

**GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH**

**LOK SABHA
UNSTARRED QUESTION No. 2316
(TO BE ANSWERED ON 01.08.2018)**

LABORATORIES FUNCTIONING UNDER THE CSIR

2316. SHRI MOHITE PATIL VIJAYSINH SHANKARRAO:

DR. HEENA VIJAYKUMAR GAVIT:

SHRI SATAV RAJEEV:

SHRIMATI SUPRIYA SULE:

DR. J. JAYAVARDHAN:

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

- (a) the number of laboratories functioning under the Council of Scientific and Industrial Research (CSIR) in the country as on date;**
- (b) the details of the funds earmarked/ allocated and utilised by these laboratories during each of the last three years and the current year, State/UT-wise;**
- (c) the details of research works undertaken by these laboratories during the above period;**
- (d) whether the Government is planning/considering to modernise these laboratories; and**
- (e) if so, the details thereof and the time by which these laboratories are likely to be redeveloped?**

ANSWER

**MINISTER OF SCIENCE AND TECHNOLOGY AND EARTH SCIENCES
(DR. HARSH VARDHAN)**

- (a)&(b) The Council of Scientific & Industrial Research, known for its cutting edge Research & Development knowledgebase in diverse Science & Technology areas, is a contemporary Research, Development & Engineering organization. CSIR has pan India presence through its network of 38 national laboratories which undertake well focused basic and applied research in diverse fields of science and technology. The details of the funds earmarked/allocated and utilized by these laboratories during each of the last three years and the current year, State/UT-wise is given in Annexure-I.**
- (c) During the Financial Year 2015-16 and FY 2016-17 as a part of 12th Five Year Plan, CSIR had undertaken 158 research projects and five trans-plan period projects (i.e. extended projects from 10th and 11th Plan) in diverse R&D areas which were completed on 31st March 2018. The details are provided in Annexure-II. The ongoing research projects during the FY 2017-18 and FY 2018-19 is given in Annexure-III.**
- (d)&(e) Yes, Madam. Number of laboratories of CSIR are being regularly upgraded and modernized in terms of facilities, sophisticated instruments and equipment such as pilot plants and through renovation and refurbishment of their buildings.**

Annexure-I

STATE-WISE LABORATORIES/ INSTITUTES OF COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH	Allocation/Utilisation during			(Rs. in crores) Allocation during
	2015-16	2016-17	2017-18	2018-19**
ANDHRA PRADESH				
Centre for Cellular & Molecular Biology, Hyderabad	123.420	122.286	134.534	106.968
Indian Institute of Chemical Technology, Hyderabad	233.740	199.676	236.593	201.890
National Geophysical Research Institute, Hyderabad	110.990	124.862	131.675	117.481
Total	468.150	446.824	502.802	426.339
ASSAM				
North East Institute of Science & Technology, Jorhat	90.250	99.709	110.380	82.475
JHARKHAND				
Central Institute of Mining & Fuel Research, Dhanbad	90.470	116.041	129.406	106.053
National Metallurgical Laboratory, Jamshedpur	76.980	90.248	114.169	96.556
Total	167.450	206.289	243.575	202.609
GUJRAT				
Central Salt & Marine Chemicals Research Institute, Bhavnagar	72.840	66.280	74.339	57.291
HIMACHAL PRADESH				
Institute of Himalayan Bioresource Technology, Palampur	63.380	58.723	55.201	41.837
JAMMU & KASHMIR				
Indian Institute of Integrative Medicine, Jammu	88.250	89.702	124.587	88.623
KARNATAKA				
Central Food Technological Research Institute, Mysore	108.580	116.340	138.354	116.672
National Aerospace Laboratories, Bangaluru	232.710	258.751	318.455	256.443
Center for Mathematical Modelling and Computer Simulation, Bangaluru	19.330	18.631	19.149	17.513
Total	360.620	393.722	475.958	390.628

KERALA				
National Institute of Interdisciplinary Science and Tech (Thiruvananthapuram)	66.280	66.930	58.940	48.892
MADHYA PRADESH				
Advanced Materials & Process Research Institute, Bhopal	27.660	27.665	37.486	27.134
MAHARASTRA				
National Chemical Laboratory, Pune	200.950	195.015	234.406	214.143
National Environmental Engineering Research Institute, Nagpur	69.290	71.563	80.657	59.927
Total	270.240	266.578	315.063	274.070
ORISSA				
Institute of Minerals & Materials Technology, Bhubaneswar	59.010	68.360	70.620	51.422
RAJASTHAN				
Central Electronics Engineering Research Institute, Pilani	85.180	94.678	117.002	113.645
TAMILNADU				
Central Electrochemical Research Institute, Karaikudi	130.230	119.630	125.297	101.290
Central Leather Research Institute, Chennai	102.490	116.000	121.923	98.560
CSIR Madras Complex	12.600	15.191	19.135	17.343
Structural Engineering Research Centre, Chennai	59.230	45.484	67.695	85.498
Total	304.550	296.305	334.050	302.691
UTTAR PRADESH				
Central Drug Research Institute, Lucknow	179.130	160.497	179.407	144.081
Central Institute of Medicinal and Aromatic Plants, Lucknow	74.700	73.547	86.694	78.221
Indian Institute of Toxicology Research, Lucknow	57.660	68.293	80.817	72.292
National Botanical Research Institute, Lucknow	93.220	91.602	95.887	87.280
Human Resource Development Centre, Ghaziabad	12.960	8.823	11.264	10.411
Total	417.670	402.762	454.069	392.285
UTTRAKHAND				
Central Building Research Institute, Roorkee	52.680	54.463	76.044	94.188
Indian Institute of Petroleum, Dehradun	80.140	85.990	118.685	84.666
Total	132.820	140.453	194.729	178.854
WEST BENGAL				
Central Glass & Ceramic Research Institute, Kolkata	107.040	111.192	120.241	103.588
Central Mechanical Engineering Research	93.190	101.229	117.131	103.913

