjab Chemicals & Crop Protection, Bhankharpur Derabassi	Mohali
23.	S A L Automotive Ltd. (Formerly Swaraj Automotives Ltd.)	Mohali
24.	S E L Manufacturing Company Ltd.	Ludhiana
25.	S E L Textiles Ltd., Dhandari Khurd	Ludhiana
26.	Sarup Industries Ltd.	Jalandhar
27.	Shreyans Industries Ltd., Bholapur	Ludhiana
28.	Standard Corporation India Ltd.	Barnala
29.	Sukhjit Starch & Chemicals Ltd., Phagwara	Kapurthala
30.	Sutlej Motors Pvt. Ltd.	Jalandhar
31.	Swaraj Engines Ltd.	Mohali
32.	Tech Auto Pvt. Ltd.	Ludhiana
33.	Upper India Steel Mfg. & Engg. Co. Ltd., Dhandari	Ludhiana
34.	V M T Spinning Co. Ltd.	Ludhiana
35.	Vardhman Nisshinbo Garments Co.	Ludhiana
36.	Vardhman Polytex Ltd.	Ludhiana
37.	Vardhman Special Steels Ltd.	Ludhiana
38.	Vardhman Textiles Ltd.	Ludhiana

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Annexure-XV

TAMILNADU		
Central Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	BCG Vaccine Laboratory	Chennai
2.	C.P.R. Environmental Education Centre	Chennai
3.	Cancer Institute (WIA)	Chennai
4.	Captain Srinivasa Murthy Regional Ayurveda Drug Development Institute	Chennai
5.	Central Cattle Breeding Farm	Chennai
6.	Central Council for Research in Siddha	Chennai
7.	Central Electrochemical Research Institute	Karaikudi
8.	Central Institute of Brackishwater Aquaculture	Chennai
9.	Central Institute of Petrochemicals Engineering & Technology	Chennai
10.	Central Leprosy Teaching and Research Institute	Chengalpattu
11.	Central Leather Research Institute	Chennai
12.	Central Sericultural Germplasm Resources Centre	Hosur
13.	Centre for Development of Advanced Computing	Chennai Hosur
14.	Centre for Industrial Consultancy and Sponsored Research	Chennai
15.	Centre of Medicinal Plants & Research in Homoeopathy	Emerald
16.	Centres of Excellence in Environmental Economics, MSE	Chennai
17.	Combat Vehicles Research & Development Establishment	Chennai
18.	Dr. Achanta Lakshmipathi Research Centre for Ayurveda	Chennai
19.	Homoeopathic Research Institute For Disabilities	Muthukadu
20.	Indian Institute of Food Processing Technology	Thiruvarur
21.	Indira Gandhi Centre for Atomic Research	Kalpakkam
22.	Institute of Mathematical Sciences	Chennai
23.	ISRO Propulsion Complex	Mahendragiri
24.	National Biodiversity Authority	Chennai
25.	National Centre for Coastal Research	Chennai
26.	National Centre for Sustainable Coastal Management	Chennai
27.	National Institute for Empowerment of Person with Multiple Disabilities	Kovalam
28.	National Institute for Research in Tuberculosis	Chennai
29.	National Institute of Epidemiology	Chennai
30.	National Institute of Ocean Technology	Chennai
31.	National Institute of Wind Energy	Chennai
32.	National Research Centre for Banana	Trichy
33.	Pasteur Institute of India	Coonoor
34.	Regional Research Institute of Unani Medicine	Chennai
35.	Regional Station for Forage Production & Demonstration	Chennai
36.	Salim Ali Centre for Ornithology and Natural History	Coimbatore
37.	Siddha Central Research Institute	Chennai
38.	Siddha Clinical Research Unit	Palayamkottai
39.	Siddha Clinical Research Unit	Tirupati
40.	Siddha Medicinal Plants Garden	Salem
41.	Society for Applied Microwave Electronics Engineering & Research	Chennai
42.	South India Textile Research Association	Coimbatore
43.	Structural Engineering Research Centre	Chennai
44.	Sugarcane Breeding Institute	Coimbatore
45.	The King Institute of Preventive Medicine	Chennai
46.	UPASI Tea Research Foundation	Coimbatore
Central Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Chennai Petroleum Corporation Limited	Chennai
2.	Kamarajar Port Limited	Chennai
3.	Madras Fertilizers Limited	Chennai
4.	National Textile Corporation Limited (Southern Region)	Chennai
5.	NLC India Limited (Formerly Neyveli Lignite Corporation Limited)	Chennai
6.	Sethusamudram Corporation Limited	Chennai

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State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Agricultural College and Research Institute	Kudumiyanmalai
2.	Agricultural Research Station	Bhavanisagar
3.	Agricultural Research Station	Kovilpatti
4.	Agricultural Research Station	Paramkudi
5.	Agricultural Research Station	Pattukottai
6.	Agricultural Research Station	Thirupathisaram
7.	Agricultural Research Station Vaigai Dam	Theni
8.	Agricultural Research Station	Virinjipuram
9.	Anna Memorial Cancer Research Institute	Kancheepuram
10.	Assistant Director of Fisheries (Hydrology)	Nilgiris
11.	Assistant Director of Fisheries (Technology)	Tuticorin
12.	Assistant Director of Fisheries	Chengalpattu
13.	Assistant Director of Fisheries	Muthupet
14.	Assistant Director of Fisheries	Periyar
15.	Assistant Director of Fisheries Ramnad	Ramnad
16.	Assistant Director of Fisheries Vanianchavadi	Vanianchavadi
17.	Avian Disease Laboratory	Salem
18.	Central Feed Technology Unit	Kattupakkam
19.	Centre for Animal Health Studies	Madhavaram
20.	Centre for Inland Fish Broodstock Development	Thanjavur
21.	Chemical Testing and Analytical Laboratory	Chennai
22.	Chief Water Analyst Laboratory Deptt. of Public Health & Preventive Medicine	Chennai
23.	Chief Water Analyst Laboratory Deptt. of Public Health & Preventive Medicine	Coimbatore
24.	Coastal Saline Research Centre	Ramanathapuram
25.	Coconut Research Station	Aliyarnagar
26.	Coconut Research Station	Veppankulam
27.	College of Fisheries Engineering Nagapattinam (Formerly Institute of Fisheries Technology)	Nagapattinam
28.	College of Food and Dairy Technology	Koduvalli
29.	College of Poultry Production and Management	Hosur
30.	Cotton Research Station	Srivilliputhur
31.	Cotton Research Station	Veppanthattai
32.	Directorate of Fisheries	Chennai
33.	Directorate of Incubation and Vocational Training in Aquaculture (Formerly Fisheries Institute of Technology and Training)	Muthukadu
34.	Dryland Agricultural Research Station	Chettinad
35.	Fisheries College and Research Institute	Thoothukudi
36.	Floriculture Research Station	Thovalai
37.	Forensic Sciences Department	Chennai
38.	Forest College & Research Institute	Thovalai
39.	Horticultural College & Research Institute	Periyakulam East
40.	Horticultural Research Station	Yercaud
41.	Horticultural Research Station	Kodaikanal
42.	Horticultural Research Station	Ooty
43.	Horticultural Research Station	Pechipparai
44.	Horticultural Research Station	Thadiyankudisai
45.	Horticultural Research Station	Theni
46.	Hybrid Rice Evaluation Centre	Gudalur
47.	Information and Training Centre	Chennai
48.	Institute of Animal Nutrition	Kattupakkam
49.	Institute of Fisheries Technology	Ponneri
50.	Institute of Hydraulics & Hydrology	Poondi
51.	Kanyakumari Parakkai Centre for Sustainable Aquaculture	Kanyakumari

