



SDG13: CLIMATE ACTION

TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

The Indian Institute of Technology, Gandhinagar (IITGN) is designed as a living laboratory on sustainability, which is integrated into its masterplan. The conceptual process emphasised consideration of sustainability factors, which in turn informed the development of the master plan and campus development. The institute operates and maintains buildings in accordance with a sustainable management policy/programme and/or a green building rating system. IITGN is the first campus in India to be awarded a five-star rating by Green Rating for Integrated Habitat Assessment for Large Developments (GRIHA LD) in 2016.

IITGN campus has been designed with key sustainability features, such as solar energy generation, comprehensive waste management, water conservation, purification and recycling, and compost production. Moreover, the campus infrastructure supports passive cooling and energy conservation in all the aspects of construction, operations and management.

The IITGN community is actively engaged in promoting sustainability in all its operations. For instance, we are

developing a system for real-time monitoring (day-to-day basis) of carbon and water footprints of the campus. This initiative will have considerable impact on reducing energy usage and making the entire campus more energy efficient by addressing the challenges of climate change.

The Master Plan laid an emphasis on climate change adaptation and mitigation and several features that make the campus climate resilient were incorporated. Different initiatives and activities have been taken at the institute to promote climate action, raise awareness of the community on the campus and in the neighbourhood, thus contributing to achieving Sustainable Development Goal 13.

Research

Extensive research activity is underway at the institute on a wide range of areas related to energy and the institute as a body cooperates and coordinates with the local, regional and national governments on energy conservation and management. The institute facilitates access to research through its library, state of the art laboratories and a conducive learning environment. The institute advocates for public policies through several research activities, thus contributing to the achievement of SDG 13. More than 25 researchers at the institute research in areas related to climate change such as hydrological models, climate change projections, extreme weather, crop growth, groundwater storage availability, impact of climate change on forest and agrobiodiversity, etc. The institute informs and supports local, regional and national governments in climate change related projects. There were several projects undergoing at the institute during the year 2019-20, examples of which are mentioned below.

- An experimental operational hydrologic modeling and forecasting system for river basin hydrology and extremes for India; Indian Institute of Tropical Meteorology
- Establishing Gujarat state climate change centre; Department of Science & Technology
- Flood risk assessment in tropical rivers in the anthropocene under climate change scenario using hydro geomorphic modeling; Ministry of Human Resource Development
- Impact of sea level fluctuations, climate change or tectonic activity on the decline of the Harappan settlement of Dholavira, Kutch, India; Department of Science & Technology
- Impacts of climate variability and climate change on water resources in the Sabarmati river basin; Ministry of Water Resources
- Physics guided data science approach for predictive understanding of hydrological processes; Ministry of Human Resource Development
- Tectonic and climatic control on variability of sediment

routing in the NW Himalaya since late quaternary;
Department of Science & Technology

Operations

The institute measures the amount of low carbon energy used across the whole university. The solar PV generation data can be accessed on the institute's portal <http://solarpv.iitgn.ac.in/>.

The portal is created based on the requirements of energy monitoring, data analysis, optimization and machine learning approaches for energy management. The institute strives to promote efficient energy utilization in the campus.

8.4% of total energy demand was met from low-carbon sources (solar energy) during the year 2019-20.

Education

The institute offers the following courses relating to climate change:

CE 202: Sustainability and Environment

CE 611: Advanced Engineering Hydrology

CE 613: Analysis and Design of Masonry Buildings

EH 606: Critical Zone System Science

As a part of Sabarmati Young Researchers Seminar Series, a seminar on "Abrupt Climate Anomalies Recorded in Lacustrine and Marine Sediments during the Quaternary" by Dr Yama Dixit, Research Fellow at Earth Observatory of Singapore Nanyang Technological University, was organised on 11 December, 2019.

Following invited lectures were organised:

- Composing Actor Networks and Collective Action for Community Based Climate Change Adaptations in Coastal India by Prof Thomson Kaleekal, Cochin University of Science and Technology (CUSAT), on 13 September, 2019
- The Development, Implementation and Impact of Ahmedabad Heat Action Plan and its Scaling to National Level by Prof Dileep Mavlankar, Indian Institute of Public Health-Gandhinagar (IIPHG), on 11 November, 2019

Community outreach

Cyclone Amphan and Covid-19 relief work

The institute faculty members, staff and students donated INR 2, 25, 411 to the West Bengal Chief Minister's Relief Fund for relief and reconstruction activities of those affected by Cyclone Amphan. Earlier, the community had contributed an amount of INR 11, 91, 921 to the PM CARES Fund in the wake of Covid-19 pandemic.

Expressing solidarity with fellow Indian citizens affected by the onslaught of the pandemic and natural calamities, the IITGN community has contributed a total amount of INR

14, 17, 332 in the span of about two and a half months towards relief and reconstruction work in India.

This amount has been collected on different occasions under the auspices of an institute level committee formed for generating support during natural calamities, and the contributions have been sent to central government and state government relief and crisis management avenues to help people affected by Covid-19 and Cyclone Amphan.

CAN2020

IITGN collaborated with the Gujarat Ecological and Education Research (GEER) Foundation on a Mega Workshop Series CAN 2020, Climate Action Now, A Gujarat State Initiative. The workshop series was structured around three themes: Climate Change Policy and Governance, Climate Action and Industry, and Climate Change Science and Research. Each segment comprised three workshops, a total of 9 workshops under the CAN 2020 workshop series, held over three months. The workshops covered seminal issues of energy, water, health, ecosystem and biodiversity, agriculture & food security, climate science, climate technology and solutions, climate policy, economics of climate change, climate disaster, vulnerable communities, socio-cultural issues of climate change and other allied subjects, focusing on the state (Gujarat) and national level priorities.

The first segment of Climate Action Now (CAN) 2020 Workshop Series was held from 11 to 28 February, 2020 on "Climate Change Policy and Governance". This workshop series included talks on different sectors that are directly linked to climate change, including climate policy, environment, water, agriculture, power, energy, sustainable urban and rural development, industry and mining, climate risks and vulnerability, sustainable transport, forests, biodiversity, wildlife, climate finance and economics. 12 theme-based technical sessions included talks by 44 expert speakers who were invited from different parts of the country. The speakers represented organisations ranging from the Forest Survey of India, Indian Council of Forestry Research and Education, Ministry of Environment, Forest and Climate Change, Bankers Institute of Rural Development, Small Industries Development Bank of India, The Energy and Resources Institute, Centre for Environmental Planning and Technology, Indian Institute of Management, Gujarat International Finance Tec-City, Gujarat Mineral Development Corporation, Gujarat Institute of Disaster Management, Deendayal Port Trust, Sardar Patel Renewable Energy Research Institute, Gujarat Energy Development Agency, etc. More than 300 people participated in CAN 2020 and shared thoughts, experiences and knowledge. The workshop facilitated networking amongst participating individuals and organisations.