Institute, Durgapur				
Indian Institute of Chemical Biology, Kolkata	83.630	91.284	94.774	73.430
Total	283.860	303.705	332.146	280.931
GOA				
National Institute of Oceanography, Goa	141.330	132.470	146.366	97.419
UNION TERRITORY DELHI				
Central Road Research Institute, New Delhi	58.550	57.827	74.718	67.009
Institute of Genomics & Integrative Biology, Delhi	102.070	93.627	69.244	47.614
National Institute of Science Communication and Information Resources, New Delhi	71.310	73.734	96.139	55.572
National Institute of Science, Technology and Development Studies, New Delhi	15.110	29.317	21.378	20.176
National Physical Laboratory, New Delhi	142.710	159.148	169.058	138.678
Total	389.750	413.653	430.537	329.049
CHANDIGARH				
Central Scientific Instruments Organisation, Chandigarh	78.280	91.628	105.294	99.120
Institute of Microbial Technology, Chandigarh	84.320	63.870	62.177	44.835
Total	162.600	155.498	167.471	143.955
CSIR Head Quarters, New Delhi	395.156	425.585	495.229	493.176
GRAND TOTAL	4047.046	4155.891	4740.550	4023.325

****Allocation made upto 26.07.2018 during financial year 2018-19**

N.B. Allocation of each year includes utilization of unspent grant of previous years as carry over.

List of 12th Five Year Projects				
Sl. No.	Title	Acronym	Code	Nodal Lab
1	Factors Governing competent gamete production and reproductive dysfunction	PROGRAM	BSC0101	CSIR-CDRI
2	Towards holistic understanding of Complex Diseases: Unraveling the Threads of Complex Diseases	THUNDER	BSC0102	CSIR-CDRI
3	New Approaches Towards Understanding of Disease Dynamics and to Accelerate Drug Discovery	UNDO	BSC0103	CSIR-CDRI
4	Emerging and re-emerging challenges in infectious diseases: Systems based drug design for infectious diseases	SPlenDID	BSC0104	CSIR-CDRI
5	New initiatives to boost agriculture productivity through maximizing pre- and post-harvest yields	AGROPATHY	BSC0105	CSIR-CFTRI
6	Bioprospection of plant resources and other natural products	BioprosPR	BSC0106	CSIR-NBRI
7	Genomics of Medicinal Plants and Agronomically Important Traits	PlaGen	BSC0107	CSIR-NBRI
8	Medicinal Chemistry for stem cell biology and regenerative medicine	MEDCHEM	BSC0108	CSIR-IIIM
9	Plant Diversity: Studying adaptation biology and understanding/exploiting medicinally important plants for useful bioactives	SIMPLE	BSC0109	CSIR-IHBT
10	Introduction, domestication, improvement and cultivation of economically important plants	AGTEC	BSC0110	CSIR-IHBT
11	Integrated NextGen approaches in health disease and environmental toxicity	INDEPTH	BSC0111	CSIR-IITR
12	Nanomaterials: Applications and Impact on Safety, Health and Environment	NanoSHE	BSC0112	CSIR-IITR
13	Understanding supra molecular ensembles and machines	UNSEEN	BSC0113	CSIR-IICB
14	Host Interactome analysis: Understanding the Role of Host molecules in Parasitic Infection	HOPE	BSC0114	CSIR-IICB
15	Neurodegenerative diseases: Causes and	miND	BSC0115	CSIR-IICB