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52.	Madras Veterinary College Vepery	Chennai
53.	Maize Research Station	Vagarai
54.	Mecheri Sheep Research Station	Pottaneri
55.	National Pulses Research Centre	Pudukkottai
56.	Oilseeds Research Station	Tindivanam
57.	Post Graduate Research Institute in Animal Sciences	Kattupakkam
58.	Poultry Research Station	Madhavaram
59.	Regional Research and Educational Centre	Pudukkottai
60.	Regional Research Centre	Andakkulam
61.	Regional Research Station	Kovilankulam
62.	Regional Research Station	Paiyur
63.	Regional Research Station	Vridhachalam
64.	Rice Research Station	Tirunelveli
65.	Rice Research Station	Tirur
66.	Sheep Breeding Research Station	Sandynallah
67.	Soil and Water Management Research Institute	Kattuthottan
68.	Soil Salinity Research Centre	Thanjavur
69.	Soil-Testing Laboratory	Chennai
70.	Sugarcane Research Station	Melalathur
71.	Sugarcane Research Station	Shanmugam
72.	Sugarcane Research Station	Tiruchirapally
73.	Tamil Nadu Agricultural University	Coimbatore
74.	Tamil Nadu Dr.J. Jayalalithaa Fisheries University	Nagapattinam
75.	Tamil Nadu Rice Research Institute	Aduthurai
76.	Tamil Nadu State Council for Science and Technology	Chennai
77.	Tamil Nadu Veterinary & Animal Sciences University	Chennai
78.	Tapioca and Castor Research Station	Yethapur
79.	University Research Farm	Madhavaram
80.	University Training & Diagnostic Centre	Madurai
81.	University Training & Research Centre	Coimbatore
82.	University Training & Research Centre	Dharmapuri
83.	University Training & Research Centre	Erode
84.	University Training & Research Centre	Karur
85.	University Training & Research Centre	Nagercoil
86.	University Training & Research Centre	Perambalur
87.	University Training & Research Centre	Rajapalayam
88.	University Training & Research Centre	Ramanathapuram
89.	University Training & Research Centre	Tiruchirapally
90.	University Training & Research Centre	Tirupur
91.	University Training & Research Centre	Vellore
92.	University Training and Research Centre	Krishnagiri
93.	Vegetable Research Station	Palur
94.	Veterinary College and Research Institute	Mohanur
95.	Veterinary College and Research Institute	Orathanadu
96.	Veterinary College and Research Institute	Tirunelveli
State Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Tamil Nadu Co-Operative Sugar Federation Limited	Chennai
2.	Tamil Nadu Newsprint & Papers Limited	Chennai
3.	Tamil Nadu Petroproducts Limited	Chennai
4.	Tamilnadu Telecommunications Limited	Chennai
Universities/ Deemed Universities/Institute of National Importance/Women S & T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Academy of Maritime Education and Training	Chennai
2.	Alagappa University	Karaikudi
3.	Amrita Vishwa Vidyapeetham	Coimbatore
4.	Anna University	Chennai
5.	Annamalai University	Chidambaram
6.	Avinashilingam Institute for Home Science and Higher Education for Women	Coimbatore

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7.	B.S. Abdur Rahman Crescent Institute of Science and Technology	Chennai
8.	Bharath Institute of Higher Education & Research	Chennai
9.	Bharathiar University	Coimbatore
10.	Bharathidasan University	Tiruchirappalli
11.	Central University of Tamil Nadu	Thiruvarur
12.	Chennai Mathematical Institute	Chennai
13.	Chettinad Academy of Research and Education (CARE)	Chennai
14.	Dr. M.G.R. Educational and Research Institute	Chennai
15.	Gandhigram Rural Institute	Dindigul
16.	Hindustan Institute of Technology and Science (HITS)	Chennai
17.	Indian Institute of Information Technology Tiruchirappalli	Tiruchirappalli
18.	Indian Institute of Information Technology, Design and Manufacturing Kancheepuram	Chennai
19.	Indian Institute of Technology	Chennai
20.	Indian Maritime University	Chennai
21.	Kalasalingam Academy of Research and Higher Education	Srivilliputhur
22.	Karpagam Academy of Higher Education	Coimbatore
23.	Karunya Institute of Technology and Sciences	Coimbatore
24.	Madurai Kamaraj University	Madurai
25.	Manonmaniam Sundaranar University	Tirunelveli
26.	Meenakshi Academy of Higher Education and Research	Chennai
27.	National Institute of Technology	Tiruchirapally
28.	Noorul Islam Centre for Higher Education	Kanyakumari
29.	Periyar Manaimmai Institute of Science & Technology (PMIST)	Thanjavur
30.	Periyar University	Salem
31.	Ponnaiyan Ramajayam Institute of Science & Technology (PRIST)	Chennai
32.	Rajiv Gandhi National Institute of Youth Development	Chennai
33.	S.R.M. Institute of Science and Technology	Chennai
34.	Sathyabama Institute of Science and Technology	Chennai
35.	Saveetha Institute of Medical and Technical Sciences	Chennai
36.	Shanmugha Arts, Science, Technology, Research Academy (SASTRA)	Thanjavur
37.	Sri Chandrasekharendra Sarawathi Viswa Mahavidyalaya	Kancheepuram
38.	Sri Ramachandra Medical College and Research Institute	Chennai
39.	St. Peter's Institute of Higher Education and Research	Chennai
40.	Tamil Nadu Dr. M G R Medical University	Chennai
41.	Tamil University	Thanjavur
42.	Thiruvalluvar University	Vellore
43.	University of Madras	Chennai
44.	Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology	Chennai
45.	Vel's Institute of Science Technology & Advanced Studies (VISTAS)	Chennai
46.	Vellore Institute of Technology	Vellore
47.	Vinayaka Mission's Research Foundation	Salem
48.	Mother Teresa Women's University	Kodaikanal
Scientific and Industrial Research Organization (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	Aarthi Educational and Charitable Trust	Tiruchengode
2.	Adhiyamaan Educational and Research Institution	Hosur
3.	Aladipatti Vaidyalingam Nadar Pathrakali Ammal Educational & Charitable Trust	Tirunelveli
4.	Alpha Health Foundation	Madurai
5.	Apollo Hospital Education and Research Foundation	Chennai
6.	Aravind Medical Research Foundation	Madurai
7.	ASHWINI (Association for Health Welfare in the Nilgiris)	Nilgiris
8.	Asthagiri Herbal Research Foundation	Chennai
9.	Auroville Foundation	Auroville
10.	Bannari Amman Institute of Technology (Bannari Amman Educational Trust)	Erode
11.	Besant Centenary Trust	Chennai

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12.	Bioscience Research Foundation	Sriperumbudur
13.	Centre of Excellence in Wireless Technology	Chennai
14.	Chennai Dental Research Foundation	Chennai
15.	Chettinad Academy of Research and Education	Chennai
16.	Christian Medical College (Christian Medical College and Hospital Association)	Vellore
17.	Dr. Sivanthi Aditanar College of Engineering of Aditanar Education Institution	Thoothukudi
18.	Er. Perumal Manimekalai Telugu Minority Educational and Charitable Trust	Hosur
19.	Fetal Care Research Foundation	Chennai
20.	G.S. Pillay & Sons Charitable and Educational Trust	Nagapattinam
21.	Ganga Orthopaedic Research and Education Foundation	Coimbatore
22.	Hindustan Engineering Training Centre	Chennai
23.	India Diabetes Research Foundation	Chennai
24.	Indian Institute of Crop Processing echnology	Thanjavur
DSIR registered Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	Amazing Biotech Pvt. Ltd.	Chennai
2.	Ampere Vehicles Pvt. Ltd.	Coimbatore
3.	Ashok Leyland Ltd.	Chennai
4.	Brakes India Pvt. Ltd.	Chennai
5.	Daimler India Commercial Vehicles Pvt. Ltd.	Chennai
6.	Global Pharma Healthcare Pvt. Ltd.	Chennai
7.	Microcore Research Laboratories India Pvt. Ltd.	Erode
8.	Rajshree Sugars & Chemicals Ltd.	Coimbatore
9.	Ramco Systems Ltd.	Chennai
10.	Rane (Madras) Ltd.	Chennai
11.	T T K Healthcare Ltd.	Chennai
CMIE database Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	8K Miles Software Services Ltd.	Chennai
2.	Chettinad Cement Corporation Ltd.	Chennai
3.	Hyundai Motor India Ltd.	Kanchipurame
4.	India Japan Lighting Pvt. Ltd.	Chennai
5.	Sakthi Sugars Ltd.	Erode
6.	Shri Lakshmi Agro Foods Pvt. Ltd.	Chennai
7.	Amalgam Leather Pvt. Ltd.	Chennai

