



SDG 15: Life on Land

PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

Our campus has been meticulously planned with a strong emphasis on preserving natural lakes and drainage patterns. This planning approach aims to minimise the impact on the local river and its ecosystem by strategically isolating development from the river itself. By incorporating such measures into our campus design, we ensure that our institution is a responsible steward of the environment. Our institute actively supports and organises various events and initiatives to promote land conservation and the sustainable utilisation of natural resources, including forests and wildlands. These efforts are in alignment with the goals of sustainability and environmental stewardship.

In the realm of academics, our faculty in the Humanities and Social Sciences discipline are deeply involved in research work that explores the intricate dynamics of human-wildlife interactions, wildlife conservation, and related topics. Their interdisciplinary research endeavours are contributing to a better understanding of the complex relationship between humans and the environment, with a focus on conserving wildlife and preserving biodiversity.

Our commitment to these principles reflects our dedication to Sustainable Development Goal 15: Life on Land, which emphasises the importance of protecting, restoring, and promoting sustainable land use for present and future generations. Through our campus planning, conservation events, and academic research, we actively contribute to the preservation and responsible utilisation of our natural resources and the safeguarding of ecosystems.

RESEARCH

Our institute has been actively engaged in research areas about natural resource management, wildlife conservation, and ecosystem studies. Approximately 10 dedicated researchers contribute their expertise to these fields, resulting in numerous publications. Their work encompasses various topics, including vegetation health, the intricate relationship between irrigation, and the environment. Within the scope of our research efforts, our team of researchers has delved into assessing vegetation health and its relationship with irrigation practices. These studies offer valuable insights into the dynamic interplay between natural ecosystems and human activities, particularly in the context of sustainable land and water

resource management. The findings and knowledge generated by our researchers not only enhance our understanding of ecological systems but also contribute to the development of strategies for responsible natural resource management and the preservation of biodiversity. These efforts align with the broader objectives of Sustainable Development Goal 15, emphasising the need to protect, restore, and sustainably manage life on land for the benefit of present and future generations.

EDUCATION

Seminar Series on Indian Scientists

The Institute hosted the fourth edition of the Seminar Series on Indian Scientists on August 21, 2021, with two online seminars on the life and works of Salim Moizuddin Abdul Ali and Amal Kumar Raychaudhuri. Tara Gandhi, a noted Ornithologist and Conservationist delivered the first seminar “Sálim Ali – Father of Indian Ornithology”. The second seminar, “Raychaudhuri and His Equation”, was delivered by Prof Sudipta Sarkar. Nearly 100 scholars, students and researchers from around the world participated in the seminar. The series is being curated by Prof Sudipta Sarkar and Prof Michel Danino.

Book Discussion

Ahead of World Wildlife Conservation Day, IITGN hosted a discussion session on November 23, 2021, on ‘Tigers Are Our Brothers: Anthropology of Wildlife Conservation in Northeast India’, a book penned by Prof Ambika Aiyadurai and recently published by Oxford University Press. Prof Sarit Kumar Chaudhuri, Professor of Anthropology at Rajiv Gandhi University, Itanagar, joined the event virtually as the discussant, and Prof Alok Kumar Kanungo moderated the session.

Courses on the environment included the following:

CE 202: Sustainability and Environment

EH 301: Field Practices in Earth System Sciences

EH 302: Elements of Earth System Science

EH 601: Earth Surface Processes in the Anthropocene

EH 608: Biodiversity Conservation and Sustainable Development

HS 515: Politics of the Environment

OPERATIONS

The campus development concept establishes a broad landscape structure for the campus, a planned system of open spaces and vegetation that is responsive to specific landscape qualities of the site. The ravines represent a degraded landscape that can become an asset through rehabilitation. Through erosion control and encouraging the growth of native species, the ravines can be utilised as a picturesque

landscape feature whilst at the same time serving useful environmental functions. The ravines are the subject of land rehabilitation, stormwater management, and soil conservation through erosion control and new planting. They are the second major anchor of the landscape structure, an extensive area where the existing “natural” identity of the landscape is protected and enhanced, in contrast to other necessarily more formal campus spaces. Two seasonal ponds situated in slightly low-lying areas amidst the former agricultural fields have been retained and integrated with the stormwater management system. The boundary edge along the river is the subject of land rehabilitation and soil conservation and is stabilised through erosion control measures and plantings.