	Corrections			
16	Therapeutics of Chronic Obstructive Pulmonary Disease (COPD) and Related Respiratory Disorders	TREAT	BSC0116	CSIR-IICB
17	Plant-Microbe and Soil Interactions	PMSI	BSC0117	CSIR-CCMB
18	Epigenetics in Health and Disease	EpiHeD	BSC0118	CSIR-CCMB
19	Man as a Superorganism: Understanding the Human Microbiome	HUM	BSC0119	CSIR-IMTECH
20	Centre for BIOtherapeutic Molecule DISCOVERY	BIODISCOVERY	BSC0120	CSIR-IMTECH
21	Genomics and Informatics Solutions for Integrating Biology	GENESIS	BSC0121	CSIR-IMTECH
22	Centre for Cardiovascular and Metabolic Disease Research	CARDIOMED	BSC0122	CSIR-IGIB
23	Genome Dynamics in cellular organization, differentiation and enantiostasis	GenCODE	BSC0123	CSIR-IGIB
24	CSIR-NCL-IGIB Joint Research Initiative: Interfacing Chemistry and Biology	CSIR-NCL-IGIB-JRI	BSC0124	CSIR-IGIB
25	S&T interventions to combat malnutrition in women and children	HCP07	BSC0125	CSIR-HQ
26	Anabolic Skeletal Targets in Health and Illness	ASTHI	BSC0201	CSIR-CDRI
27	Wellness through Foods and Nutraceuticals	WELFO	BSC0202	CSIR-CFTRI
28	Chemical Biology of Ocimum and other Aromatic Plants	ChemBio	BSC0203	CSIR-CIMAP
29	Root Biology and its correlation to sustainable plant development and soil fertility	RootSF	BSC0204	CSIR-NBRI
30	Nurturing a new Pan-CSIR drug pipe line: high intensity preclinical, clinical studies on lead candidates	DPL	BSC0205	CSIR-IIIM
31	Bio-energetic Disorders: A multi-model approach to monitoring and management	BenD	BSC0206	CSIR-IICB
32	Conservation of endangered animals of India: Molecular Genetics and Reproduction Approaches	Conserve	BSC0207	CSIR-CCMB
33	Biology of Ageing and Human Health	BioAGE	BSC0208	CSIR-CCMB
34	Establishment of Centre for High Altitude Biology	CeHAB	BSC0209	CSIR-IHBT
35	Multidirectional approaches for molecular and systems level understanding of	INFECT	BSC0210	CSIR-IMTECH

	regulatory networks in pathogenic microbes			
36	Drug Discovery: Bugs to Drugs Programme	BUGS TO DRUGS	BSC0211	CSIR-IMTECH
37	Wellness Genomics Project - Understanding genomic signatures of healthy living in Indian population	WG 100	BSC0212	CSIR-IGIB
38	Process and Products from Himalayan Region and their toxicological evaluation	PROMOTE	BSC0213	CSIR-IHBT
39	Plant Breeding, Genomics and Biotechnology	PLOMICS	BSC0301	CSIR-CCMB
40	Towards Understanding skin Cell Homeostasis	TOUCH	BSC0302	CSIR-IGIB
41	Effective Application of Community Health Efforts through New Age, IT Based Modes	EACH-IT	BSC0303	CSIR-IGIB
42	Lipidomics Center	LIPIC	BSC0401	CSIR-CFTRI
43	Expansion and Modernization of the Microbial Type Culture Collection and Gene Bank	MTCC	BSC0402	CSIR-IMTECH
44	Visualisation of Organisms in Action	VISION	BSC0403	CSIR-IGIB
45	Creation of Advanced Research Facility in Molecular Nutrition	Nutri-ARM	BSC0404	CSIR-CFTRI
46	Multifunctional electrodes and Electrolytes for Future Technologies	MUTLIFUN	CSC0101	CSIR-CECRI
47	Clean Coal Technology	TapCoal	CSC0102	CSIR-CIMFR
48	Zero Emission Research Initiative for Solid Wastes from Leather	ZERIS	CSC0103	CSIR-CLRI
49	Membrane & Adsorbent Technology Platform for Effective Separation of Gases and Liquids	MATES	CSC0104	CSIR-CSMCRI
50	Potassic (K) fertilizer Technology to Empower the Nation	K-TEN	CSC0105	CSIR-CSMCRI
51	Biocatalysts for Industrial Applications & Greener Organic Synthesis	BIAGOS	CSC0106	CSIR-IICT
52	Inherently Safer Practices for Industrial Risk Reduction	INSPIRE	CSC0107	CSIR-IICT
53	Organic reactions in generating innovative and natural scaffolds	ORIGIN	CSC0108	CSIR-IICT
54	Non-Infringing chemistry and engineering for pharmaceuticals	NICE-P	CSC0109	CSIR-IICT
55	Metabolic profiling of human body fluids by MS and NMR	CMET	CSC0110	CSIR-IICT

