

SHIV NADAR

INSTITUTION OF EMINENCE DEEMED TO BE

UNIVERSITY

DELHI NCR

Report on

Sustainable Development

GOAL 17



PARTNERSHIPS FOR THE GOALS

Strengthen the means of implementation
and revitalize the global partnership for
sustainable development



Sustainable Development Goal 17 is about partnerships. At Shiv Nadar, we believe strongly in the university's role as a center for discovery and creation of new forms of knowledge, and in this sense, one of the significant players when it comes to achieving sustainable development goals.

SDG 17 explicitly addresses how the universities support these goals through collaborations with other universities, government, civil society, private sector, and not-for-profits, partnerships within the country and across the globe. At Shiv Nadar, with leadership spearheading the way, we actively advocate and collaborate to work on Sustainable Development Goals. This is reflected in all aspects of our teaching, research, institutional practices, and partnerships.

Here is a glimpse of our partnership on goals.

Research into partnerships for the goals

Shiv Nadar Institution of Eminence (SNIOE) is a multidisciplinary, student-centric research University established in 2011.

It has five Schools: [Engineering](#), [Natural Sciences](#), [Humanities and Social Sciences](#), [Management & Entrepreneurship](#), and [the Academy of Continuing Education](#). Being a [research university](#), academic research in its broadest meaning, including basic and applied research, scholarly publications, and creative expression, are the fundamental building blocks of the academic mission of the University. There is an active culture of partnerships within and outside departments with civil society, universities, governments, not-for-profit organizations, and other global platforms.

The university has invested a significant amount of funds in building [cutting-edge laboratory facilities](#) to train research scholars and enable them to work on problems of current relevance - as diverse as labor law, health care policies, big data, the management of natural resources, climate change, drug and polymer design, protein and DNA bioinformatics, chemical and biological networks, inorganic nanomaterials, materials for energy applications, computational finance, mathematics education and research on treatments for cancer, malaria, and other drug-resistant diseases

with research findings published in high-impact national and international indexed journals. Some of these partnerships are mentioned in our [sustainable development goals report](#).

Partnerships for goals

Relationships with regional NGOs and government on SDG policy

Chair of the steering committee of the national coalition for natural farming

Dr. Mihir Shah, Distinguished Professor, Shiv Nadar IOE, is appointed as the [Chair of the Steering Committee](#) of the national coalition for natural farming. The coalition is a collaborative platform for accelerating the spread of agroecology-based farming practices in its multiple variants, improving existing practices, and collaborating on policy discourses. The committee was explicitly set up in response to the crises in the country around farmers' distress, climate change emergency, malnutrition, consumer health, land degradation, and loss of biodiversity.

The Kala Chaupal Trust

Shiv Nadar IoE has signed a Memorandum of Understanding (MoU) with the Kala Chaupal Trust to explore avenues to [work on the culture and heritage of Bulandshahr, art, and nature conservation](#). We are working on several projects to capture the district's ancient, medieval, and modern stories and narratives. The documentation and on-ground action will support



the community's built and natural heritage to create a sustainable model for cultural tourism. Besides, the collaboration includes student internships, faculty research collaboration in Kala Chaupal's projects, nature walks, heritage works, and publications.

United Service Institution of India (USI)

United Service Institution of India is a national security and defence services think tank based in New Delhi, India. It describes its aim as the 'furtherance of interest and knowledge in the art, science, and



literature of the defence services.' A [Memorandum of Understanding \(MoU\)](#) between United Service Institutions of India (USI) and Shiv Nadar IoE was signed on January 12, 2022, to collaborate for various research initiatives specific to foreign affairs, defence studies, and strategy. The academic and research collaboration aims to empower budding global leaders to challenge themselves and broaden their horizons of thinking. Under the MoU, USI and Shiv Nadar IoE jointly agreed to cooperate academically on contemporary strategic issues and formulate a practical road map to benefit scholars and students of both institutions. The partnership facilitates research work and publications by students and faculty members.

National Maritime Foundation

Shiv Nadar IoE signed a Memorandum of Understanding (MoU) with the National Maritime



Foundation (NMF) on July 28, 2022. The MoU was to establish a program of collaborative partnership. It aims to facilitate scholarly cooperation, communication, and exchange, enhance comprehensive and interdisciplinary training for students, and develop innovative consortia of maritime strategy.