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Annexure-XVI

TELANGANA		
Central Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Central Research Institute for Dryland Agriculture, CRIDA	Hyderabad
2.	Directorate of Poultry Research, DPR	Hyderabad
3.	Indian Institute of Millets Research, IIMR	Hyderabad
4.	Indian Institute of Oilseeds Research (IIOR)	Hyderabad
5.	Indian Institute of Rice Research, IIRR	Hyderabad
6.	Centre for Cellular & Molecular Biology, CCMB	Hyderabad
7.	Indian Institute of Chemical Technology, IICT	Hyderabad
8.	National Geophysical Research Institute, NGRI	Hyderabad
9.	National Environmental Engineering Research Institute, NEERI	Hyderabad
10.	Central Food Technological Research Institute, CFTRI	Hyderabad
11.	National Research Centre on Meat, NRCM	Hyderabad
12.	National Academy of Agricultural Research Management, NAARM	Hyderabad
13.	Central Forensic Science Laboratory, CFSL	Hyderabad
14.	Centre for DNA Fingerprinting and Diagnostics, CDFD	Hyderabad
15.	Centre for Economic and Social Studies, CESS	Hyderabad
16.	Council for Social Development, CSD	Hyderabad
17.	National Remote Sensing Centre, NRSC	Shadnagar
18.	Laboratory for the Conservation of Endangered Species, LACONES	Hyderabad
19.	Central Institute of Medical and Aromatic Plants, CIMAP	Hyderabad
20.	National Institute of Nutrition, NIN	Hyderabad
21.	National Animal Resource Facility for Biomedical Research, NARFBR	Hyderabad
22.	National Institute of Rural Development and Panchayat Raj, NIRDPR	Hyderabad
23.	National Institute of Pharmaceutical Education and Research, NIPER	Hyderabad
24.	National Institute of Animal Biotechnology, NIAB	Hyderabad
25.	International Crops Research Institute for the Semi- Arid Tropics, ICRISAT	Hyderabad
26.	Indian Statistical Institute, ISI	Hyderabad
27.	Indian National Center for Ocean Information Services, INCOIS	Hyderabad
28.	Central Institute of Tool Design, CITD	Hyderabad
29.	Defence Electronics Research Laboratory, DLRL	Hyderabad
30.	Defence Metallurgical Research Laboratory, DMRL	Hyderabad
31.	Research Centre Imarat, RCI	Hyderabad
32.	Advanced Numerical Research and Analysis Group (ANURAG)	Hyderabad
33.	Defence Research & Development Laboratory (DRDL)	Hyderabad
Central Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Bharat Dynamics Limited, BDL	Hyderabad
2.	Bharat Heavy Electricals Limited, BHEL	Hyderabad
3.	Electronics Corporation of India Ltd.	Hyderabad
4.	Hindustan Aeronautics Limited, HAL	Hyderabad
5.	Mishra Dhatu Nigam Limited, MIDHANI	Hyderabad
6.	NMDC Ltd	Hyderabad
7.	Sponge Iron India	Hyderabad
8.	BEML	Hyderabad
9.	Nuclear Fuel Complex	Hyderabad
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Telangana State Remote Sensing Application Centre, TRAC	Hyderabad
2.	Water and Land Management Training and Research Institute, WALAMTARI	Hyderabad
3.	Telangana State Council of Science and Technology, TSCOST	Hyderabad
4.	Telangana State Biodiversity Board	Hyderabad
5.	Environment Pollution Training Research Institute	Hyderabad
6.	Forest College and Research Institute, FCRI	Hyderabad
7.	Telangana State Innovation Cell, TSIC	Hyderabad
8.	Telangana Academy for Skill and Knowledge, TASK	Hyderabad

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9.	Tata Institute of Fundamental Research, TIFR	Hyderabad
10.	Institute of Forest Biodiversity, IFB	Hyderabad
11.	Tata Institute of Social Science, TISS	Hyderabad
12.	Agricultural Research Institute,Rajendranagar	Ranga Reddy
13.	Agricultural Research Station	Adilabad
14.	Agricultural Research Station, Basanthpur	Medak
15.	Agricultural Research Station, Kampasagar	Nalgonda
16.	Agricultural Research Station	Karimnagar
17.	Agricultural Research Station	Khammam
18.	Agricultural Research Station	Madhira
19.	Agricultural Research Station, Mallepalli	Nalgonda
20.	Agricultural Research Station, Mudhol	Adilabad
21.	Agricultural Research Station, Nathnaipally	Medak
22.	Agricultural Research Station, Peddapalli	Peddapalli
23.	Agricultural Research Station, Tandur	Ranga Reddy
24.	Agricultural Research Station	Medak
25.	Agro Climate Research Centre,Rajendranagar	Hyderabad
26.	Fisheries Research Station, Palair	Khammam
27.	Floriculture Research Station, Rajendranagar	Ranga Reddy
28.	Fruit Research Station, Sangareddy	Sangareddy
29.	Grape Research Station, Rajendranagar	Ranga Reddy
30.	Horticultural Research Station, Adilabad	Adilabad
31.	Horticultural Research Station, Aswaraopet	Khammam
32.	Horticultural Research Station, Mallepally	Nalgonda
33.	Institute of Biotechnology	Hyderabad
34.	JVR Horticultural Research Station, Malyal	Warangal
35.	Livestock Research Station, Mahabubnagar	Mahaboobnagar
36.	Livestock Research Station, Mamnoor	Warangal
37.	Maize Research Centre, ARI	Hyderabad
38.	Medicinal and Aromatic Plants Research Station	Ranga Reddy
39.	P.V. Narsimha Rao Telangana Veterinary University	Hyderabad
40.	Post-Harvest Research Station	Hyderabad
41.	Poultry Research Station, Rajendranagar	Hyderabad
42.	Professor Jayashankar Telangana State Agricultural University	Hyderabad
43.	Regional Agricultural Research Station	Karim Nagar
44.	Regional Agricultural Research Station	Mahbub Nagar
45.	Regional Agricultural Research Station	Palem
46.	Regional Agricultural Research Station, Polasa	Karimnagar
47.	Regional Agricultural Research Station	Warangal
48.	Regional Sugarcane and Rice Research Station	Nizamabad
49.	Regional Sugarcane and Rice Research Station, Rudrur	Nizamabad
50.	Ruska Labs, Rajendranagar	Hyderabad
51.	Seed Research and Technology Centre, Rajendranagar	Hyderabad
52.	Sri Konda Laxman Telangana State Horticultural University	Hyderabad
53.	Turmeric Research Station, Kammarapally	Nizamabad
54.	Vegetable Research Station, Rangareddy District	Ranga Reddy
55.	Water Technology Centre Diamond Jubilee Block	Hyderabad
State Public Sector Enterprises		
Sl. No	**Name of the Institution**	**City**
1.	Telangana State Agro Industries Development Corp. Ltd.	Hyderabad
2.	Telangana State Seeds Development Corporation Ltd.	Hyderabad
3.	Telangana State Warehousing Corp. (Statutory Corp.)	Hyderabad
4.	Telangana State Horticulture Development Corp. Ltd.	Hyderabad
5.	Kaleshwaram Irrigation Project Corporation Ltd.	Hyderabad
6.	Telangana State Water Resources Development Corporation Ltd.	Hyderabad
7.	Telangana State Forest Development Corporation Ltd.	Hyderabad
8.	Telangana State Technology Services Ltd.	Hyderabad
9.	Telangana State Fibre Grid Corporation Ltd.	Hyderabad
10.	T-Works Foundation	Hyderabad