56	Screening molecules in lead exploration	SMiLE	CSC0111	CSIR-IICT
57	Development of Sustainable Processes for Edible Oils with Health Benefits from Traditional and New Resources	PEOPLE HOPE	CSC0112	CSIR-IICT
58	Development of Sustainable Waste Management Technologies for Chemical and Allied Industries	SETCA	CSC0113	CSIR-IICT
59	Intelligent Coatings	IntelCoat	CSC0114	CSIR-IICT
60	Energy Efficient Technologies	E2++	CSC0115	CSIR-IIP
61	Biomass to Energy	BioEn	CSC0116	CSIR-IIP
62	Catalysts for Sustainable Energy	ECat	CSC0117	CSIR-IIP
63	New generation lubricants and additives	GenLube	CSC0118	CSIR-IIP
64	Research Initiative for Low Emissions	RILE	CSC0119	CSIR-IIP
65	Waste to Wealth - Waste plastics	W2W	CSC0120	CSIR-IIP
66	Advanced Carbon Materials	AdCarbMate	CSC0121	CSIR-IIP
67	Hydrogen Energy: Overcoming materials challenges in PEMFC towards generation, separation, storage and conversion of hydrogen	HYDEN	CSC0122	CSIR-NCL
68	Innovate, develop and up-scale modular, agile, intensified and continuous processes and plants	Indus MAGIC	CSC0123	CSIR-NCL
69	Catalysts for Speciality Chemicals	CSC	CSC0125	CSIR-NCL
70	Encapsulated Microorganisms for Environmental Protection	EMEP	CSC0127	CSIR-NCL
71	Creating intellectual property and capabilities for the development of improved security features and substrates for the Indian currency note	FUTURE	CSC0128	CSIR-NCL
72	A Multi-Scale Simulation and Modeling Approach to Designing Smart Functional Materials for use in Energy, Electrochemistry and Bio-mimetics	MSM	CSC0129	CSIR-NCL
73	Natural Products as Affordable Healthcare Agents	NaPAHA	CSC0130	CSIR-NEIST
74	Environmental Research Initiative for Paper and Process Industry	ERIPP	CSC0131	CSIR-NEIST
75	Sustainable Technologies for the Utilization of Rare Earths	SURE	CSC0132	CSIR-NIIST
76	Development of functional foods and their formulations for potential health benefits of common man	FUNHEALTH	CSC0133	CSIR-NIIST

77	Molecules to Materials to Devices	M2D	CSC0134	CSIR-NIIST
78	Speciality Materials based on Engineered Clays	SPECS	CSC0135	CSIR-NIIST
79	Science and Technology Revolution in Leather with a Green Touch	STRAIT	CSC0201	CSIR-CLRI
80	Research Initiative for Waterless Tanning	RIWT	CSC0202	CSIR-CLRI
81	High Purity Salt & Recovery of Valuable Metal Ions from Marine Resources	HPSMC	CSC0203	CSIR-CSMCRI
82	Development of Innovative Technologies for Strategic Flurochemicals	DITSF	CSC0204	CSIR-IICT
83	Development of Novel Vaccine Adjuvants	DENOVA	CSC0205	CSIR-IICT
84	Advanced Polyolefins	SPIRIT	CSC0206	CSIR-NEIST
85	North East Exploration for Pharmaceutical	NEEP	CSC0207	CSIR-NEIST
86	Affordable Cancer Therapeutics	ACT	CSC0301	CSIR-IICT
87	Advance Drug Delivery System	ADD	CSC0302	CSIR-IICT
88	Design Innovation for Smart Material Transformation Yeanning Leather Life Style Products	D'STYLE	CSC0401	CSIR-CLRI
89	Augmentation of Analytical Research Facilities	AARF	CSC0402	CSIR-IICT
90	Centre of Excellence for HRD in Hydrocarbon	Train All	CSC0403	CSIR-IIP
91	Centre for Surface and Interface Science Research	CSISR	CSC0404	CSIR-NCL
92	Nuclear Magnetic Resonance Centre for Advanced Research	NMRCAR	CSC0405	CSIR-NCL
93	National Repository of Molecules	NORMS	CSC0406	CSIR-NCL
94	Up gradation of Facilities/National Repository of Molecules and National Collection of Industrial Micro Organisms Resource Centre	NCIMRC	CSC0407	CSIR-NCL
95	CSIR Advanced Analytical Facility for North East	CAAF-NE	CSC0408	CSIR-NEIST
96	Novel Energy Effective Metallic Materials for Automotive and General Engineering Application	LWM	ESC0101	CSIR-AMPRI
97	Engineering of Disaster Mitigation and Health Monitoring for Safe and Smart Built Environment	EDMISSIBLE	ESC0102	CSIR-CBRI
98	Development of Novel CSIR Technologies for Manufacturing Tailored and Patient-	BIOCERAM	ESC0103	CSIR-CGCRI

