

SHIV NADAR

INSTITUTION OF EMINENCE DEEMED TO BE
UNIVERSITY
DELHI NCR

Report on **Sustainable Development**

GOAL 13



Take urgent action to combat climate
change and its impacts



Global heating is a cold, hard fact. There's still time to avoid the worst of the climate catastrophe. But leaders must act – now.

António Guterres, United Nations Secretary-General

According to World Meteorological Data, the planet's average temperature in 2024 was 1.6 degrees Celsius higher than in the 1850-1900 pre-industrial period. The last 10 years are the 10 hottest years on record¹.

With five targets and eight indicators, SDG 13 is considered one of the biggest stories of our times due to the rapidly changing climate-related impact. Hence, it would not be an exaggeration to say that climate action is the most critical action we can take for the sake of current and future generations.

At Shiv Nadar University, two of the four priority research areas are Energy and Environment. Firmly committed to the global framework of Sustainable Development Goals, this report highlights our key action areas reflected in our teaching, research, partnerships, and institutional practices, including reducing carbon footprint, minimizing wastage, increasing the use of alternative energy, water conservation, organic food practices, and many more.

TEACHING AND LEARNING

The university offers several courses on climate and its impact at the local and global levels. Department of Sociology offers a course on the Anthropology of

climate change (SOC305), which introduces students to the new but rich subdiscipline of the anthropology of climate change by questioning how humans have become the center of public debate and international policy, precisely as it remains unclear what the future world affected by climate change holds. The Department of Civil Engineering offers a graduate course on Climate and Climate Change (CED660). Many compulsory courses are offered regularly to undergraduate students, such as Atmospheric Aerosols & Climate (CCC 405), Climate Change and Media (CCC 721), Climate Change and Conflict (CCC 719), Environmental Studies (CCC704), Introduction to Climate Change (CCC705), and Environmental Impact Assessment (CCC 406).

Master's Program in Global Urban Sociology in partnership with the School of Oriental and African Studies (SOAS), London

Urbanization is of extraordinary significance for the regions in which SOAS and Shiv Nadar University academics focus, and globally, it is a topic that brings together many of the most pressing concerns of our times, from climate, sustainability, to mental health, pollution, illness, and issues of governance and policy.

¹ https://www.reuters.com/business/environment/2024-was-first-year-above-15c-global-warming-scientists-say-2025-01-10/?utm_source

Shiv Nadar IoE-SOAS Joint MA Global Urban Sociology



The joint Master of Arts program in Global Urban Sociology provides a unique opportunity for students to grasp the broad global historical/political/cultural canvas against which sociology is studied and how sociology may be useful for thinking about urban global futures. It offers students an option to study current global issues around urbanism with reference to specific case studies drawn from different cities around the world. It also provides an opportunity for students to develop their ability to construct critical evaluations of the applicability of sociological frameworks to 'real-world' problems, including in their own research project on the 'Dissertation' module.

STUDENT STORIES

Carbon Markets affect marginalized communities

Adithya Santhosh Kumar, a recent alumnus, published a piece on how carbon markets affect marginalized communities and turn indigenous farming practices into corporate profit, leaving communities empty-handed.



Exemplifying the university's interdisciplinary aspirations, Adithya recently graduated with a major in Mechanical Engineering, with a minor in International Relations, and has a keen interest in sustainability.

Social Sector Internship - Student Projects

Social Sector Internship is an eight-week rigorous and mandatory internship on real-life projects that provides our undergraduate students in the School of Management and Entrepreneurship with the context, empathy, and expertise to make decisions, keeping in mind the triple bottom line involving people, planet, and profit, irrespective of the professional or entrepreneurial roles they assume in the future.

This on-site internship immersion in rural and non-urban ecosystems allows students to work with the local indigenous communities to ameliorate social enterprise challenges or create growth models for the social sector, thus, generating new forms of knowledge where disciplinary barriers are dissolved; the divides between the scholar and the practitioner, the thinker and the doer, are overcome, and concrete societal benefits accompany the academic benefits of research.

Some examples of these projects in SDG 13 are:

Sanidhya Dariwal worked with ESRO - Environment and Social Research Organization on the engagement of school youth in climate justice. The project included collecting pre-data from the school youth, their families, teachers, communities, religious leaders, and the review of research papers/scriptures/websites. The project also involved designing a curriculum to be implemented in schools that the ESRO-NGO will use during their awareness efforts. Various world

religions have cited and advocated for climate justice through environmental conservation/preservation. The main intent of the project was to fill the gap by integrating these concepts into environmental education.

