

## 9. Projects & Collaborative Programmes

Multi-institutional, national and international collaborative research programmes have been the core of CSIR-4PI research. CSIR-4PI today has active collaboration with a number of national and international institutions.

**Inside:**

- CSIR Projects
- Major Lab Projects
- Grant-in-aid Projects
- Sponsored Projects
- Collaborative Projects
- In-House Projects

### 9.1 CSIR Projects

- Assessment and Forecasting of Extreme Weather Events Over the Indian Region Using Mesoscale Model, PI: Dr. V Rakesh

### 9.2 Major Lab Projects

- Development of a modelling platform for Hydro-Meteorological Disaster early Warning System for Major Cities in India (HDWS), PI: Dr. G.N.Mohapatra
- Setting-up of CSIR HPC, AI and ML Platform (CHAMP), PI: Shri. R.P.Thangavelu
- HPC Cloud Resource at CSIR for COVID-19 Research Support for Indian Researchers, PI: Dr. Gopal Krishna Patra
- Integration of GNSS and Broadband data for High Resolution Velocity Structure and Crustal Deformation in Jammu, Kashmir and Ladakh Himalayas (IGBHK), PI: Dr. Sridevi Jade

### 9.3 Grant-in-Aid Projects

- Influence of Upper Ocean Physical Processes on the Oxygen and Nutrient Variability in the North Indian Ocean using eddy permitting coupled ecosystem model of the global Ocean, DST, Women Scientist Scheme A – PI: Dr. Chikka Kalyani Devasena
- Enhancement of the quality of livelihood opportunities and resilience for the people in the Indian Himalayas, through design of intervention strategies aimed at maximizing resource potential and minimizing risks in urban-rural ecosystem, MoEFCC – PI: Dr. K.V. Ramesh
- Integrated system dynamical model to design and Testing Alternative intervention strategies for effective remediation Sustainable water management for two selected river basins of Indian Himalaya, MoEFCC – PI: Dr. K.V. Ramesh
- Hyperspectral imaging for sharper definitions of Himalayan ecosystems and its high value plant species under climate uncertainties, MoEFCC – PI: Dr. K.V. Ramesh
- Analysis of urban ‘heat islands’, air pollution dynamics and extreme Heat wave phenomena in India and Russia, DST - PI: Dr. K C Gouda
- Developing a Public Health Informatics Platform in India for a Systems View of Health and Diseases under Epidemiology Data Analytics (EDA) of Interdisciplinary Cyber Physical Systems (ICPS) Programme of DST, DST - PI: Dr. K C Gouda
- Modelling and Forecasting of High Impact Weather Events in the Beas basin, and Designing a Proto-type Advance Warning System for Mitigating their Adverse Impacts, MoEFCC - PI: Dr. K C Gouda
- Design Intervention Strategies for Mitigating the Impacts of heat waves through modified land cover, DST Women Scientist Scheme A, PI: Smt. C Neethu
- Quantification of past changes and assessment of present status of water bodies distribution over Bengaluru, CSIR - NEERI - PI: Dr. K.V. Ramesh
- A Darknet / Network Telescope Based Cyber Security Monitoring and Inference Framework, MEITY – PI: Dr. V Anil Kumar
- Feasibility Evaluation, Impact Quantification and Mitigation of Low-Rate Cyber Attacks on Multipath Transmission Control Protocol (MPTCP), DST - PI: Dr. V Anil Kumar
- National Carbonaceous Aerosol Programme (NCAP): Working Group III - Carbonaceous aerosol emissions, source apportionment and climate effects, MoEFCC - PI: Dr. Sajani Surendran
- Improving the prediction of the extremes of the interannual variation of the Indian Summer Monsoon Rainfall (ISMUR) by CFSv2, MoES – PI: Dr. K Rajendran
- Assessment of regional hydrology using space borne gravity observations: Robust estimation

of deformation due to hydrological loading in NE-India and Upper Ganga river basin, DST - PI: Dr. M Sithartha Muthu Vijayan

- Geological characterization of the Kashmir valley with the objective of quantifying probabilistic hazard and risk in the high-risk areas of the valley using a logically integrated set of Geo-Scientific Investigation, MoES - PI: Dr. Imtiyaz A Parvez

#### **9.4 Sponsored Projects**

- Detection and Mitigation of Sybil Security threat and its associated attacks in Vehicular Ad-hoc Networks (VANETs), Cognizant Technology Solution Private Limited – PI: Dr. Gopal Krishna Patra

#### **9.5 Collaborative Projects**

- Collaborative Research Project on Climate Change for Patna and its Agglomeration, NEERI, Nagpur, PI: Dr. K C Gouda

#### **9.6 In-House Projects**

- Monitoring continuously operating CSIR-4PI GNSS station located in the IISC Campus and real-time operational data hub at CSIR-4PI, PI: Dr. Sridevi Jade