	Specific Bioceramic Implants and Biomedical Devices at Affordable Cost			
99	Advanced ceramics materials and components for energy and structural application	CERMESA	ESC0104	CSIR-CGCRI
100	Development of a technology for optimal extraction of locked-up coal from underground mines using artificial pillars	DeCoalArt	ESC0105	CSIR-CIMFR
101	Development and Application of Technologies for Sustainable Transportation	SUSTRANS	ESC0106	CSIR-CRRI
102	Technology Solutions for Micro Air Vehicle Development	MAT	ESC0107	CSIR-NAL
103	Centre of Excellence: Waste Utilization and Management	WUM	ESC0108	CSIR-NEERI
104	Development of Zero Waste Technology for Processing and Utilization of Thermal Coal	ZWT-CUP	ESC0109	CSIR-NML
105	Innovative Technologies for Health Assessment and Damage Mitigation of Structures	I-HEAL	ESC0110	CSIR-SERC
106	Robotics and Micro Machines	ROuM	ESC0112	CSIR-CMERI
107	Autonomous Underwater Robotics	UnWaR	ESC0113	CSIR-CMERI
108	Design and Development of Thermo Responsive & Magnetic Shape Memory Materials and Devices for Engineering Applications	TR&MSMM	ESC0201	CSIR-AMPRI
109	Leadership in Specialty Glass and Optical Fiber Technologies	GLASSFIB	ESC0202	CSIR-CGCRI
110	Intelligent devices and smart actuators	InDeSa	ESC0203	CSIR-CMERI
111	Evaluation of Economic Loss Due to Idling of Vehicles at Signalized and Mitigation Measures	ELSIM	ESC0204	CSIR-CRRI
112	Minerals to Metals for Sustainable Planet	MINMET	ESC0205	CSIR-IMMT
113	Processing of natural gemstones for aesthetic improvement and value addition	PNG	ESC0206	CSIR-IMMT
114	Engineering Sustainable Materials and Structures Action Plan I: Sustainability Through Eco-Balancing	SUSMAS	ESC0208	CSIR-SERC
115	Engineering Sustainable Materials and Structures Action Plan II: Sustainability Through Nano-Technology and Bio-Mimetics	eNano-Tics	ESC0209	CSIR-SERC

116	Avionics and Flight Controls Civil Aerospace Technologies	AFCCAT	ESC0210	CSIR-NAL
117	Advanced Structural Technologies for Aircraft	ASTA	ESC0212	CSIR-NAL
118	Aerodynamics and Propulsion Technologies for Next Generation Civil Aircraft	ADPR	ESC0213	CSIR-NAL
119	Innovative Materials and Technologies for Next Generation Green buildings	INMATE-NGGB	ESC0301	CSIR-CBRI
120	Development of underground coal gasification technology in India	CoalGasUrja	ESC0302	CSIR-CIMFR
121	Development of suitable design methodology for extraction of coal at greater depths (>300 m) for Indian geomining conditions	DeepCoal	ESC0303	CSIR-CIMFR
122	Development of Indian Highway Capacity Manual	Indo-HCM	ESC0304	CSIR-CRRI
123	National Clean Air Mission	NCAM	ESC0305	CSIR-NEERI
124	Clean Water: Sustainable Options	Clean Water	ESC0306	CSIR-NEERI
125	Centre for Special Materials	CSM	ESC0401	CSIR-IMMT
126	Transport Aircraft Design Bureau	TADB	ESC0403	CSIR-NAL
127	Augmentation and Refurbishment of National Trisonic Aerodynamic Facilities	NTAF	ESC0501	CSIR-NAL
128	Development of Magnesium Metal Production Technology	MPT	ESC0503	CSIR-NML
129	Analysis and Monitoring of patent applications in International Patent Office for preventing misappropriation of Indias Traditional Knowledge	TKDL	HCP006	CSIR-TKDL
130	CSIR Knowledge Gateway and Open Source Private Cloud Infrastructure	KNOWGATE	ISC0102	CSIR-NISCAIR
131	Indian S&T and Innovation Policy	ISTIP	ISC0201	CSIR-NISTADS
132	Patinformatics	Patinformatics	ISC0202	CSIR-URDIP
133	Chembioinformatics for Drug Discovery	ISC0203	ISC0203	CSIR-URDIP
134	Open Science and Open Innovation Infrastructure	OSOII	ISC0204	CSIR-URDIP
135	Traditional Knowledge Digital Library 2020	Enhanced TKDL-2020	ISC0205	CSIR-TKDL
136	Advanced Research in Engineering & Earth Sciences: Data intensive modelling and crowd sourcing approach	ARiEES	ISC0301	CSIR-4PI