The potential area of cooperation between the School of Humanities and Social Sciences (SHSS) at Shiv Nadar and the National Maritime Foundation (NMF) will include sharing resources, faculty exchange, and student opportunities for internship and research.

Indian National Trust for Art, Culture, and Heritage (INTACH)

Shiv Nadar IoE has collaborated with the Indian National Trust for Arts, Culture, and Heritage, which works with the vision to spearhead heritage awareness and conservation in India. Every year, our University students intern at INTACH and work on various projects and workshops.



Naval Innovation and Indigenisation Organisation (NIIO)

The Schools of Engineering and the Humanities and Social Sciences, in partnership with NIIO, facilitates student participation in SPRINT (Supporting Pole-vaulting in R&D through iDEX, NIIO, and TDAC), a collaborative project between the Defence Innovation Organisation (DIO) and NIIO. The project aims to develop at least 75 indigenous technologies/products as a part of Azadi Ka Amrit Mahotsav. The University students will intern, research, and work across various niche technology fields, including Artificial Intelligence (AI), autonomous and unmanned systems, and Information Technology.

The Habitats Trust

We have signed a Memorandum of Understanding (MoU) with [The Habitats Trust \(THT\)](#) to contribute to the capacity building of students. Towards this, the University students have opportunities for internships and volunteering at THT, and the employees at THT have a chance to pursue a Ph.D. at Shiv Nadar. THT works towards securing natural

habitats and indigenous species and conserving lesser-known species and habitats that are threatened but often neglected and are in urgent need of conservation attention. Our association with THT has generated 21 internships across schools, including verticals like field projects, communication, grants, research and data analysis, education, and outreach.

In collaboration with THT the University organizes short webinars and sessions on various themes. [Synergence 2022](#) was a special session on biodiversity, discussing the uniqueness of Indian flora and fauna.

Chair of Jury, FICCI Water Awards, 2022

Dr. Mihir Shah, Distinguished Professor at Shiv Nadar IoE, is appointed [Chair of Jury – FICCI Water Awards 2022](#), which the FICCI Water Mission instituted in 2012. The awards were initiated to recognize efforts and leadership in water efficiency and conservation, thereby developing a knowledge base on sustainable water management practices adopted by different stakeholders and disseminating best practices for encouraging their adoption. The jury's role in this sense is significant in helping recognize the best sustainable management practices for both the government and industry participants.

Besides, there are many other government organizations, foundations, and social sector organizations that we have partnered with for student internships, collaborative faculty research, and faculty consultants on significant projects and committees.

Cross-sectoral dialogues about SDGs

The Departments of Civil Engineering and Electrical Engineering at Shiv Nadar IoE

SHIV NADAR UNIVERSITY

High End Workshop On
AGRICULTURAL WATER MANAGEMENT IN THE BACKDROP OF CLIMATE CHANGE USING REMOTE SENSING, GIS, AND IOT TECHNIQUES (PHYSICAL MODE)

(Under the KARYASHALA Scheme, Accelerate Vigyan, SERB Initiative)

21-27 July 2022

Funded by: Science & Engineering Research Board (SERB) under the Accelerate Vigyan Scheme
Organized by: Department of Civil and Electrical Engineering, Shiv Nadar University, Delhi NCR

Workshop Organizers & Coordinators

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Last date to apply:
July 12, 2022

organized a week-long workshop titled [“Agricultural Water Management in the Backdrop of Climate Change Using Remote Sensing, GIS, and IoT Techniques.”](#)

Held from July 21 – July 27, 2022, the workshop was funded by the Science and Engineering Research Board (SERB) under the KARYASHALA scheme, Accelerate Vigyan, SERB initiative. Conducted at Shiv Nadar IoE campus, the workshop included experts from IITs, NITs, government research institutes and agencies, and faculty members from the University to deliver lectures and hands-on training sessions.

Cross-border innovation, acceleration, and challenges in the international transfer of technologies

Shiv Nadar IoE participated in the [international knowledge-sharing workshop](#) jointly organized by the Department of Scientific & Industrial Research (DSIR), Ministry of Science & Technology, Government of India, Council of Scientific & Industrial Research (CSIR), in association with the Asian and Pacific Centre for Transfer of Technology (APCTT) of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP). Held from November 14 – 15, 2022, and coordinated by the CSIR-Human Resource Development Centre (CSIR-HRDC) at CSIR Science Centre, the workshop had over 36 international participants from 17

countries and around 70 participants who joined physically.