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11.	Photonics Valley Corporation	Hyderabad
12.	The Singareni Collieries Company Ltd.	Khammam
13.	Telangana State Renewable Energy Development Corporation Ltd.	Hyderabad
14.	Telangana State Power Generation Corporation Ltd.	Hyderabad
15.	Transmission Corporation of Telangana Ltd.	Hyderabad
16.	Telangana Power Finance Corporation Ltd.	Hyderabad
17.	Southern Power Distribution Company of Telangana Ltd.	Hyderabad
18.	Northern Power Distribution Company of Telangana Ltd.	Hyderabad
19.	Telangana State Industrial Development Corporation Ltd.	Hyderabad
20.	Telangana State Handicrafts Development Corp. Ltd.	Hyderabad
21.	Telangana State Leather Industries Promotion Corp. Ltd.	Hyderabad
22.	Pashamylaram Textile Park	Hyderabad
23.	Telangana State Industrial Infrastructure Corporation Ltd.	Hyderabad
24.	Telangana State Mineral Development Corporation Ltd.	Hyderabad
25.	Fab City SPV (India) Private Ltd.	Hyderabad
26.	ECITY Manufacturing Cluster Ltd.	Hyderabad
27.	Maheshwaram Science Park Ltd.	Hyderabad
28.	Hyderabad Pharma City Ltd.	Hyderabad
29.	Hyderabad Growth Corridor Ltd.	Hyderabad
30.	Hyderabad Metro Rail Ltd.	Hyderabad
Universities/ Deemed Universities/ Institute of National Importance/ Women S&T Universities		
Sl. No	**Name of the Institution**	**City**
1.	Indian Institute of Technology	Hyderabad
2.	International Institute of Information Technology	Hyderabad
3.	Jawaharlal Nehru Architecture and Fine Arts University	Hyderabad
4.	Kakatiya University	Warangal
5.	Mahatma Gandhi University Nalgonda	Nalgonda
6.	Osmania University	Hyderabad
7.	Palamuru University	Mahboobnagar
8.	Rajiv Gandhi University of Knowledge Technology	Hyderabad
9.	Satavahana University	Karimnagar
10.	Telangana University	Nizamabad
11.	Jawaharlal Nehru Technological University	Hyderabad
12.	Potti Sriramulu Telugu University	Hyderabad
13.	Professor Jayashankar Telangana State Agricultural University	Hyderabad
14.	Nalsar University of Law	Hyderabad
15.	Sri Konda Laxman Telangana State Horticultural University	Mulugu, Siddipet
16.	Nizams Institute of Medical Sciences	Hyderabad
17.	PV Narsimha Rao Telangana Veterinary University	Hyderabad
18.	English and Foreign Language University	Hyderabad
19.	University of Hyderabad	Hyderabad
20.	National Institute of Technology	Warangal
21.	Maulana Azad National Urdu University	Hyderabad
22.	Birla Institute of Technology	Hyderabad
23.	IFHE Hyderabad, ICFAI	Hyderabad
24.	Gitam University	Rudraram, Patancheru
25.	Malla Reddy University	Hyderabad
26.	Woxen University	Hyderabad
27.	Chaitanya University	Warangal
28.	Anurag University	Ghatkesar Rd, Hyd.
29.	Sri Rajeshwara Educational Society - SR University	Warangal
30.	Mahindra University	Hyderabad
31.	Indian School of Business	Hyderabad
32.	Dr. B. R. Ambedkar Open University	Hyderabad
33.	NIPER	Hyderabad
34.	AIIMS	Hyderabad

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Scientific and Industrial Research Organization (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	Agri Biotech Foundation	Hyderabad
2.	Aristotle Educational Society	Hyderabad
3.	Asian Healthcare Foundation	Hyderabad
4.	Association for Scientific Pursuits for Innovative Research Enterprises (ASPIRE)	Hyderabad
5.	Bhagwan Mahavir Medical Research Centre	Hyderabad
6.	C.R. Rao Advanced Institute of Mathematics, Statistics and Computer Science University of Hyderabad Campus, Central University	Hyderabad
7.	Cardiac Research and Educational Foundation	Hyderabad
8.	Centre for Economic and Social Studies (CESS)	Hyderabad
9.	Centre for Good Governance	Hyderabad
10.	Centre for Liver Research & Diagnostics	Hyderabad
11.	Centre for Organization Development	Hyderabad
12.	CMR Educational Society	Hyderabad
13.	CMR Technical Education Society	Hyderabad
14.	Dr. B.V. Raju Foundation	Hyderabad
15.	Dr. Reddy's Institute of Life Sciences	Hyderabad
16.	Ella Foundation (Formerly Bharat Biotech Foundation) Genome Valley	Shameerpet, Hyderabad
17.	Environment Protection Training & Research Institute	Hyderabad
18.	Foundation for Democratic Reforms	Hyderabad
19.	G.V.K. Emergency Management and Institute	Hyderabad
20.	Global Medical Education & Research Foundation	Hyderabad
21.	Genome Foundation	Hyderabad
22.	Healing Field Foundation	Hyderabad
23.	Hyderabad Eye Research Foundation	Hyderabad
24.	Hyderabad Science Society	Hyderabad
25.	IKP Knowledge Park Genome Valley	Medchal
26.	Indo-American Cancer Institute and Research	Hyderabad
27.	Institute for Development and Research in Banking Technology	Hyderabad
28.	Institute of Livelihood Research and Training	Hyderabad
29.	Institute of Public Enterprise	Hyderabad
30.	Institute of Scientific Research on Vedas (ISERV)	Hyderabad
31.	Kamineni Academy of Medical Sciences and Research Centre	Hyderabad
32.	Kamineni Education Society	Hyderabad
33.	KIMS Foundation and Research Center	Hyderabad
34.	KMR Educational Society Plot	Hyderabad
35.	Lepra Society	Hyderabad
36.	M.G.R. Educational Society	Hyderabad
37.	Marri Educational Society	Hyderabad
38.	Maternal Health & Research Trust	Hyderabad
39.	Rural Development Society	Hyderabad
40.	Sajja Heart Foundation	Hyderabad
41.	Society for Energy, Environment and Development	Hyderabad
42.	Society for Health Allied Research and Education India (SHARE India)	Medchal
43.	Society for Health Allied Research and Education India (SHARE India)	Hyderabad
44.	Sri Rajeshwara Educational Society	Hanamkonda, Warangal
45.	Sri Vishnu Educational Society	Hyderabad
46.	Srimaharshi Research Institute	Hyderabad
47.	Sweekaar Academy of Rehabilitation Sciences (Formerly Sweekar Rehabilitation Institute for Handicapped)	Hyderabad
48.	Teja Educational Society (Geethanjali College of Engineering and Technology)	Hyderabad
49.	Telangana State Pollution Control Board	Hyderabad
50.	Thalassemia and Sickle Cell Society	Hyderabad
51.	The Institute of Health Systems	Hyderabad