137	Vulnerability assessment and development of adaption strategies for climate change impact with special reference to coasts and island ecosystems of India	VACCIN	ISC0302	CSIR-NISCAIR
138	CSIR-Wide Consortium Access to Online Information Resources	NKRC	ISC0402	CSIR-NISCAIR
139	Very High Power Microwave Tubes : Design and Development Capabilities	MTDDC	PSC0101	CSIR-CEERI
140	Research Initiative on Nano Devices and Nano-Sensors	R-Nano	PSC0102	CSIR-CEERI
141	Advanced Instrumentation Solutions for Health Care and Agro-based Applications	ASHA	PSC0103	CSIR-CSIO
142	Geodynamic and Earthquake generating processes in NE India and Andaman Subduction Zone	GENIAS	PSC0104	CSIR-NGRI
143	Ocean Science Towards Forecasting Indian Marine Living Resource Potential	Ocean Finder	PSC0105	CSIR-NIO
144	Geological processes in the Indian Ocean - Understanding the input fluxes, sinks and Paleoceanography	GEOSINKS	PSC0106	CSIR-NIO
145	Geo-scientific investigations for deciphering the Earth's internal processes and exploration of energy resources	GEOSCAPE	PSC0107	CSIR-NIO
146	Indian Aquatic Ecosystems: Impact of Deoxygenation, Eutrophication and Acidification	INDIAS IDEA	PSC0108	CSIR-NIO
147	Development of Advanced Materials for Next-Generation Energy-Efficient Devices	D-NEED	PSC0109	CSIR-NPL
148	Advanced Quantum Research and Innovation with Ultra Small Systems	AQuaRIUS	PSC0110	CSIR-NPL
149	Measurement for Innovation in Science & Technology	MIST	PSC0111	CSIR-NPL
150	Probing the Changing Atmosphere and its Impacts in Indo-Gangetic Plains (IGP) and Himalayan Regions	AIM-IGPHim	PSC0112	CSIR-NPL
151	Advanced Microsensors and Microsystems : Design, Development and Applications	MicroSensys	PSC0201	CSIR-CEERI
152	Opto-Mechatronics Technologies for Next Generation Sensors and Applications	OMEGA	PSC0202	CSIR-CSIO
153	Hazard due to Earthquakes and Tsunami	HEART	PSC0203	CSIR-NGRI

	in the Indian region			
154	India Deep Earth Exploration Programme	INDEX	PSC0204	CSIR-NGRI
155	Shallow subsurface imaging of India for resource exploration	SHORE	PSC0205	CSIR-NGRI
156	Analyses and Harnessing of Marine Biodiversity for Bioremediation of Aquaculture and Industrial Effluents	MARINEBIOTECH	PSC0206	CSIR-NIO
157	Research and Development on Single Trapped Ion based Frequency Standard	STIOS	PSC0207	CSIR-NPL
158	Advanced Facility for Nano Electronics	AFNE	PSC0401	CSIR-CEERI

**Trans-Plan Period Projects (i.e.
extended projects from 10th and 11th
Plan)**

1	Novel approaches for solar energy conversion		NWP54	CSIR-NPL
2	Efficient Silicon photovoltaics with smart electronics and lighting systems		NWP55	CSIR-NPL
3	Innovative solutions for solar energy storage*		NWP56	CSIR-CECRI
4	Setting up of World Class Drug Research Institute		CMM15	CSIR-CDRI
5	S&T Intervention for Rural Development		RSP	CSIR-HQ

Annexure-III

S. No.	Project Title
List of Fast Track Translation Projects	
1	Paper based affordable microfluidic kit for early pregnancy detection in cattle and buffaloes
2	Development of simple and affordable diagnostic protocols and diagnostic kit for genetic diagnosis of musculopathies and hemoglobinopathies
3	Clinical development of Candidate Drug 99/373 (Anti-osteoporotic)
4	Clinical development of candidate drug 97/78 (anti-malarial)
5	Know-how of the isolation of arabinoxylans from defatted cereal brans
6	Development and production of anti-obesity DAG Oil
7	Non-thermal processing of liquid foods
8	Technology for carbonated fruit juice beverages from selected fruit crops
9	Development of a high yielding variety of <i>Artemisia annua</i>
10	Development of improved variety for high root yield with better quality of Yellow Satawar (<i>Asparagus adscendens</i> Roxb.)
11	Development of a linalool rich cold tolerant <i>Ocimum chemotype</i>
12	Development of withanolide rich, quality root & early maturing advance breeding line with a novel ideotype
13	Calliterpenone for enhancing crop yields
14	GOMED - Platform for Genomics and other Omics technologies for Enabling Medical Decision
15	NGS based high resolution HLA typing kits
16	NGS for mitochondrial diagnosis
17	PulmoScan
18	Developing L-Asparaginase with Low Glutaminase Activity for Therapeutic Applications
19	Process for substituted cyclohexane-1-3-dione synthesis
20	Rapid Assay System and Clinical Validation of Biomarker for Rheumatic Heart Disease
21	Serum and urine-based kits for diagnosis (VL) and post kala-azar dermal leishmaniasis (PKDL) in the field setting
22	Mupirocin + IIM-1133/06: A topical formulation for improved