Chockalingam R. worked with Shri. A.M.M. Murugappa Chettiar Research Centre (MCRC), on assessing biochar's impact on paddy crop yield, fertilizer reduction, climate change, and cost-benefit analysis for farmers. The project provided valuable insights into the economic benefits of biochar usage, such as reducing fertilizer costs, improving soil health, and environmental conditions, as well as how biochar directly contributes to mitigating climate change.

Alumni driving impactful change in climate adaptation and resilience across the Global South

Anirudh Kishore, alumnus, class of 2018 & 2022, with a Bachelor's in Civil Engineering and a Master's in Water Science and Policy, from Shiv Nadar University, is working as a climate consultant at Dalberg Advisors, driving impactful change in climate adaptation and resilience across the Global South. With over five years of experience in the climate-water sector, he collaborates with communities, governments, and global organizations to create sustainable, climate-resilient pathways. His expertise in water governance, urban water security, and nature-based solutions is helping to shape a more resilient and equitable future, advancing climate solutions, and championing environmental sustainability.

ALUMNI SPOTLIGHT

From Shiv Nadar University
to making a career in Social Impact Consulting

Anirudh Kishore
B.Tech. in Civil Engineering
with Minor in Sociology
Class of 2018

Consultant- Climate Fellow
Dalberg



SHIV NADAR
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RESEARCH

Shiv Nadar University Pioneers Eco-Friendly Polymers For Carbon Neutrality

Dr. Bimlesh Lochab, Professor, Department of Chemistry, and **Dr. Sangeeta Sahu**, Post Doctoral scholar at Shiv Nadar University, have developed sustainable polymers from waste sulfur and cardanol, offering a promising solution to plastic pollution and carbon emissions. This is an innovative solution to the global challenge of carbon neutrality. Their research has been published in the ACS Sustainable Chemistry & Engineering journal, introducing a new class of waste-derived polymers, utilizing naturally abundant feedstocks, and achieving attractive features.



NERL develops advanced nanomaterials for sustainable energy storage and conversion, accelerating progress toward SDG 7 and strengthening climate action under SDG 13

Dr. Binson Babu, Assistant Professor, leads research at the [Nanoscience and Energy Research Lab \(NERL\)](#), Department of Physics, School of Natural Sciences. Along with his group, Dr. Babu is spearheading cutting-edge interdisciplinary research to accelerate the global green energy transition, directly contributing to SDG 7: Affordable and Clean Energy and SDG 13: Climate Action.

The research focuses on designing novel nanomaterials and advanced electrolytes for sustainable energy storage systems, including



SHIV NADAR UNIVERSITY
SCHOOL OF ENGINEERING

Nanoscience & Energy Research Lab

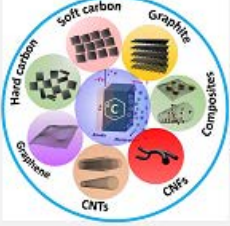




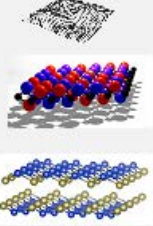
Our research group focuses on designing novel nanomaterials and advanced electrolytes for the application of sustainable energy storage and conversion.

Energy Materials

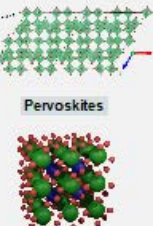
Carbon-based materials



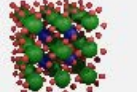
2D-Materials



Metal oxides



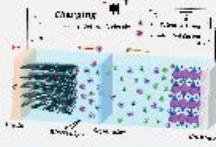
Pervoskites



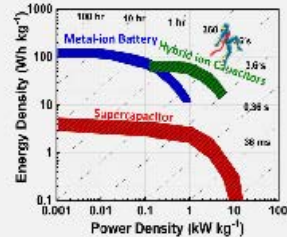
Applications

Rechargeable batteries

- Metal-ion Batteries
- Metal-Sulfur Batteries
- Anode Free Batteries
- Solid State Batteries



Supercapacitors and Hybrid ion capacitors





Dr. Binson Babu
(PI)