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52.	Vardhaman College of Engineering, Vardhaman Educational Society	Shamshabad
53.	Varun Herbals	Hyderabad
54.	Vignana Jyothi	Hyderabad
DSIR registered Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	Dr. Reddy's Lab.	Hyderabad
2.	Adama India Pvt. Ltd.	Turkapally
3.	Ag Bio Systems Pvt. Ltd.	Secunderabad
4.	Analinear Design Technologies Pvt. Ltd.	Hyderabad
5.	Atgc Biotech Pvt. Ltd.	Hyderabad
6.	Avantel Ltd.	Hyderabad
7.	Brilliant Bio Pharma Ltd.	Medak
8.	Clearsynth Labs Ltd.	Hyderabad
9.	Cygni Energy Pvt. Ltd.	Hyderabad
10.	Cyient Ltd.	Hyderabad
11.	Delta Agrigenetics Pvt. Ltd.	Secunderabad
12.	Eesavyasa Technologies Pvt. Ltd.	Hyderabad
13.	Eko Technologies Ltd.	Hyderabad
14.	Emmennar Pharma Pvt. Ltd.	Hyderabad
15.	EPR Centre for Cancer Research and Bioinformatics Pvt. Ltd.	Hyderabad
16.	EPR Pharmaceuticals Pvt. Ltd.	Hyderabad
17.	Eugia Pharma Specialties Ltd.	Hyderabad
18.	Finoso Pharma Pvt. Ltd	Hyderabad
19.	Genes N Life HealthcarePvt. Ltd.	Hyderabad
20.	Genesys Biologics Pvt. Ltd.	Hyderabad
21.	Ghanta Foods Pvt. Ltd.	Secunderabad
22.	Gland Pharma Ltd.	Hyderabad
23.	Hetero Healthcare Ltd.	Hyderabad
24.	Hetero Labs Ltd.	Hyderabad
25.	Hil Ltd.	Hyderabad
26.	Hi-Tech Pharmaceuticals Pvt. Ltd.	Hyderabad
27.	Hm Clause India Pvt Ltd	Gowdavelli, Medchal
28.	Hytech Seed India Pvt. Ltd.	Hyderabad
29.	J C Biotech Pvt. Ltd.	Hyderabad
30.	K N Biosciences (India) Pvt. Ltd.	Ranga Reddy
31.	Laurus Labs Ltd.	Ranga Reddy
32.	LOKA Biosciences Pvt. Ltd.	Hyderabad
33.	Mic Electronics Ltd. Hyderabad	Secunderabad
34.	MSN Laboratories Ltd.	Medak
35.	Mylan Pharmaceuticals Pvt. Ltd.	Hyderabad
36.	Navaratna Crop Science Pvt. Ltd.	Medchal
37.	Nova Integrated Systems Ltd.	Maheshwaram Mandal
38.	Optimus Pharma Pvt. Ltd.	Hyderabad
39.	Optrix Laboratories Pvt. Ltd.	Mandal
40.	Orbicular Pharmaceutical Technologies Pvt. Ltd	Hyderabad
41.	Penna Seeds Pvt. Ltd.	Hyderabad
42.	Porus Laboratories(P) Ltd.	Hyderabad
43.	Ra Chem Pharma Ltd.	Hyderabad
44.	Sajjala Bio Labs Pvt. Ltd.	Hyderabad
45.	Sandor Proteomics Pvt. Ltd.	Hyderabad
46.	Sapala Organics Pvt. Ltd.	Hyderabad
47.	Shivashakti Bio Technologies Ltd.	Hyderabad
48.	SpansulesPharmatechPvt. Ltd.	Hyderabad
49.	Sreeni Labs Pvt. Ltd.	Hyderabad
50.	Suncorp Sciences Pvt. Ltd.	Hyderabad
51.	Symed Labs Ltd.	Hyderabad
52.	Tergene Biotech Pvt. Ltd.	Secunderabad

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53.	ThotakaTekhnologiesIndiaPvt. Ltd.	Secunderabad
54.	Tierra Seed Science Pvt. Ltd.	Hyderabad
55.	TriMurti Plant Sciences Pvt. Ltd.	Hyderabad
56.	United States Pharmacopeia-India (P) Ltd.	Hyderabad
57.	Varsha Bioscience and Technology Pvt. Ltd.	Hyderabad
58.	Vasudha Pharma Chem Ltd.	Hyderabad
59.	VINS Bioproducts Ltd.	Hyderabad
60.	Xylem Seeds Pvt. Ltd.	Hyderabad
CMIE database Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	Ameya Laboratories Ltd.	Hyderabad
2.	Anjani Portland Cement Ltd.	Hyderabad
3.	BMF Beltings Ltd.	Hyderabad
4.	Bradma of India Ltd.	Hyderabad
5.	Corvine Chemicals & Pharmaceuticals Ltd.	Hyderabad
6.	Covalent Laboratories Pvt. Ltd.	Hyderabad
7.	Enersys Astra Ltd.	Hyderabad
8.	Esoft Consulting Ltd.	Hyderabad
9.	Gampa Alcoats Ltd.	Hyderabad
10.	Glochem Industries Ltd.	Hyderabad
11.	I Axis Ltd.	Hyderabad
12.	Kemira Laboratories Pvt. Ltd.	Hyderabad
13.	Khammam Granite Ltd.	Khammam
14.	Lotus Chocolate Company Ltd.	Hyderabad
15.	Madhucon Agra Jaipur Expressways Ltd.	Hyderabad
16.	Montana International Ltd.	Hyderabad
17.	Nusun Genetic Research Ltd.	Hyderabad
18.	Oil Country Tubular Ltd.	Hyderabad
19.	OMC Computers Ltd.	Secunderabad
20.	Onco Therapies Ltd.	Hyderabad
21.	Orient Cement Ltd.	Hyderabad
22.	Res Photovoltaics Ltd.	Hyderabad
23.	Richline Pharma Ltd.	Hyderabad
24.	Satyam Renaissance Consulting Ltd.	Secunderabad
25.	Tree Oils India Ltd.	Zaheerabad Mandal
26.	Vani Pharma Labs Ltd.	Hyderabad
27.	Vedanta Ltd.	Hyderabad
28.	Vibrant Greentech India Ltd.	Hyderabad
29.	Vorin Laboratories Ltd.	Secunderabad
30.	VST Industries Ltd.	Hyderabad

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Annexure-XVII

UTTARAKHAND		
Central Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Alternate Hydro Energy Centre	Roorkee
2.	Indian Institute of Petroleum	Dehradun
3.	Indian Institute of Remote Sensing	Dehradun
4.	Indira Gandhi National Forest Academy	Dehradun
5.	Institute of Drilling Technology, ONGC	Dehradun
6.	Institute of Technology Management	Mussoorie
7.	Instruments Research and Development Establishment	Dehradun
8.	Keshava Deva Malaviya Institute of Petroleum Exploration, ONGC	Dehradun
9.	National Institute of Hydrology	Roorkee
10.	National Institute for the Visual Disabilities	Dehradun
11.	Project Directorate on Foot and Mouth Disease	Nainital
12.	Indian Council of Forestry Research & Education	Dehradun
13.	GovindBallabh Pant Institute of Himalayan Environment and Development	Almora
14.	Archaeological Survey of India	Dehradun
15.	Aryabhatta Research Institute of Observational Sciences	Nainital
16.	Central Building Research Institute	Roorkee
17.	Central Soil & Water Conservation Research & Training Institute	Dehradun
18.	Defence Electronics Application Laboratory	Dehradun
19.	Defence Institute of Bio-Energy Research	Haldwani
20.	Directorate of Coldwater Fisheries Research	Bhimtal
21.	Exploration and Development Directorate	Dehradun
22.	Forest Survey of India	Dehradun
23.	Geodata Processing and Interpretation Center, ONGC	Dehradun
24.	Regional Research Institute of Himalayan Flora	Almora
25.	Survey of India	Dehradun
26.	Vivekananda Parvatiya Krishi Anusandhan Sansthan	Almora
27.	Wadia Institute of Himalayan Geology	Dehradun
28.	Wildlife Institute of India	Dehradun
Central Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	SC/ST Finance and Development Corporation	Dehradun
2.	Indian Medicine Pharmaceutical Corporation Ltd	Almora
3.	Oil and Natural Gas Corporation Ltd	Dehradun
State Government Institutes		
Sl. No	**Name of the Institution**	**City**
1.	Organic Farming Research Centre	U.S.Nagar
2.	Pantnagar Centre for Plant Genetic Resources	U.S.Nagar
3.	Research and Training Station PauriGarhwal	Pauri Garhwal
4.	Research Centre Majhera	Nainital
5.	Research Station Champawat	Champawat
6.	Research Station Kanatal	Kanatal
7.	Research Station Tehri Garhwal	Tehri Garhwal
8.	Sugarcane Research Centre	Kashipur
9.	Uttarakhand University of Horticulture and Forestry	Bharsar
10.	VCSG College of Horticulture PauriGarhwal	PauriGarhwal
11.	Mushroom Research and Training Centre	Pantnagar
12.	Model Floriculture Research Centre	U.S.Nagar
13.	Agro-forestry Research Centre Haldi	U.S.Nagar
14.	Breeder Seed Production Centre	U.S.Nagar
15.	College of Forestry and Hill Agriculture Ranichauri	Tehri
16.	GovindBallabh Pant University of Agriculture and Technology	U.S.Nagar
17.	Horticultural Research Centre	U.S.Nagar