S. No.	Project Title
	bioefficacy
23	Agro-technology transfer and thymol crystal from Jammu monarda
24	IND filling of anti-cancer lead IIIM (N)-290/13 (Cdk inhibitor)
25	Development of biosensors (<i>Indicator-eye Test Range</i>) for detection of adulterants in food products
26	Development of a new real time PCR based system for the quantification of small RNAs and circular RNA and development of a new kit for absolute quantification of miRNAs
27	An electric device for online drinking water disinfection
28	Technology for Recombinant Streptokinase
29	For marker-gelsolin estimation kit and gelsolin(s)
30	A universal expression platform for low cost production of biotherapeutic proteins in <i>S.prmbe</i>
31	Technology Development for production of pullulan
32	Production of a biomedically important glycolipid bio-surfactant sophorolipid
33	Thebaine rich opium poppy lines for suitable cultivation through narcotics department
34	Low grain arsenic rice variety for safer human consumption
35	Anacardic acid: A potential molecule to increase cotton fibre yield and quality
36	Development of Zinc Bromine redox flow battery (500 W)
37	Electrochemical remediation of industrial effluents and recovery of chromium
38	Development of accurate, reliable and cost effective sensor for the electrochemical detection of multiple analytes
39	Development of High temperature ceramic Thermal barrier coatings for Missile components
40	Coal dust collecting and briquetting system
41	Waterless chrome tanning
42	High grade gelatine and protein hydrolysate from trimmings
43	Zero Wastewater Discharge Technology
44	Cocktail of carbohydrases for rapid fiber opening
45	Technology for double fortified salt composition containing iron and iodine to control both deficiencies
46	Hollow fiber membrane based high flux domestic filter for water

S. No.	Project Title
	clarification and disinfection
47	Novel cost effective process for high purity solar salt production with reduced contents of carbon, iodine, suspended solids and sulfate content directly in solar salt fields from high sulfate containing brines (particularly for Rajasthan inland/lake brines)
48	A consolidated biomass process for integrated production of multiple products from fresh marine macroalgae
49	Development of multipurpose thermal insulation coatings for different substrates
50	Development of novel processes towards Eribulin, Nicotine, Bedaquiline
51	Discovery of Novel Anticancer Agent (HDAC Inhibitor)
52	Polymeric excipients for pharmaceutical applications
53	Setting up 1 TPD pilot plant for converting waste plastics to diesel
54	Technology demonstration and process flexibility for production of Bio-Aviation fuels
55	Demonstration and Process Validation of Laboratory scale Vacuum Swing Adsorption (VSA) Process for Biogas Up-gradation to Pipeline Quality Fuel from Raw Biogas
56	Development of Adsorption Based Technology for the Production of Ultra Low Sulfur Diesel meeting BS IV /BS VI specification Development Positioning
57	Synthesis of 5-Hydroxymethyl furfural from sacharides
58	Continuous Dinitration for Manufacturing of Pendimethalin
59	Development of penicillin V acylase system for industrial production of semi-synthetic antibiotics
60	Non-vascular self-expandable stents
61	<i>In-situ</i> bioremediation technology
62	Herbal product for management of pain
63	Membrane Based Process Technology for Commercial Production of Biomolecules
64	Modular Bricks from Brahmaputra River Bed Sand
65	IR reflecting rare earth blue pigment for solar heat control cool-roof applications
66	Scaled up process for the upgradation of Low grade of Ilmenites
67	Development of process for large scale production of β-glucosidase (BGL) enzyme for blending in biomass hydrolyzing cocktails to be used

S. No.	Project Title
	in Lignocellulosic Biorefineries
68	Aluminium Composite Foams (ACFs) for Crashworthiness Applications
69	Fibre and particulate reinforced hybrid polymeric composite as architectural interior for building construction material
70	Building products using Kota stone cutting and slurry waste
71	Foundation system for light structures
72	Development of a boring machine based on trenchless technology
73	Paper-based Ceramic Separator for Li-ion Battery Application
74	Packaged Fiber Laser Modules for Industrial and Medical Applications
75	Development of Reaction Bonded Silicon Nitride Ceramic Radome
76	Superior Refractory for Induction Furnace to enable Refining of Steel
77	SiAlON Insert for High Speed cutting of hard materials
78	Fast Recovery Trace moisture sensor and meter for detection of trace moisture present in transformer oil
79	Development of novel Ion doped Hydroxyapatite (HAp) by spray drying method and its utilization for plasma spray coating on medical implants with/without ion doping
80	Field deployment of indigenous 4-axis controller for multi-process micro machine
81	Graphene based Aqueous lubricants
82	Development of Domestic Iron Removal Filter
83	Micro Fuel Cell
84	Design and Development of different prototypes of Solar Power Tree for independent area electrification
85	Intelligent and Powered Wheel Chair
86	Process technology for manufacturing of ADI components for mining application
87	Design of Noise Barrier based on different Frequencies
88	Development and evaluation of "Soil Nailing Technique" for stabilisation of soil slope for the construction of underpass below Road traffic
89	Design & Performance of Cement Grouted Bituminous Mix (CGBM) for Urban Roads
90	Electrophoretic Deposition (EPD) for Industrial Application
91	Maximize the recovery of iron values from lean grade iron ore by reduction roasting and pelletisation of high LOI and high Blaine