School of Engineering partner with Gas Authority of India Ltd. (GAIL)

The School of Engineering has partnered with the Gas Authority of India Ltd. (GAIL) to deliver a joint academic course on Natural Gas Engineering. Delivered by the GAIL experts, we have also converted these guest lectures into an entire semester course, including courses in areas such as energy sector overview, city gas distribution, and liquified natural gas, to name a few.

International collaboration data gathering for SDG

Indo-French collaboration working on the molecule to slay COVID-19

Dr. Subrabrata Sen, Professor, Department of Chemistry, along with his team of researchers, have discovered a new general class of antivirals against severe acute respiratory syndromes caused by SARS CoV and similar viruses. This research was jointly conducted



with Prof. Ralf Jockers from Institut Cochin, Paris. Dr. Sen was invited to work as a visiting scientist at Dr. Ralf Jocker's lab, Institute Cochin, Paris, France, from March 15 - May 15, 2022, to research novel COVID-19 drugs.

In this [breakthrough research](#), a novel molecule has shown promise

in lab tests as a potential preventive against variants of the SARS-CoV-2 virus and can potentially treat the acute and long-term symptoms of COVID-19. The team has published articles and applied for patents.

Institutional interconnections, inclusive business and cross-boundary cooperation

Dr. Partha Sarathi Roy, Assistant Professor, School of Management and Entrepreneurship, in partnership with the Indian Institute of Management (Calcutta) and Tokyo International University, received a project grant from Japan Society for the Promotion of Science (JSPS), the Government of Japan, KAKEN Grant Number 16H05707. The study performed a comparative research among Japanese/European/North American/Local Companies in India and Africa. This cross-country research project looked into inclusive business models across four domains to understand emerging business models working in a for-profit mode yet solving a wicked problem around poverty. The research culminated in a [book published in 2022](#) by Emerald Publishing.

The South Asian Partnership Development grant

Dr. Sruthi Muraleedharan, Assistant Professor, Department of International Relations and Governance Studies, received the South Asian Development Grant. The grant was used to organize an [international workshop](#) in collaboration with the University of Exeter, June 13-15, 2022, titled 'Interrogating the 'International' from a Transnational Feminist Lens: A view from SWANA and South Asia' at Exeter, United Kingdom. In the three-day workshop, the team worked on issues prioritizing transnational feminist analysis in their approach while rethinking the territorial trap that conventional IR and state-centric analysis dictate.

Agroecological transition of Indian dairy systems: a focus on institutional change – Transindiandairy

This [collaborative research project](#) was conducted between the French (ENSFEA, CIRAD, and INRA Paris) and Indian scholars (SNU- Delhi, NCR, and IIM -Ahmedabad).

Transindiandairy addresses technical, organizational, and institutional levers to upscale agroecological transitions. It does it by developing a multiscale framework on institutional resources regime guiding the analysis (both qualitative and quantitative) and supporting the integration of results. Indian dairy systems are chosen as case studies for their local and international importance and the unprecedented scale of their transition. Concretely, the team of 12 social and biotechnical scientists will analyze the coevolution between the business models involved in the production, processing, and marketing of dairy products in three Indian states (WP1) and the multiscale governance of the transitions (WP2). It will also assess the systems multidimensional performance (matter and energy flows, value creation, distribution, resilience) (WP3). Project outcomes will be scientific (articles, reports, Ph.D.) and operational (unlocking, knowledge spreading, scientific cooperation).

Dr. Rajeswari Raina, Professor in the Department of International Relations and Governance, is participating in the project.

Fellow at the Global Labour Organization

Dr. Punarjit Roychowdhury, Assistant Professor, Department of Economics, has been [appointed as a Fellow](#) of the Global Labour Organization – a prestigious non-profit, international organization based in Germany that functions as a global network for researchers

and policymakers committed to scientific research that studies societal implications on the global labour markets and demographics and more.

Collaboration for SDG best practice

Dr. Siddharth Mallavarapu, Professor, Department of International Relations and Governance Studies, is appointed member of the advisory board of the Sustainable Development Goals Journal of Kenya on February 21, 2022.