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18.	Institute of Biotechnology	Nainital
19.	Irrigation Research Institute	Dehradun
20.	Irrigation Research Institute	Haridwar
21.	Medicinal & Aromatic Plants Research and Development Centre	U.S.Nagar
22.	Vegetable Research Centre	U.S.Nagar
23.	Uttarakhand State Council for Science and Technology	Dehradun
State Public Sector Enterprises		
Sl. No	**Name of the Enterprises**	**City**
1.	Uttarakhand Jal Sansthan	Dehradun
2.	Uttarakhand Power Transmission Corporation Ltd.	Dehradun
3.	Uttarakhand Parivahan Nigam	Dehradun
4.	Uttarakhand Pey Jal Sansadhan EvamVikas Nirman Nigam	Dehradun
5.	Uttarakhand Renewable Energy Development Agency	Dehradun
6.	Uttarakhand Power Corporation	Dehradun
7.	Uttarakhand Jal Vidyut Nigam Ltd.	Dehradun
9.	Uttarakhand State Industrial Development Corporation	Dehradun
10.	Garhwal Mandal Vikas Nigam Ltd.	Dehradun
11.	Kumaon Mandal Vikas Nigam Ltd.	Nainital
12.	Uttarakhand Forest Development Corporation	Dehradun
13.	Hiltron	Dehradun
14.	Town Corporation	Dehradun
15.	Bridge, Ropeway, Tunnel and Other Infrastructure Development Corporation of Uttarakhand Ltd.	Dehradun
Universities/ Deemed Universities/ Institute of National Importance/ Women S&T Universities		
Sl. No	**Name of the Institution**	**City**
1.	All India Institute of Medical Sciences	Rishikesh
2.	Dev Sanskrit Vishwavidyalaya	Haridwar
3.	Motherhood University	Haridwar
4.	National Institute of Technology Uttarakhand	Srinagar
5.	Shri Guru Ram Rai University	Dehradun
6.	Sri Dev SumanUttarakhand University	Garhwal
7.	Swami Rama Himalayan University	Dehradun
8.	University of Patanjali	Haridwar
9.	University of Petroleum and Energy Studies	Dehradun
10.	UttarakhandAawasiyaVishwavidyalaya	Almora
11.	UttarakhandAyurved University	Dehradun
12.	Uttarakhand Technical University	Dehradun
13.	Kumaon University	Nainital
14.	Indian Institute of Technology Roorkee	Roorkee
15.	DIT University	Dehradun
16.	Doon University	Dehradun
17.	Forest Research Institute	Dehradun
18.	Graphic Era University	Dehradun
19.	GurukulaKangriVishwavidyalaya	Haridwar
20.	HemwatiNandanBahuguna Medical Education University	Dehradun
21.	Hemwati Nandan Bahuguna Garhwal University	Srinagar
22.	Himalayan Garhwal University	Garhwal
23.	Himgiri Zee University	Dehradun
24.	IMS Unison University	Dehradun
25.	Uttaranchal University	Dehradun
26.	Uttarakhand Open University	Haldwani
Scientific and Industrial Research Organisation (SIROs)		
Sl. No	**Name of the Institution**	**City**
1.	Garhwal Community Development and Welfare Society	Tehri
2.	Himalayan Institute Hospital Trust	Dehradun
3.	Centre for Ecology Development and Research	Dehradun
4.	Central Himalayan Environment Association	Nainital
5.	DivyaYog Mandir Trust	Haridwar

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DSIR registered Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	Windlas Healthcare Pvt. Ltd.	Dehradun
2.	Windlas Biotech Ltd.	Dehradun
3.	SimpexPharma Pvt. Ltd.	Kotdwara
4.	BhartiyaBeej Nigam Ltd.	U.S.Nagar
5.	Forace Polymers Pvt. Ltd.	Haridwar
6.	India Glycols Ltd.	Bazpur
7.	Patanjali Bio Research Institute Pvt. Ltd.	Haridwar
8.	Rhydburg Pharmaceuticals Ltd.	Dehradun
9.	S K Dynamics Pvt. Ltd.	Roorkee
10.	Sara Sae Pvt. Ltd.	Dehradun
11.	Shri Ram Solvent Extractions Pv.t Ltd.	Jaspur
CMIE database Private Sector R&D Units		
Sl. No	**Name of the Institution**	**City**
1.	Ester Industries Ltd.	U.N.Nagar
2.	Fimakem India Ltd.	Kashipur
3.	Kei Industries Ltd.	Dehradun
4.	Nov Sara India Pvt. Ltd.	Dehradun
5.	Saraswati Dynamics Pvt. Ltd.	Roorkee
6.	THDC India Ltd.	Tehri
7.	Wimco Ltd. (Wimco Seedlings Division)	U.N.Nagar

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Organization involved in National Children Science Congress (NCSC)

Annexure – XVIII

State	Organization	Voluntary Organizations (NGOs)
Andhra Pradesh	S&T Council	-
Arunachal Pradesh	S&T Council	-
Assam	S&T Council	-
Bihar	NGO	Science for Society
Chhattisgarh	S&T Council	-
Goa	S&T Council	-
Gujarat	S&T Council	-
Haryana	NGO	Haryana Vigyan Manch
Himachal Pradesh	S&T Council	-
Jharkhand	NGO	Science for Society
Karnataka	NGO	Karnataka Rajya Vijnana Parishat
Kerala	S&T Council	-
Madhya Pradesh	NGO	Science Centre Gwalior
Maharashtra	NGO	Jidnyasa Trust Thane
Manipur	NGO	Science Teachers Forum
Meghalaya	S&T Council	-
Mizoram	NGO	Science Teachers Association
Nagaland	Trust	Nagaland Institute of Health Environment and Social Welfare
Odisha	NGO	Bharat Jan Gyan Vigyan Samity
Punjab	S&T Council	-
Rajasthan	S&T Council	-
Sikkim	S&T Council	-
Tamil Nadu	NGO	Tamil Nadu Science Forum
Telangana	S&T Council	-
Tripura	NGO	Tripura Science Forum
Uttarakhand	S&T Council	-
Uttar Pradesh	S&T Council	
West Bengal	NGO	Science Communicators Forum
Andaman & Nicobar Islands	NGO	Andaman Nature Club
Chandigarh	NGO	The Environment Society of India
New Delhi	NGO	Network of Organizations for Science and Technology Communication
Jammu & Kashmir	NGO	J&K Students Welfare Society
Puducherry	NGO	Pondicherry Science Forum