Dushyant Kumar Sharma
(Ph.D. Student)



Manuj Ahuja
(Ph.D. Student)



Sheikh Najeeb Ul Haq
(Ph.D. Student)



Divyanshi Soni
(Ph.D. Student)



Pinky Sharma
(Ph.D. Student)



https://www.shivnadar.ac.in/nerl
Email: binson.babu@snv.ac.in



Hari Ganji
(UG Thesis Student)



Vaibhav Gangwar
(OUR Student)

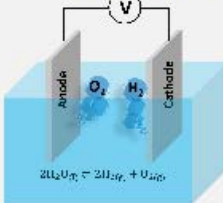


Garima Mantani
(OUR Student)



Salahuddeen Buhari
(Collaborative Master's Student)

Energy conversion



rechargeable batteries, supercapacitors, and hybrid-ion capacitors, enabling the integration of renewable energy into power grids. The group also works to advance energy conversion technologies such as electrochemical water splitting to produce clean hydrogen, offering low-carbon alternatives to fossil fuels.

By developing next-generation energy materials, NERL is advancing research to support the shift towards a low-carbon economy, helping mitigate climate change while ensuring access to clean, reliable, and sustainable energy solutions.

Bioenergy Production via Thermochemical Conversion of Waste Biomass

Dr. Sanjeev Yadav, Associate Professor, Department of Chemical Engineering, and his group are working on thermochemical conversion of waste biomass into different forms of bioenergy through an experimental and simulation study.

Improper waste biomass management leads to many environmental concerns, like greenhouse gas emissions, soil degradation, and water contamination. The research group offers an alternative to waste management by using thermochemical conversion methods to generate energy. This year's experimental studies involved the conduct of steam gasification and fast pyrolysis of mixed food waste. Steam gasification was conducted in the presence of a novel catalyst, which significantly enhanced hydrogen production. It also helped reduce the tar generation effectively from the steam gasification of mixed food waste. The second experimental work studied the effect of hot vapor residence time (HVRT) on bio-oil production via fast pyrolysis of mixed food waste. The third study was a modelling and simulation work done using Aspen Plus for groundnut shell gasification using a bubbling fluidized bed gasifier. The developed model is in agreement in terms of composition, yield, and higher heating value of the syngas generated experimentally.

Pectin biopolymer to develop composite thin films for use as biodegradable wraps for vegetables and fruits.

Dr. Yamini Sudha, Associate Professor, Department of Chemical Engineering, has used pectin biopolymer to develop composite thin films for use as biodegradable wraps for vegetables and fruits. Her research aims to significantly boost the shelf life of produce and reduce hazards to the human body and nature.

The biodegradable wraps are made by extracting pectin from bananas, oranges, and sweet lime. They are a natural, edible coating that can replace synthetic wax, which gives fruits gloss and longevity. Along with her research group, Dr. Shudha has successfully produced small films with improved

properties compared to pure pectin films. Dr. Sudha's research is linked to SDG 3 (good health and well-being), SDG 11 (sustainable cities and communities), SDG 12 (responsible consumption and production), and SDG 13, 14, and 15 (climate action, life below water, and life on land).

Ecohydrological and hydrogeological dynamics of groundwater springs in Eastern Himalaya, India

Groundwater springs are critical to achieving Sustainable Development Goals (SDG 6, access to clean water) in the Himalaya and remain highly vulnerable to climate change and land-use and land-cover change. In a first from Eastern Himalaya, the research analysed the relative controls of land-use, precipitation, soil properties, and hydrogeology on the diel and seasonal variability in three representative springs using high-frequency discharge monitoring. The study provides an integrated analytical framework for understanding Himalayan springs, which are critical for achieving SDG 6 (access to clean water) and a baseline for developing appropriate springshed models for effective management of freshwater ecosystems (SDG 15) against future climate change impacts (SDG 13), as well as informing the water security assessment in the Himalaya.

Kumar, Manish, Sumit Sen, Himanshu Kulkarni, Shrinivas Badiger, Girish R. Varma, and Jagdish Krishnaswamy. "Ecohydrological and hydrogeological dynamics of groundwater springs in Eastern Himalaya, India." *Groundwater for Sustainable Development* 27 (2024): 101311.

