

INFRASTRUCTURE AND SERVICES

The Environment laboratory (ISO 14001: 2004, ISO 9001: 2000 certified and recognised under Environment (Protection) Act, 1986 from MoEF) is equipped with state-of-the-art field sampling, monitoring equipment, and analytical instruments. The laboratory provides multi-disciplinary water quality and quantity monitoring, testing, and related services.

Spatial analysis and modeling tools to assist in planning, utility networks and surface and groundwater based watershed modeling. Advanced software like SPSS, SWAT (Soil and Water Assessment Tool), etc., and remote sensing and GIS tools are used.

TERI's Glacier Research Programme was started in 2008 to bridge the knowledge gap for Himalayan cryosphere. 'Glacier Monitoring Observatories' in three benchmark glaciers with different climatic and geographical settings have been set up in the Eastern Himalaya, the

Western Himalaya and Central Himalaya. These observatories are equipped with instruments to record meteorological parameters and the selected glaciers are being studied for their mass balance, energy balance and water balance.

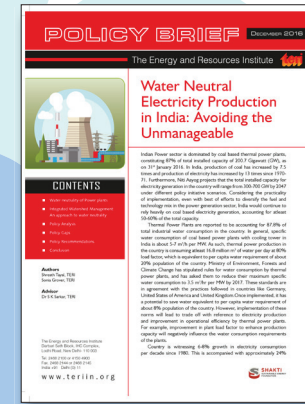
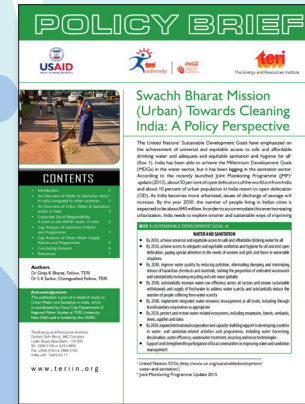
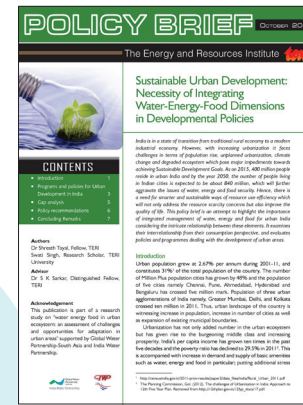
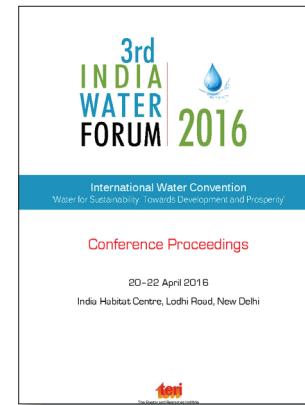
Glacier Vulnerability Assessment (GVA) for Hydropower Projects is an assessment of vulnerability of snow/ice catchments feeding to hydropower projects. This vulnerability may be forced upon the cryospheric catchments by factors like geographical setting, environmental pollution and climate change. The assessment also includes recommendations for necessary adaptation measures to enhance resilience. Linkages with international experts from countries like the US, the UK, Iceland and Norway has strengthened experience and the group envisages enhancing its competencies towards solution-oriented services and reaching a wider group of beneficiaries.

WATER RESOURCES DIVISION TEAM CONSISTS OF:

Hydrologist, Hydro-geologist, IWRM Expert, Ground/Surface Water Modelling expert, Water and Sanitation Specialist, Environmental Scientist, Agricultural Scientist, Water Resource Engineering-Technology Expert, Social Scientist, Water Quality Expert, Water Auditing Specialist, Glaciologist, Ecologist, Remote sensing and GIS expert

SPONSORS AND PARTNERS

TERI's Water Resources Division (WRD) collaborates with several national and international organizations including the Government of India. Such organizations include National Water Mission, Ministry of Water Resources, Northern Railways, National Thermal Power Corporation Ltd., NITI Aayog, Embassy of Israel, USAID, Finnish Meteorological Institute Norwegian Water Resources and Energy Directorate. WRD also partners with domestic and multinational corporates like International Tobacco Co. Limited, Coal India Limited, Jain Irrigation Systems Ltd., NGOs/Foundations/PSUs, INTACH, The Shakti Sustainable Energy Foundation, NTPC Energy Technology Research Alliance (NETRA), SaciWaters. It also collaborates with research and academic institutions like International Water Management Institute (IWMI) where it provides intellectual & technical inputs.