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Science Centres in the Country

Annexure -XIX

Sl. No	State	Science City/Centre/Planetarium	Place	Managed by
1	Andhra Pradesh	Regional Science Centre	Vijayawada	State
2	Andhra Pradesh	Regional Science Centre	Tirupati	NCSM
3	Andhra Pradesh	Sub-Regional Science Centre	Rajamahendravaram	State
4	Arunachal Pradesh	Arunachal Pradesh Science Centre	I.G. Park, Itanagar	State
5	Assam	Regional Science Centre	Guwahati	NCSM
6	Assam	Jorhat Science Centre & Planetarium		
7	Bihar	Shri Krishna Science Centre	Patna	NCSM
8	Bihar	District Science Centre	Muzaffarpur	State
9	Bihar	District Science Centre	Saharsa	State
10	Bihar	District Science Centre	Bhagalpur	State
11	Chhattisgarh	Chhattisgarh Science Centre	Raipur	State
12	Goa	Goa Science Centre	Panjim	NCSM
13	Gujarat	Gujarat Science City	Ahmadabad	State
14	Gujarat	Vikram A Sarabhai Community Science Center (VASCSC)	Ahmadabad	CSR
15	Gujarat	District Science Centre	Dharampur	NCSM
16	Gujarat	Regional Science Centre	Bhavnagar	State
17	Gujarat	Regional Science Centre	Bhuj	State
18	Gujarat	Regional Science Centre	Rajkot	State
19	Gujarat	Regional Science Centre	Patan	State
20	Gujarat	Kalyan Regional Community Science Centre	Bhavnagar	State
21	Gujarat	O.V. Sheth Regional Community Science Centre	Rajkot	State
22	Gujarat	Regional Community Science Centre	Vadodara	State
23	Gujarat	Girdharbhai Sangralay District Community Science Centre	Amreli	State
24	Gujarat	C.C. Patel Community Science Centre	Anand	State
25	Gujarat	District Community Science Centre	Banaskantha	State
26	Gujarat	Param Community Science Centre	Bharuch	State
27	Gujarat	Prayosha Community Science Centre	Dang	State
28	Gujarat	Nisarg Community Science Centre	Gandhinagar	State
29	Gujarat	M. D. Mehta District Community Science Centre	Jamnagar	State
30	Gujarat	Shri Brhamanadji District Community Science Centre	Junagadh	State
31	Gujarat	Kutch Mitra Community Science Center	Kutch	State

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32	Gujarat	Manthan Narmada Community Science Centre	Narmada	State
33	Gujarat	Punabha District Community Science Centre	Patan	State
34	Gujarat	Shree Sahajanand Swami District Community Science Centre	Porbandar	State
35	Gujarat	Pramukhswami District Community Science Centre	Sabarkantha	State
36	Gujarat	Jay Bharti District Community Science Centre	Surat	State
37	Gujarat	Dr. Homi Bhaba District Science Centre	Surendranagar	State
38	Gujarat	LokVigyan Kendra	Panchmahal	State
39	Gujarat	Dr. Kalam Jill Lokvigyan Kendra,	Kheda	State
40	Gujarat	Kalaniketan Community Science Centre	Tapi	State
41	Gujarat	Community Science Centre	Dahod	State
42	Gujarat	Community Science Centre	GirSomnath	State
43	Gujarat	Community Science Centre	Arvali	State
44	Gujarat	Community Science Centre	Botad	State
45	Gujarat	Community Science Centre	Morbi	State
46	Gujarat	Utthan Community Science Centre	Chhota Udaipur	State
47	Gujarat	District Community Science Centre	Mehsana	State
48	Gujarat	District Community Science Centre	Mahisagar	State
49	Gujarat	Bhaskaracharya District Community Science Centre	Devbhoomi Dwarka	State
50	Gujarat	Community Science Centre	Navsari	State
51	Gujarat	Surat Science Centre	Surat	State
52	Haryana	Kurukshetra Panorama & Science Centre	Kurukshetra	NCSM
53	Himachal Pradesh	Palampur Science Centre	Palampur	NCSM
54	Jharkhand	Regional Science Centre	Ranchi	State
55	Karnataka	Visvesvaraya Industrial & Technological Museum	Bangalore	NCSM
56	Karnataka	Regional Science Centre	Dharwad	State
57	Karnataka	Regional Science Centre	Pilikula	State
58	Karnataka	Sub-Regional Science Centre	Ballari	State
59	Karnataka	Sub-Regional Science Centre	Raichur	State
60	Karnataka	District Science Centre Kalaburagi	Gulbarga	NCSM
61	Kerala	Regional Science Centre & Planetarium	Calicut	NCSM
62	Kerala	Kerala State Science and Technology Museum & Priyadarsini Planetarium	Thiruvananthapuram	State
63	Madhya Pradesh	Regional Science Centre	Bhopal	NCSM
64	Maharashtra	Nehru Science Centre	Mumbai	NCSM
65	Maharashtra	Raman Science Centre & Planetarium	Nagpur	NCSM
66	Maharashtra	Sub-Regional Science Centre	Solapur	State

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67	Maharashtra	Pimpri Chinchwad Science Centre	Pune	State
68	Maharashtra	APJ Abdul Kalam Astrospace Science Centre & Club	Aurangabad.	State
69	Manipur	Manipur Science Centre		State
70	Meghalaya	Shillong Science Centre	Shillong	State
71	Mizoram	Mizoram Science Centre	Aizwal	State
72	Nagaland	Nagaland Science Centre	Dimapur	State
73	Odisha	Bargarh Science Centre	Bargarh	State
74	Odisha	Regional Science Centre	Bhubaneswar	NCSM
75	Odisha	Dhenkanal Science Centre	Dhenkanal	NCSM
76	Odisha	Pathani Samanta Museum	Khandapara	State
77	Punjab	Pushpa Gujral Science City	Kapurthala	State
78	Rajasthan	Regional Science Centre	Jaipur	State
79	Rajasthan	Sub Regional Science Centre	Jodhpur	State
80	Rajasthan	BM Birla Planetarium	Jaipur	State
81	Sikkim	Sikkim Science Centre	Gangtok	State
82	Tamil Nadu	Regional Science Centre	Coimbatore	State
83	Tamil Nadu	District Science Centre	Tirunelveli	NCSM
84	Tamil Nadu	Periyar Science and Technology Centre	Chennai	State
85	Tamil Nadu	Anna Science Centre- Planetarium	Tiruchirappalli	State
86	Tamil Nadu	District Science Centre	Vellore	State
87	Telangana	BM Birla Science Centre	Hyderabad	State
88	Telangana	Regional Science Centre	Warangal	State
89	Tripura	Udaipur Science Centre	Udaipur	State
90	Uttarakhand	Regional Science Centre	Dehradun	State
91	Uttar Pradesh	Regional Science City Lucknow	Lucknow	NCSM
92	West Bengal	Science City	Kolkata	NCSM
93	West Bengal	Birla Industrial & Technological Museum	Kolkata	NCSM
94	West Bengal	North Bengal Science Centre & Digital Planetarium	Siliguri	NCSM
95	West Bengal	District Science Centre	Bardhaman	NCSM
96	West Bengal	District Science Centre	Purulia	NCSM
97	West Bengal	Digha Science Centre	Digha	NCSM
98	West Bengal	Sub-Regional Science Centre	Kalimpong	State
99	West Bengal	Central Research & Training Laboratory	Kolkata	NCSM
100	Andaman and Nicobar Islands	Science Centre	Port Blair	UT
101	New Delhi	National Science Centre	New Delhi	NCSM
102	Puducherry	Sub Regional Science Centre	Puducherry	UT
103	Puducherry	APJ Abdul Kalam Puducherry Science Centre and Planetarium	Lawspet	UT