Geo-information for Disaster Monitoring and Management

This publication provides insight into advancing remote sensing techniques dealing with floods, droughts, landslides, earthquakes, permafrost-related hazards, glacial lake outburst floods, forest fires, droughts, tropical cyclones, climate resilience, and COVID-19. It incorporates the latest technologies and techniques to illustrate disaster monitoring for acquiring information and disseminating technological results and outcomes for the betterment of society. The publication would be of immense importance for earth scientists, policymakers, and professionals in disaster risk reduction.



Dr. Yamini Sudha Sistla
Associate Professor
Department of Chemical Engineering



Developed biodegradable film wraps by extracting pectin, a prospective biopolymer, from fruits.

Dr. Sistla is conducting her research at the Sustainability and Advanced Materials Lab, Shiv Nadar University, Delhi-NCR. She and her team have produced small films with properties superior to those of pure pectin films.

<https://snu.edu.in/blogs/solutions-of-tomorrow-bio-degradable-food-wrapping/>



Pandey, P.C., Kumar, R., Pandey, M., Giuliani, G., Srivastava, P.K., and Sharma, RK. (2024). *Geo-information for Disaster Monitoring and Management*. Springer. DOI: <https://doi.org/10.1007/978-3-031-51053-3> ISBN978-3-031-51052-6 ISBN978-3-031-51053-3(eBook)

Balancing greenwashing risks and forest carbon sequestration benefits: A simulation model linking formal and voluntary carbon markets

Voluntary carbon markets (VCMs) offer energy-intensive firms a cost-effective way to reduce carbon mitigation expenses by promoting forest conservation. However, concerns about greenwashing may deter firms from using these options, which are susceptible to illegal forest harvesting. This study examines whether firms purchasing carbon credits from forestry-based communities can help strengthen forest conservation, mitigate project risks, improve environmental outcomes, and reduce abatement costs.

Ranjan, Ram. "Balancing greenwashing risks and forest carbon sequestration benefits: A simulation model linking formal and voluntary carbon markets." *Forest Policy and Economics* 168 (2024): 103317.

CONVERSATIONS ON CAMPUS

International Conference on Sustainable Nanomaterials Integration & Organization for Energy and Environment (iSNIOE2-2024)

Shiv Nadar University, in partnership with the University of New South Wales, Sydney, Australia, and KTH Royal Institute of Technology, Sweden, organized the International Conference on Sustainable Nanomaterials Integration & Organization for Energy and Environment (iSNIOE2-2024). With over 250 participants from India and abroad, this four-day conference united researchers and practitioners from academia, industry, and research laboratories worldwide, facilitating the dissemination of knowledge in sustainable nanomaterials and their innovative applications in renewable energy and environmental conservation.

The conference showcased 183 presentations, comprising 11 Plenary Speakers, 20 keynote speakers, 47 invited speakers, 46 oral presentations, 59 poster presentations, and over 60 speakers and researchers from various parts of the world.



MAGSOS Conference on Modern Aspects of Green and Sustainable Organic Synthesis

The Department of Chemistry, School of Natural Sciences, Shiv Nadar University, in collaboration with HEIA-FR, Chemistry Department, Switzerland, organized MAGSOS, [a conference on Modern Aspects of Green and Sustainable Organic Synthesis](https://snu.edu.in/magsos/), at the Shiv Nadar University campus on November 26 - 29, 2024.

Department of Chemistry
School of Natural Sciences, Shiv Nadar University

MODERN ASPECTS OF

GREEN AND SUSTAINABLE ORGANIC SYNTHESIS

In collaboration with:
Chemtech, Haute école d'ingénierie et d'architecture de Fribourg Boulevard de Pérolles 80, 1700 Fribourg, CH

PLENARY LECTURES BY

Prof. Debabrata Maiti
IIT Bombay, India

Prof. Carsten Bolm
RWTH Aachen University, Germany

Prof. Floris Rutjes
Radboud Universiteit, Netherlands

KEYNOTE LECTURES BY

Prof. A.T. Biju
Professor of Organic Chemistry
Indian Institute of Science

Prof. Akhilesh Verma
Professor of Organic Chemistry
Delhi University

Prof. Choon Hong Tan
Professor of Organic Chemistry
NTU Singapore

CHAIRPERSONS **CO-CHAIR** **ADVISORY COMMITTEE**

Prof. Subhabrata Sen
Professor, Dept. of Chemistry, SNUOE

Prof. Ludovic Gremaud
Full Professor, Process Chemistry, HEIA-FR

Prof. Bimlesh Lochab
Professor & HoD, Dept. of Chemistry, SNUOE

Prof. Ananya Mukherjee
Vice-Chancellor, SNUOE

Organizing member: Ludovic Gremaud, Subhabrata Sen, Bimlesh Lochab, Basab Biju, Dhar, Ajay Kapat, Animesh Samanta, Santanu Ghosh, Khatresh Dutta Dubey and Bappaditya Gole, Santosh Singh and Tatini Rakshit.