CONTACT INFO:

Water Resources Division, TERI

Director: **Dr S K Sarkar**
E-mail: sk.sarkar@teri.res.in

Associate Director: **Mr. Anshuman**
E-mail: anshuman@teri.res.in

Water Resources Policy & Management
Area Convenor: **Ms Sonia Grover**
E-mail: sonia.grover@teri.res.in

Centre for Himalayan Ecology
Area Convenor: **Dr. Shresth Tayal**
E-mail: stayal@teri.res.in

TERI, Darbari Seth Block, IHC Complex, Lodhi Road, New Delhi - 110 003, INDIA
Tel.: (+9111) 2468 2100 and 2468 2111, Fax (+91 11) 2468 2144 and 2468 2145

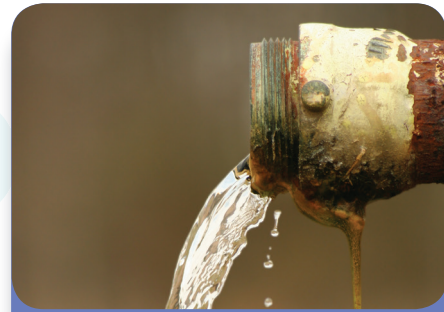


The Energy and Resources Institute

WATER RESOURCES DIVISION



The Energy and Resources Institute (TERI) is a not-for-profit think-tank, actively engaged in multi-disciplinary research on natural resource management and conservation for more than four decades. Since its establishment in 1974, TERI has made its mark as a research institute, whose policy and technology solutions transformed people's lives and the environment.



The Water Resources Division (WRD) in TERI has a vision to develop solutions for providing equitable access to clean and safe water, while ensuring social, environmental, and economic sustainability in water resource allocation.

In recognition of TERI's pioneering efforts in water resource conservation and management, the Asia Pacific Water Forum (APWF) supported by PUB Singapore, the United Nations Educational, Scientific and Cultural Organization-Institute for Water Education (UNESCO-IHE), and the Asian Development Bank (ADB) endorsed TERI as the *Knowledge Hub for Water and Climate Change Adaptation in South Asia* in 2009.

TERI has been designated as a *National Key Resource Centre (KRC) for Drinking Water and Sanitation by the Ministry of Drinking Water and Sanitation*. In this capacity, TERI is engaged in capacity building activities for technical and non-technical government personnel and representatives from Panchayati Raj Institutions (PRIs).

The Water Resources Division of TERI organizes "India Water Forum" (IWF) in association with various Ministries of Government of India on important themes pertaining to water resources. The forum envisages a series of interactive sessions with policy makers, industrial experts, environmentalists, researchers, academicians, students and the general public on a common platform.

The division has taken up micro and macro level research in sustainable water resource management, focusing on two pertinent areas of research: Water Resources Policy and Management and Himalayan Ecology.

TERI-JISL Initiative

TERI in association with Jain Irrigation Systems Limited has set up a "Resource Centre on Water Use Efficiency" is an effort to address the current and future challenges on water and food security. The objective of Resource Centre is to improve consumptive water use efficiency and bring about sustainable agricultural water use practices for intensive crop yield in the agriculture sector in India.



TERI -JISL RESOURCE CENTRE
on Water Use efficiency

Water Resources Policy and Management (WRPM)

Understanding the complexities of managing water resource, WRPM comprises of a team of multidisciplinary scientists who are capable of solving water-related problems through technical and scientific expertise, and with in-depth understanding and integration of environmental, social and political factors. The multi-disciplinary nature of WRPM facilitates an integrated approach, enabling it to provide comprehensive and sustainable solution to scientific queries for efficient management of water resources both for the present context as well as for the future.