Governance and Inequality

Dr. Yasmeen Arif, Professor, Department of Sociology, was invited by [Grip Inequality as a visiting researcher](#). During her stay with GRIP in Bergen, Yasmeen worked particularly with GRIP-affiliated senior researcher Bjørn Enge Bertelsen to address questions on identity and global intellectual labor. On another GRIP research project, she worked with Elina Troschenko on Political Protests and New Forms of Citizenship. Dr. Arif also lectured on Governance and Inequality at the Bergen summer research school.

GIS-based landslide susceptibility mapping

Dr. Jagabandhu Dixit and Navdeep Agrawal conduct significant research at the [Disaster Management Laboratory](#), Department of Civil Engineering. Their recent work is on landslides, a common geological hazard causing impairment of public works and loss of lives worldwide and in India, especially in the Himalayan region. This [study](#) aims to map the landslide susceptibility for the Shillong Plateau region of India using different machine learning algorithms and provide insights into influential factors, focusing on disaster risk reduction. The landslide susceptibility maps (LSM) have revealed that the south-southeastern

portion of Meghalaya, mainly slopes along the southern escarpment, are more susceptible to landslides. The generated LSMs will assist decision-makers and planners in identifying high-risk areas, prioritizing mitigation measures, and guiding regional development. Therefore, the presented LSM for the considered study area can help the authorities and decision makers to plan and prepare the risk mitigation strategies for future landslides and plan the sustainable infrastructure development in the region.

Agrawal, Navdeep, and Jagabandhu Dixit. "GIS-based landslide susceptibility mapping of the Meghalaya-Shillong Plateau region using machine learning algorithms." *Bulletin of Engineering Geology and the Environment* 82, no. 5 (2023): 170.

The Agricultural Water Management field laboratory on campus

The Department of Civil Engineering has established the [agricultural water management field laboratory](#) to address critical issues in agricultural water management and the food and water security nexus. The Ministry of Water Resources and the Ministry of Agriculture & Farmers' Welfare, Government of India, have marked these research areas as of national importance. These areas are also aligned with the focus of the government's national missions on more crop per drop (increasing water use efficiency), har khet ko pani (increasing the cultivated area under irrigation), and Goal 4 (Improving water use efficiency by 20%) and Goal 5 (promotion of basin level integrated water resources management) of the National Water Mission. The Government of India and the university co-funded the lab to serve as a state-of-the-art research facility in water management. It has an extensive crop experimentation facility equipped with a drip irrigation system and research equipment for monitoring crop and soil parameters. Work is underway



Core areas of research:
Hydraulics structure, River engineering, Use of emerging techniques in agriculture water management

to develop a farmer laboratory for soil and irrigation water testing and dissemination of weather data for use by local farmers. Also funded by the Government of India, the lead faculty is developing AI-based decision-support systems for improved water use efficiency under a regulated deficit drip irrigation regime in the backdrop of climate change. This project will provide water-saving solutions for the two widely grown and consumed crops, rice and wheat.

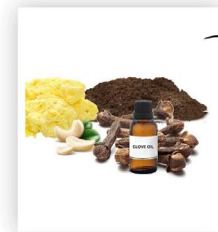
Institutions collaborate to develop new battery technology

Focused on the principles of green chemistry to find a solution that simultaneously addresses the needs of the industries and the environment, Dr. Bimlesh Lochab, Professor and Head of the Department of Chemistry, along with her team, has collaborated with Dr. Sagar Mitra at the Department of Energy Science and Engineering at the Indian Institute of Technology-Bombay to develop Lithium-Sulphur battery prototype. The study has the potential to aid multi-billion-dollar industries, including tech gadgets, drones, electric vehicles (EV), and several more that depend on such batteries.



RESEARCHING THE NEXT

Using environmentally sustainable materials



- Sulfur from petroleum industrial waste
- Agro-waste elements
- Cardanol (by-products of cashew nuts processing)
- Eugenol (from clove oil)



CHARGING THE FUTURE

Can aid multi-billion-dollar industries, including test gadgets, drones, and electric vehicles.