Originally, the landscaping work in the ravines called for stone pitching to hold the hillsides (see stone walls in the lower left of the photo). However, when campus planners were introduced to geosynthetics, they realised this might be a better option for hillside stabilisation while keeping the slopes green. They began using geosynthetic fabrics with a toe wall of gabion on the ravine slopes. These fabrics are made from polymers and have the advantage of being permeable and flexible by growing grass on top with their roots gripping the soil below. The geosynthetic fabric on the ravine embankment is visible in the centre of the photo. In addition, check dams have been built at a few key locations. These small dams provide a minimal stone wall at the lowest and narrowest point in a ravine to hold back soil and moisture that is washed through the ravine during the monsoons. The natural vegetation of the ravines at the site serves as a habitat for native flora and fauna with high ecological value, and the manicured open spaces serve as active and passive recreational spaces along with fulfilling an aesthetic function. Seasonal ponds have been retained and used as landscape assets, helping to reduce the urban heat island effect and improving the microclimate. The northern parcel of the site is used only in part, leaving a substantial portion as habitat for ‘nilgai antelope’ and other existing fauna. Many sections of the ravines lie below the highest flood level of the Sabarmati River, and the master plan calls for the river bank to be protected from erosion during floods.

Emphasis has been placed on using native species of trees and plants in the campus landscaping, retaining around 90 percent of the existing trees through careful siting of buildings and tree transplantation for some existing trees. 75 neem trees were saved from cutting and transplanted along the boundary. The design of some of the buildings was such that it considered the location of existing trees. Spread over an area of more than 400 acres, IIT Gandhinagar has varied habitats that are home to a rich biodiversity. A biodiversity survey was conducted in 2017 in collaboration with the Gujarat Ecological Education and Research Foundation. The survey is still in progress, considering the need to survey different biodiversity elements in different seasons over different years. Plantation of diverse tree species, a small wetland created between hostel and residential areas, a river and riverine ecosystem in the immediate vicinity organic farm, and the surrounding wilderness forming a mosaic of microhabitats contribute significantly to the campus’ biodiversity. Old trees at the institute have been thoughtfully conserved during the campus planning and development stage.

The survey conducted so far has reported over 120 and 150 major floral and faunal species, respectively. There are several species of plants, birds, and animals on the campus. Students are encouraged to protect and preserve the ecosystem and live harmoniously with these other species. Please note that there is a presence of stray dogs inside the campus. Since not all community members like to interact with them, the Institute Animal Welfare Committee has designated certain petting and feeding areas for dogs. Students must use only these designated zones if they wish to feed and pet the dogs. Feeding and petting dogs

within the hostel area and the academic complex is not allowed in the interest of the larger benefit of the entire community. The basic water quality parameters, including pH, turbidity, TDS, and chlorine, are monitored and documented regularly by the Institute Works Department. Water samples are collected and sent to laboratories for analysis to ensure compliance with the state and national-level pollution control regulatory framework. This exercise helps in assessing and preventing any polluted water from entering the water distribution system and upholding water quality to protect ecosystems, wildlife, and human health and welfare. Waste disposal of hazardous materials is carefully handled, including the collection of the chemical waste of the labs by a designated agency.