WRPM, with its specific focus on sustainable management of water resources has identified the following thrust areas.

Thrust areas of Water Resources Policy and Management



Integrated Water Resources Management (IWRM): The WRD uses surface and groundwater modeling assessment tools, perform socio-economic assessment and institutional analysis to formulate implementation strategies for sustainable water management at various hydro-geological units such as river basins, watersheds, lakes and wetlands etc.

Rural Drinking Water and Sanitation : The WRD is engaged in an array of activities in the rural drinking water and sanitation sector, including provision drinking water and sanitation model/ options and capacity building trainings.

Water Use Efficiency and Water Audits: The WRD performs comprehensive water audits for a range of industries, municipal corporations and urban water supply systems and helps establish the water use and water balance, water quality profiling, identification of losses/ leakages and opportunities for water savings, including wastewater recycling/reuse



Urban Water Supply and Demand Management: The division engages with several urban local bodies (ULBs) to assess the Unaccounted for water (UFW), Non-revenue water (NRW), etc. and conducts regular training & capacity building programs for the ULBs, water managers and other relevant agencies.

Water Conservation: Planning & Implementation: With the objective of enhancing water use efficiency, WRD undertakes water conservation planning and implementation activities like rainwater harvesting, groundwater recharge, watershed development, etc.



Water Quality and Pollution Studies: The WRD's ISO 9001: 2002 certified laboratory undertakes water quality monitoring and testing to assess the groundwater contamination and surface water pollution. This involves analysis of water quality for drinking purposes, recreational use, industrial effluents released in to water bodies etc.

Water – Energy Nexus: TERI is working on the intricate nexus of water-energy-climate change with the main to identify the opportunities and challenges for Integrated Governance of Water and Energy in a changing climate. The outcome of this research will lead to development of strategies for water and energy security.



Policy, Institutional and Regulatory Reform: TERI assists the government and multilateral agencies in developing regulatory frameworks, institutional arrangements, and strategy formulations and works to evolve mechanisms for the separation of regulatory functions from direct operations.



Water Foot-printing: This entails assessment of water use of a product or a process involving its value chain and includes the direct and indirect use of water keeping in view the optimization of water use and improving overall water use efficiency in the sector.

Water and Climate Change: Coupled with TERI's climate scenario modeling, the WRD conducts studies on the impacts of climate change on the water resources of a given region in order to develop mitigation and adaptation strategies, while aiding water utility managers and policy makers in decision making.



Agricultural Water Resource Management: The WRD's objective is to improve consumptive water use efficiency and disseminate sustainable agricultural water use practices for intensive crop yield in the agriculture sector in India.

The Centre for Himalayan Ecology (CHE)

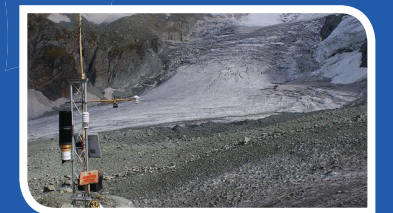
The Centre for Himalayan Ecology was set up to intensify TERI's research initiatives for sustainability of Himalayan ecosystem, considering the extreme vulnerability scenarios associated with the Himalaya.

The Centre facilitates focus on issues affecting the mountain communities, from the research and development perspectives, for planning and implementation of climate change adaptation and mitigation strategies for Himalayan states.

Thrust areas of Centre for Himalayan Ecology

Hydro Meteorological Monitoring and Modeling

This centre aims to quantify the impacts of climate change on Himalayan Cryosphere, and estimate the differentiated contributions to snow/ice melt, attributable to changes in temperature, precipitation and black carbon deposition.



Mountain Water Resource Management

Work on rainwater harvesting, integrated watershed and head-water river basin management, spring regeneration/protection, lake conservation and restoration form an important dimension of the center's research activities.