Funding agency: Zurich University of Applied Sciences Leading House South Asia and Iran International Affairs Office, Royal Society of Chemistry India

SHIV NADAR UNIVERSITY | SCHOOL OF NATURAL SCIENCES

HEIA-FR HTA-FR

26-29 NOVEMBER 2024

Conference theme:

- Sustainable organic chemistry
- Photolytic and photocatalytic organic reaction
- Mechanochemistry in organic synthesis
- Electrochemical organic reactions
- Photo-electrochemical organic reactions
- Sustainable radical reactions in organic chemistry

Conference contents:

- 1.5 days of Workshop on Process Research and Green Chemistry
- 2.5 days of Conference on Green and Sustainable Chemistry
- 3 Plenary lectures (2 International and 1 national (Indian)) 45 min + 15 min Q&R
- 3 Keynote lectures 35 min + 10 min Q&R
- 14 Invited lectures 25 min + 5 min Q&R
- 2 poster sessions 6 flash talks (maximum 5 min talk)

Registration deadline: 15th Nov. 2024

Abstract submission deadline: 10th Nov. 2024

Visit Website: <https://snu.edu.in/magsos/> or email at magsos.snu@chem.snu.edu.in

Discussion to explore research partnerships between the University and India's biggest commercial oil corporation

Shiv Nadar University Delhi NCR on Wednesday hosted Mr. ALOK SHARMA, Director, Research and Development Centre, Indian Oil Corp Limited (IOCL), along with his leadership team.



Discussing ways to explore research partnerships between the university and India's biggest commercial oil corporation in nanotechnology, renewable energy, sustainable energy technologies, energy storage and conversion, and materials processing, Mr. Sharma highlighted that, despite being a young institution, the research done by Shiv Nadar University is commendable. There are many opportunities for collaboration in research and industry-oriented projects that can drive innovation, boost economic growth, and contribute to societal progress. Such collaborations can help convert research into marketable products and services with the support of the industry.

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

Department of Economics

Virtual Talk

Rice Prices, Agricultural Fires and Air Pollution in the Indo-Gangetic Plains

Speaker:

Dr. Digvijay Singh Negi

IGIDR

(Friday) 9th February 2024

10:00 AM to 11:00 AM (IST)

Joining Link: t.ly/16ktv

Scan to Join

SCHOOL OF ENGINEERING

Department of Civil Engineering

TALK ON

Developing Insights into the Evolving Transportation System in India

ABSTRACT:

India's transportation landscape undergoes significant changes due to urbanization and technological advancements. Strengthening transportation infrastructure is crucial for efficient, safe, and sustainable mobility. Addressing pollution, road safety, and environmental well-being. Multimodal Transport Hubs (MMTH), Modeling Risky Driving, and Urban Traffic Noise will be discussed in this technical talk. The first study examines MMTH service quality factors in Ahmed Vihar, Delhi, while the second analyzes risky driving on high-speed corridors. The third develops a traffic noise prediction model for urban intersections. These studies offer insights for enhancing infrastructure, improving safety, and mitigating environmental impacts, guiding policy decisions for a more efficient, safe, and sustainable transportation system in India's future.

SPEAKERS

Prof. Manoranjan Parida

Director, CSIR-Central Road Research Institute

Prof. Manoranjan Parida has been in charge of Director, CSIR-Central Road Research Institute since 20th September, 2022.

He was Deputy Director at IIT Bombay before joining CSIR-CRI. He has been MMTH Chair Professor on Development of Highway Systems in India at IIT Bombay during 2019-2021. He has worked on an IIT Bombay Research Project "Preparation and Migration Model of Motor Traffic Noise for Planning and Road Traffic Noise".

