

## **Senior scientist calls for nodal agency for climate services at ICCS 6, Pune**

Dr. Rajeev Mehajan, Scientist G, Science and Engineering Research Board (SERB) has called for a nodal agency for climate services that converges all knowledge resources on climate change, to holistically cover the entire spectrum of climate services, beyond a single department of the government, at the International Conference on Climate Services (ICCS 6) in Pune on February 12.

The International Conference on Climate Services ICCS-6 was inaugurated on February 11, 2020, at the Indian Institute of Tropical Meteorology (IITM) bringing together communities of practice associated with Global Framework of Climate Services (GFCS) and Climate Services Partnership (CSP) to take stock of current practice and identify remaining gaps and opportunities for enhanced regional collaboration in order to ensure improved climate services uptake.

Dr. Mehajan highlighted that the India Meteorological Department (IMD) could be an enabler institution in this endeavour. He presented a study led by him published in Current Science, which examined the functions of National Meteorological and Hydrological Services (NMHS) in India and the requirements for IMD to transform from a world-class weather-ready organisation to one that is climate-smart. He suggested scaling up interdisciplinary and social services skills for integrating scientific pursuits and socio-economic aspects.

The study conducted by three scholars from outside IMD, Abha Tewary an independent researcher, Dr. Shreekant Gupta of Delhi School of Economics besides Dr. Mehajan from SERB a Department of Science Technology (DST) attached institution, showed that IMD has come a long way, and is already at par with international standards in providing weather services. However, in the realm of climate services, IMD will need further strengthening. The study also discussed why it is necessary for India Meteorological Department to broaden its functions beyond the traditional hydro-meteorological focus, and what is required for it to transform to a world-class, weather-ready (already unparalleled in South Asia) and climate-smart organization.

The Director-General of India Meteorological Department has appreciated the study of the evolution of IMD and the associated suggestions.



The Global Framework for Climate Services formulated by the World Meteorological Organization as a response to the demand for user-driven climate services envisages a transformative role for all the National Meteorological and Hydrological Services to provide climate services. As per the framework, at the national level, National Meteorological and Hydrological Services will serve as the nodal implementing agency for providing climate services. NMHSs are the repositories of the observational networks and metadata and possess technical skills to convert metadata into customized products, applications, and services. So they are best placed to provide climate services. In India, the role of NHMS is played by India Meteorological Department (IMD).

Dr. Mehajan pointed out that since its establishment in 1875, IMD has come a long way, and is already at par with international standards in providing weather services – graduating from measuring gauges to supercomputers, and being the first among developing countries, to have its own satellite system.

Though at par with international standards in delivering weather services, in the arena of climate services, IMD has been providing climatological data services to numerous users through its National Data Center (NDC) at Pune. The NDC is the repository of all observational data, covering over a century. Under the GFCS, IMD established Climate Research and Services Division in 2017 to enhance the quality of climate services. The major services currently provided by this division are operational Long-range forecast and its verification, climate monitoring and annual climate statement, and supply of meteorological data.

For effective climate services, the distinction between ‘weather’ and ‘climate’ services needs to be understood clearly. The distinction lies in time scale and customising the information to end user’s specific requirements. Weather services deal with imminent weather, whereas climate services deal with seasonal, decadal, and much longer time frames. They further highlight that the end-user product of climate services is generally in the form of tools, products, websites, or bulletins. Another step is not to misread ‘climate research’ as ‘climate service.’ Whereas climate research comprises of systematic investigation to enhance understanding of the subject, climate services are meant to provide useful information tailored to end-user needs.

The GFCS framework has five interdisciplinary and integrated pillars that support the development and delivery of climate services to users, namely - observations and monitoring; research, modelling, and prediction; climate services information system; user interface platform; and capacity development. The framework focuses on five major priority areas - agriculture and food security, disaster risk reduction, energy, health, and water.

Analysing IMD’s work, the researchers showed that it has been performing considerably well in the first three technical aspects of GFCS. However, more needs to be done in the user interface platform and capacity development. In the context of climate services, IMD has a robust infrastructural capacity, but there is a gap between what information domain experts consider ‘useful’ and what information the end-user considers as ‘usable’ in its decision making. To address this gap, the interdisciplinary and social sciences skills of the technical staff need to be strengthened.

As regards strategy for dissemination of this information, IMD is already using communication and outreach methods through public service announcements, web portal, and mobile apps.

There is, however, a need for public education initiatives like climate clearinghouses, map interfaces, podcasts, webinars, structured decision tools, graphical info systems to enable the availability of the right information to the right user to make right decisions. Similarly, of the five priority areas in GFCS, IMD has been actively engaged in agriculture and food security, disaster risk reduction, and water, and needs to expand its portfolio to include energy and health.

The study suggested that successful transformation from a traditional NMHS to a weather-ready and climate-smart organization is possible through a dynamic vision at the apex level, which strengthens its capacity, consolidates its infrastructure, develops partnerships, and further enriches the visibility of the organization. Investing in procurement and promotion of human resources and experts from other cross-cutting domains would supplement its needs.

The researchers have proposed convergence of all knowledge resources on climate change, to holistically cover the entire spectrum of climate services, beyond a single department of the government. Dr. Mehajan proposed at the conference that such convergence may be convened by MoES, which is the repository of advanced research on climate change and should include MoEFCC which is responsible for “international negotiations and domestic policies and actions” related to climate change as well as other scientific departments like Department of Science and Technology. This could be a national initiative through necessary legislation to translate knowledge into action and wide-ranging research guiding climate change policy design, which should cover interdisciplinary scientific pursuits as well as socio-economic aspects.