Dedicated areas are provided to store construction materials on site. Construction waste is segregated and stored at different locations. Separate storage facilities for inert and hazardous construction wastes are allocated, and measures are employed for their safe disposal/recycling. Scrap materials are sent to a waste recycling facility. Constant reminders of the need to reduce and segregate waste are made on all possible occasions, such as initiatives to promote reusable materials and discourage single-use materials (especially plastic). For instance, only reusable bottles, glasses, cutlery, and plates are used in the tea stalls and at meetings and conferences, etc.; the use of disposable packaging items is not allowed/discouraged. A green bottle initiative has been in place for several years throughout campus, where campus staff, students, faculty, and visitors are all encouraged to use reusable green plastic water bottles rather than single-use plastic water bottles. In meetings, green water bottles, and increasingly glass bottles, are provided, and guest apartments are also provided with such bottles. In recent months, reusable green plastic bottles have been replaced with reusable glass bottles.

The IITGN campus has been constructed in an area that hosts several native animals, such as dogs, nilgais, langurs, hares, snakes, etc. Such infrastructural developments often lead to human-animal conflicts. The practices followed within the campus must be humane and ethical, and a general resident may be unaware of all aspects of their behaviour towards animals. The institute has issued an advisory on animal management within the IITGN campus, which lays down a set of humane and ethical practices to minimise human-animal conflicts and ensure the smooth functioning of the institute processes.

COMMUNITY OUTREACH

Community outreach plays a pivotal role in achieving SDG 15. It's through engaging and empowering local communities that we can foster a deeper connection between people and the environment. By organising educational programs, conservation initiatives, and collaborative efforts, we not only raise awareness about the importance of preserving our ecosystems but also ensure that communities actively participate in the protection and sustainable management of our lands and wildlife. Through community outreach, we can mobilise collective action and drive positive change for nature and society.

Workshop on Human-Animal Relations

IITGN organised an online workshop on 'Human-animal Relations at the Margin: A Quest for Social Justice' on August 17, 18 & 20, 2021. Prof Suryakant Waghmore, Professor of Sociology at IIT Bombay, delivered the keynote talk. The three-day workshop, sponsored by ICSSR, hosted scholars from several

prestigious institutions. The workshop was coordinated by Prof Ambika Aiyadurai and Prashant Ingole (PhD Scholar).

Conference on Mobility and Multilingualism

IITGN was one of the co-organisers for an online international conference on ‘Mobility and Multilingualism in South and Southeast Asia: Impacts of Global Ecological Change on Local Society’, which was organised at Cotton University, Assam, from December 27 to 29, 2021. The conference was attended by over 100 participants. Prof Nishaant Choksi (IITGN), Prof Manjil Hazarika (Cotton University), Mr Phanindra Talukdar (PCCR), Prof J A H Khatri (Navrachana University) were the conveners of the conference.

Webinar on Climate Action

Dr Kiran C Patel Centre for Sustainable Development (KPCSD) at IITGN, in collaboration with PricewaterhouseCoopers (PwC) and with support from Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, New Delhi, organised a webinar on ‘Advancing Frontiers of Knowledge on Climate Action: Cross-sectional Approaches for Mitigation and Resilience’ on October 20, 2021. The e-webinar was attended by nearly 100 scientific audiences and practitioners from around the globe. Prof Vimal Mishra, Co-coordinator of KPCSD, hosted the event.

IITGN Organic Farm

The IITGN organic farm grows several varieties of vegetables, such as cabbage, cauliflower, tomato, brinjal, potato, cucumber, bottle-gourd, ladyfinger, spinach, fenugreek, carrot, beetroot, cluster beans, long beans, chilies, green garlic, green tuwar, and coriander, etc. It also cultivates particular vegetables like broccoli, kale, zucchini, lettuce, pumpkin, etc. Farm activities are being expanded by growing millets and wheat. It uses only completely organic fertilisers for growing various crops. Community members participate in the volunteer program and contribute to the organic farm activities. The organic farm produce is sold to the community. The ground floor apartments of staff and faculty have been provided with kitchen gardens. The organic farm group has delineated spaces in housing areas for kitchen gardens and encouraged residents to actively participate and grow vegetables and fruits of their own choice. The organic farm representatives provide adequate guidance and materials.