Design and Development of Noise Barrier for Highway in Delhi is an innovative contribution by him. He has provided substantial inputs for this policy study on the 1200 km, 4-lane highway in the State of Uttar Pradesh 2007-2018 under the RSIV Project. It is the premier infrastructure for more than 200 urban road infrastructure projects. It includes design, road works, and engineering. It received the Jnanpith Award 10th Anniversary Award in the year 2024 from Indian Road Congress. He has received the Distinguished Teacher Award of IIT Bombay. He is currently Chairman of Urban Road & Street Committee (URSC) of Indian Road Congress, New Delhi.

MODERATOR

Dr. Shalini Karlovat

Assistant Professor, Department of Civil Engineering

DATE: 20 March 2024 (Wednesday)

TIME: 10.30 AM (IST)

VENUE: C021, Shiv Nadar Ie

Empowering Young Minds for Sustainable Development

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

SOCIOLOGY

THURSDAY SEMINAR SERIES

Topic

Ethnography as Climate Theory

ABSTRACT:

This talk builds upon on-going research in the Indian Himalaya to query the hierarchy between ethnography and theory. This separation is one that continues to tacitly operate in the discipline of anthropology with theory considered an elevated form of analysis. This longstanding distinction can be not just challenged but also undone by rooted and robust climate ethnographies. I will make this case for climate ethnographies constituting critical theory through a focus on nonhuman agency. Through ethnographic storytelling I will underscore the new vocabularies through which acts of habitus and accustoming change as well as periodic disasters are being described in the Himalaya. This will include the usage of new words as well as the deployment of particular types of phrases. I will also foreground how new technologies are being used to communicate changing conditions in the Himalaya and what the mix of audio, video, and language produces. I am interested in exploring the kind of conceptual work that is done by these shifts in language and the means through which people interact. Finally, I demonstrate in this paper how a "foregrounding" of nonhuman agency – rivers that express rage through intense floods and mountains that are quite literally knitting as well as nonhuman animals that are behaving in unpredictable and crooked ways – shifts our very understanding and imagination of the climate crisis. This talk will make its argument for dismantling the unhelpful hierarchy of knowledge forms via thick description by foregrounding both nonhuman agency and the voices of inhabitants of the Himalaya who are lucidly and critically commenting on the climate crisis.

Speaker

Prof. Nayanika Mathur

Professor of Anthropology and South Asian Studies at the University of Oxford

ABOUT THE SPEAKER:

Nayanika Mathur is Professor of Anthropology and South Asian Studies at the University of Oxford. She is the author of *Paper Tigers: Law, Bureaucracy and the Developmental State in Himalayan India* (Cambridge University Press, 2019) and *Crossed Care: Diversity Incidents in the Anthropocene* (Chicago University Press, 2023). She is currently working on two research projects related to the contemporary Indian state as well as methodological challenges posed by the climate crisis.

21st March, 2024

12 Noon (IST)

D314 Shiv Nadar Ie

SHIV NADAR

SCHOOL OF ENGINEERING

Department of Civil Engineering

TALK ON

Unraveling the Complexity and Source-Dependent Behavior of Black and Brown Carbon



SPEAKER

Dr. Raghu BETHA

Department of Civil, Environmental, and Construction Engineering at Texas Tech University, USA



MODERATOR

Dr. Sallash BEHERA

Associate Professor
Department of Civil Engineering
Shiv Nadar University, Delhi NCR

DATE

Wednesday, 31st July 2024

TIME

12:00 PM – 1:00 PM

VENUE

B007, Shiv Nadar University

Empowering Young Minds for Sustainable Development



Agrobiodiversity Conservation and Climate Change:

A Brainstorming on Lessons from India and Mexico



Co-organized By

Revitalization of Rainfed Agriculture Network (RRA N), Shiv Nadar Institution of Eminence (SNIoE), Food and Agriculture Organization of the United Nations (FAO), Ashoka Trust for Research in Ecology and Environment (ATREE), and National Autonomous University of Mexico (UNAM).