S. No.	Project Title
	number iron ore fines
92	Process Development for production of flaky graphite, high purity graphite and graphite from natural graphite
93	Recovery of Alumina from fly ash
94	Design and Development of Cost Effective and Advanced Polymer Composite Processing Equipment
95	Fully Autonomous fixed wing mini UAVs under 5.0 kg class - Enhancement of existing UAV models
96	Design, development and certification of Avionics Video and Data FPGA based IP Core
97	VTOL based MAV using indigenously developed electrically driven co-axial motor (VTOL)
98	Development of Medium Wind-Solar Hybrid (WiSH) Systems of 7 – 10 kW class for Agricultural and other rural applications
99	Solar Disinfection Systems for potable water
100	Technology for extraction of tungsten (yellow tungsten oxide or ammonium paratungstate or metallic W-powder) from a variety of scraps
101	Development of Hydrogen standard in Steel
102	Low Phosphorus steel through furnace route using DRI as major ferruginous raw material-an industrial assessment
103	Glass Textile Reinforced Concrete Crash Barrier System
104	Design of Emergency Restoration System for Power Lines
105	Precast Ferrocement Toilet Core Unit (Prefer Toco)
106	Improved Design and Retrofit Methodology for Seismically Vulnerable Open Ground Storey (OGS) Structures
107	Development of cost effective water tanks using flowable cement mortar
108	Prevention of adulteration in milk-real time remote milk supply monitoring network (PRADUMAN)
109	Handheld milk quality analyser
110	Gas sensor for environmental monitoring
111	Development of 3D rigid and flexible Endoscopes for Denture examination
112	*Development of Silent Killer Gas Detector using LTCC Technology

S. No.	Project Title
113	High Frequency RF MEMS Capacitive Switches
114	Development of MEMS-based Accelerometer
115	Development of Water Quality Monitoring Watchdog Pod
116	Reading Machine for visually impaired
117	Power Quality Analyser
118	Head gesture based control module for Intelligent Patient Vehicle
119	Postural Stability Assessment System
120	Portable Energy Audit Tool
121	Pump Efficiency Monitoring System
122	AutoCEPH: A software for 2-D Computerized Cephalometric Analysis
123	Earthquake Warning System
124	Touch based Finger Gesture control for Intelligent Patient Vehicle
125	Antiglare Filter for Automobiles
126	Avionics Head Up Display Test Rig
127	Head up Display Mk1N-NP for Naval LCA
128	Head up Display for Intermediate Jet Trainer Aircraft
129	Indigenous development of laser lithotripsy system for medical applications
130	Earthquake hazard assessment of the Himalaya and the Indo-Gangetic plains
131	Imaging sub-volcanic mesozoics in Kerala-Konkan (KK) offshore from wide-angle seismic data (Energy and Mineral Resources)
132	Development of software for High resolution velocity analysis for mapping of gas hydrate deposits/support for strategic sector
133	Microbial consortium for aquaculture waste management and disease control
134	Melanin from sponge associated bacteria
135	Low cost Multipurpose Multichannel data logger unit
136	Low-cost Peltier based refrigerators for rural regions
137	Sunlight sensitized long afterglow phosphor powder & paint
138	Fonoclock with a time synchronization accuracy of ± 10 ms
R&D projects	
1.	Indigenous design, development & qualification of Ku band (140-210

S. No.	Project Title
	watts) and Ka band (100-150 watts) Travelling wave tube (TWT).
2.	Strengthening of Primary Time Scale Ensemble for nation-wide dissemination of Indian Standard Time
3.	Flight Testing and Evaluation of Saras PT1N
4.	Creation and Calibration Facility for LED and LED based Lighting
5.	Informatics for drug-repurposing and rescue discoveries (IDrRD);
6.	Intellectual Property Evaluation and Commercialization (IPEC);
7.	Creation of E-Markets for Knowledge Products and Services
8.	Digitisation of Sowa Rigpa, Ancient Manuscripts and Oral Traditional Indian Systems of Medicine
9.	Modernization and upgradation of Information Technology Infrastructure of Traditional Knowledge Digital Library Unit (TKDL)
10.	Digitising Traditional Indian Systems of Medicine
Mission Mode Projects	
1.	Catalysis for Sustainable Development;
2.	CSIR Sickle Cell Anemia (SCA) Mission;
3.	Innovative Processes and Technologies for Indian Pharmaceuticals and Agrochemical Industries (INPROTICS)";
4.	CSIR Aroma Mission
5.	Intelligent Systems (IS) - Intelligent Technologies and Solutions
6.	Nano-Biosensors and Microfluidics for Healthcare;
7.	CSIR Phytopharmaceuticals
8.	Mass Housing
9.	Infrastructure and Heritage
10.	Food and consumer safety solutions
11.	Safety and Security of Vital Installations
12.	Nutrition and Nutraceuticals
13.	Establishment of CSIR-CMERI Centre for Post-harvest Processing and Research to augment the economy of rural tribal people of Arunachal Pradesh
14.	Development of Affordable Technologies for Quality Milk Assessment
15.	Artificial Intelligence