Collaboration with NGOs for SDGs

Shiv Nadar IoE firmly believes that partnerships are vital to advancing a critical cause. We have developed deep relationships with many organizations to make this a movement with impact and velocity. For example, our [Water Science and Policy program](#) was supported by the Government of India, an international body (the International Development Research Center), and many NGOs and civil society actors. The program had mandatory training on the field for a semester, so it became an excellent opportunity for students to learn and receive training in the local communities and cultures, guided by our partner NGOs, such as:

- [Development Support Center \(DSC\)](#) – Based in Ahmedabad, it provides knowledge-based support to institutions promoting sustainable livelihood and participatory natural resource management.
- [Gram Vikas](#) – An NGO based in Odisha works to enable rural communities to lead dignified lives. This is done by building the capabilities of village communities, strengthening community institutions, and mobilizing resources.
- [Samaj Pragati Sahayog \(SPS\)](#) – One of India's most significant grass-roots initiatives working towards women empowerment, water, and livelihood security. It works with its partners on million acres of land across 72 of India's most backward districts, mainly in the central Indian Adivasi belt.
- [Advanced Center for Water Resources Development and Management \(ACWADAM\)](#) – A not-for-profit organization aims to establish a groundwater management agenda in India to demystify groundwater science and strengthen the hydrogeological capacity of institutions working in the water sector in India.

Publication of SDG reports

At Shiv Nadar we have embraced a four-pronged strategy for SDGs through teaching, research, our core institutional practices, and partnerships.

All SDG reports of the University are available on the University website - <https://snu.edu.in/sustainability/#un-sustainable-development-goals-reports>

Education for SDGs commitment to meaningful education

At Shiv Nadar, we are fully committed to the UN Sustainable Development Goals (SDGs). This commitment from the leadership is reflected in the [University's Annual Report](#).

We are integrating the idea of sustainability on campus in many ways – teaching and learning, research, institutional practices, advocacy, and partnerships. The idea behind this approach is that for sustainability to thrive, it must become mainstream and interwoven into the university policy and strategy. At Shiv Nadar, we have positioned ourselves as a platform and hub for innovation, critical thinking, and creatively nurturing future leaders, entrepreneurs, researchers, and individuals who can make a difference. The social impact is, thus, built into much of the research and teaching at the university.

Education for SDGs: specific courses on sustainability

We have integrated sustainability into our curriculum and research across departments. All four schools offer dedicated programs at both undergraduate and graduate

levels, incorporating learning and understanding about various aspects of sustainable development.

[The School of Engineering](#), [The School of Humanities and Social Sciences](#), [The School of Natural Sciences](#), and [The School of Management and Entrepreneurship](#)

For undergraduate students, many compulsory courses are regularly offered, such as Environmental Studies (CCC 704), Biodiversity: Assessment & Conservation (CCC 706), Environmental Impact Assessment (CCC 406), and Energy for Sustainable Future (CCC 614), Use of Energy in our Daily Life (CCC 624), and Green Energy Technologies (CCC613). Another example of opportunities in areas of sustainability is the [Social Sector Internship \(SSI\)](#). This is a project that all undergraduate students, without exceptions, go through in the School of Management and Entrepreneurship. In this program, students undergo a rigorous 8-week



Social Sector Internship



on-site internship immersion in rural and non-urban ecosystems. During their tenure, our students work with local indigenous communities to ameliorate social enterprise challenges or create growth models for the social sector.

Education for SDGs in the wider community

Young Thinkers Forum (YTF)

[Young Thinkers Forum \(YTF\)](#) is a certified offline program for grades 8-12 students. This weeklong program is held annually, exposing

students to different disciplines. It includes various activities, including vertical tutoring between high school and college students, faculty presentations, fun sessions, discussion groups, guest speakers, and interactive multimedia learning. Along with the courses, the students engage in non-academic activities focusing on honing important leadership and networking skills.

The Young Environmentalist Forum (YEF)

This forum brings together specially curated programs on various themes, such as a three-day certificate

program for school students from grades 7-12. The Young Thinkers Forum on Biodiversity and Sustainability Program was a huge success that introduced participants to concepts of biodiversity, green energy, ecology, growing micro-greens, composting, recycling, energy conservation and sustainable living.

Skill development program

At Shiv Nadar, we are committed to educational opportunities for all people regardless of gender, race, religion, or ethnicity; hence, the University has undertaken a **Skill Development Pilot Program**. The program imparts critical life skills to the children of the University's contractual staff residing in nearby areas and enhances their prospects for a brighter tomorrow. The faculty and students at the University volunteer to impart classes to children to improve their computer and language skills.



Shiv Nadar Institution of Eminence is fully committed to the UN Sustainable Development Goals (SDGs). We have embraced a four-pronged strategy for SDGs through **teaching, research, our core institutional practices, and partnerships.**

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