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Private & Voluntary Organizations

Annexure – XX

Sl. No	State	Private & Voluntary Organizations
1	Andhra Pradesh	• Accurate Development for Alleviated Masses Adams Society • Rural Agricultural Development Society • Society for Poor (SP)
2	Arunachal Pradesh	• Take Bogo Welfare Society
3	Assam	• AARANYAK Charitable Trust • Bharat Jan Vigyan Jatha
4	Bihar	• Institute of Environment and Eco Development (IEED) • Science for Society, Patna University Science for Society, Patna University
5	Chhattisgarh	• Dr. Birbal Sahani Science Research Foundation • Jini Educational & Social Welfare Association • Palash Social Society • Samarpan for Education and Welfare Society • Society for Innovation and Incubation Development
6	Gujarat	• Manthan Educational Programme Society • Prasansa Foundation • Rural Development Foundation • Saiyerejo Radio Station • Vikram A Sarabhai Community Science Centre
7	Haryana	• Haryana Vigyan Manch • Indian Resource And Development Association • Kundan Welfare Society • Society For Promotion of Science and Technology in India (SPSTI) • Women Empowerment and Awareness Association
8	Himachal Pradesh	• All Welfare and Science Research Society • Him Prabha Welfare Society • Jeet Educational and Welfare Society • Northpoint Educational Trust • Society for Environmental and Rural Awakening
9	Jharkhand	• Dr. Hargovind Khurana Science and Social Welfare Association • Manthan Yuva Sansthan • Science for Society • Shadow Education & Welfare Society • S&T Educators Forum
10	Karnataka	• Karnataka Rajya Vijnana Parishat • KC Reddy Sarojamma Foundation • Movement for Economic Reconstruction and Community Integration (MERCI) • SEVAK (Society for Empowerment through Voluntary Action in Karnataka • Shri Anand Bernard Lobo SEVAK • Vikasan Kendra

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11	Kerala	• Gangothri Charitable Cultutal and Educational Trust • Kerala Educational Development and Employment Society (KEDES) • P.N. Panicker Foundation • Swadeshi Science Movement
12	Madhya Pradesh	• Akarsan Uthan Samiti • Astronomica Science Activity and Education Society • Children Welfare and Education Society • Kadam Jan Vikas Sanstha • Rishiraj Samajik Avam Shaikshnic Sanstha Samiti • Search and Research Development Society • Shivbir Singh Kushwah Jan Kalyan Samity • Suman Shiksha Avam Samaj Kalyan Samiti • Vanja Environment and Science Centre Society • Yuva Vigyan Parishad
13	Maharashtra	• Jidnyasa Trust Thane • Ppeksha Homeo Society • Raichael Joseph Foundation • Society for People Action in Rural Service & Health • Social Empowerment And Voluntary Association
14	Manipur	• Ardent Foundation • Centre For Human Resource And Economic Development (CHRED) • Rural Social And Educational Development Association • Minority Peoples and Rural Development Society • Science Teacher's Forum • St. George Educational Resource Centre • Unique Trust
15	Mizoram	• Science Teacher's Association
16	Nagaland	• Breeze Women Welfare Association • Utkarsh Society for Social and Economic Reforms
17	Odisha	• Bharat Jan Gyan Vigyan Samity • Ganapati Sabata Foundation • Samanta Chandrasekhar Vigyan Club • Skill India Activities Community Science Centre • Socio cultural Development Centre • Society for Entrepreneurship Environment and Human Resources Development (SEEHURD)
18	Punjab	• Chandigarh University • Janni Sanraskhan Avom Vikas Samiti • Lovely Professional University
19	Rajasthan	• Gram Jan Prabandh Evm Vikas Sansthan • Green Tomorrow Society • Institute for Environental and Social Affairs (IESA) • Induction Educational and Welfare Society • Manav Mangal Sewa Sansthan • Prakalp Sansthan • Samadhan Jan Seva Evam Shiksha Prasar Samiti • Shrushti Seva Samiti

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		• Vashnavi Social Welfare Society
20	Sikkim	• Suman Shiksha Yevam Samaj Kalyan Samiti
21	Tamil Nadu	• Centre for Social Development • C.P.R. Environmental Education Centre • Kalasalingam Academy of Research and Education • Keystone Foundation • Tamil Nadu Science Forum
22	Telangana	• Appasani Minds India • Jyothi Educational Society • Madhumitha Foundation • Siva Naga Neelima Jyothi Educational Society • Society for Rural Development and Educational Services • Society for Rural Energy and Youth Advancement • Society for Urban and Rural Enlightenment (SURE) • Surya Kiran Welfare Society • Venkateswara Reddy KLR Educational Society
23	Tripura	• RWNG Song Sama Welfare Society • Tripura Science Forum
24	Uttar Pradesh	• Abha Vikas Sansthan • Banaras Education and Research Foundation • Center of Technology and Entrepreneurship • Disha Samajik Sansthan • Gramodaya Vikas Samiti • Indian Rural Awareness and Development Action • Indian Science Communication Society • Jan Kalyan Shikshan Prasar • Janardan Prasad Memorial Multipurpose Social Service Society • Jiwan Jyoti Sansthan • Kisan Sewa Sansthan • National Association for Voluntary Initiative and Cooperation • Nivodh Paryavaran Sodh Avam Samajik Sewa Sanstha • Pragati Vigyan Sanstha • Rajiv Gandhi Rashtriya Krishi Vikas Avam Prabandhan Sansthan • Rama Dutt Educational Society • Ramanujan Society of Mathematics and Mathematical Sciences • Sarva Hitkari Siksha Prasar Samiti • Sri Bramha Ji Shiksha Evam Samaj Kalyan Samiti • Unique Welfare Foundation • Vikas Path Sewa Sansthan • Voluntary Institute for Community Applied Science
25	Uttarakhand	• Devbhoomi Geet Evam Natya Sanskritik Samiti • Golden New Era Educational and Social Society (GNESS) • Society of Pollution & Environmental Conservation Scientists • Sudarshan Sewa Samiti • Science & Social Welfare Foundation

26	West Bengal	• Boyarbandha Deshbandhu Samiti • Institute of Rural and Social Development • Samanta Science Centre • Society for Participatory Management and Reflection • Science Communicators Forum
27	Andaman & Nicobar	• Andaman Nature Club
28	Jammu & Kashmir	• J&K Students Welfare Society • National Council for Urban and Rural Development • Star Club Social Welfare Society
29	Chandigarh	• The Environment Society of India
30	Delhi	• Divine Foundation • Eco Roots Foundation • Heart Care Foundation of India • Millennium India Education Foundation • Network of Organizations for Science and Technology Communication • New Rise Welfare Society • Please Help Foundation • Society for Environment and Developmen • Sun Rise Science & Social Welfare Foundation • The Energy and Resources Institute (TERI)
31	Puducherry	• Pondicherry Science Forum • Sri Aurobindo Society

AZADI KA AMRIT MAHOTSAV
"STI ECOSYSTEM FOR ATMA NIRBHAR BHARAT"
STATE SCIENCE AND TECHNOLOGY PROGRAMME (SSTP)

ONE MONTH ONE THEME INITIATIVE.
SEPTEMBER, 2021 TO AUGUST, 2022.

THEMES

STI Institutions at the State level
Human Resource Development
R & D Infrastructure
Indigenous Technologies
Innovation & Start-ups
Science Communication & Popularisation
Women in S&T and S&T for Women
Science & Society
Future Technologies
Basic Science for Atmanirbharata
Atmanirbharata & Industry
Intellectual Property Rights