Monday, 26 August 2024

9.30 AM - 5:30 PM (IST)

We the Peoples Hall, UN House, 55 Lodi Estate, New Delhi

Click on the [Registration Link](#) to register for this event

SHIV NADAR

SCHOOL OF ENGINEERING

Department of Civil Engineering

RESEARCH EXHIBITION

SUSTAINABLE INFRASTRUCTURE SYSTEMS

WATER, ENVIRONMENT & CLIMATE

URBAN NETWORK SYSTEMS

ABOUT THE EVENT

The Department of Civil Engineering is actively engaged in advanced research in the key areas of Sustainable Infrastructure Systems, Water, Environment & Climate, and Urban Network Systems. The department is excited to present the first edition of the Research exhibition, which will feature ongoing, state-of-the-art research. The Research Exhibition serves as a platform for our esteemed PhD scholars to present their ongoing research endeavours through engaging poster presentations.

EVENT SCHEDULE

Inaugural talk by Prof. M. Parida

10:30 - 11:30 AM

C-021

Poster presentations

11:30 AM - 04:00 PM

C & D atrium

Event Conclusion

04:00 - 4:30 PM

D-003

INAUGURAL TALK



PROF. M. PARIDA

Director, CSIR - Central Road Research Institute (CSIR-CRRI), New Delhi

Empowering Young Minds for Sustainable Development



Centre of Excellence for Himalayan Studies & Karakoram Collectives

CONSERVATION OF MATERIAL AND ECOLOGICAL HERITAGE IN THE TRANS HIMALAYAS

14 March 2024

D-330, Shiv Nadar IoE, Delhi NCR

Time	Event
10:30-10:35 AM	Welcome Remarks: Prof. Rajat Kathuria, Dean, School of Humanities and Social Sciences, Shiv Nadar IoE
10:35-10:40 AM	Introductory Remarks: Mr. Abheer Gupta, Director, Achi Association India, Leh
Session 1 - People, Practices and Nature	
Moderator's Remarks 10:40-10:45 AM	Mr. Fida Hussain, PhD Scholar, Centre for Inner Asian Studies, School of International Studies, Jawaharlal Nehru University, New Delhi
Panelist-1 10:45-11:05 AM	Dr. Dorje Dewa, Assistant Professor, Cluster Innovation Center, University of Delhi, New Delhi Topic: Ecological Impact assessment of tourism activities in Ladakh
Panelist-2 11:05-11:20 AM	Ms. Padma Ladon, PhD Scholar, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi Topic: Agropastoralism in the Mountains: Practices and Challenges in Ladakh's Trans-Himalayan Region
Panelist-3 11:20-11:40 AM	Ms. Adina Ara, PhD Scholar, Centre for Economic Studies and Planning, Jawaharlal Nehru University, New Delhi Topic: Impact of Higher Degree of Market Integration on Economic Security and Social Capital: Empirical Evidence from Pastoral Nomadic Community of Chongthang, Ladakh
Discussion's Remarks 11:40-11:50 AM	Dr. Sabari Bhattacharya, Fellow, Rishi Nilakshi Philanthropies - Centre for Environment and Development, Ashoka Trust for Research in Ecology and the Environment, Bengaluru
11:50AM-12:30 PM	Q & A
Session 2 - Ideas, impacts, and Challenges	
Moderator's Remarks 02:40-02:45 PM	Mr. Delden Namgyal, PhD Scholar, Centre for Inner Asian Studies, School of International Studies, Jawaharlal Nehru University, New Delhi
Panelist-1 02:45-03:05 PM	Dr. Fayaz Ahmad, Assistant Professor, Department of Higher Education, Jammu and Kashmir Topic: Spirituality, Gender, Environmental ethics in a Himalayan Valley: Studying aspects of life through Robin Sikila of Kashmir
Panelist-2 03:05-03:25 PM	Dr. Tashi Lundup, Assistant Professor, Department of Sociology, Eliezer Jordan Memorial College, Leh, Ladakh Topic: Tourism and Socio-Cultural Discourse in Ladakh
Panelist-3 03:25-03:45 PM	Dr. Noor Jahan, Founder and Art conservator, Shergil, Ladakh Topic: An overview of the conservation of mural painting and other artefacts in Ladakh
Panelist-4 03:45-04:05 PM	Dr. Rigzin Chodon, Independent Research Consultants, Founder, Vige Publications, Leh Topic: Illustration of 20th Century nature and wildlife from Keylong and Ladakh
Discussion's Remarks 04:05-04:15 PM	Dr. Anita Sharma, Assistant Professor, Department of Sociology, School of Humanities and Social Sciences, Shiv Nadar IoE
04:15-04:55 PM	Q & A
Session 3 (Roundup): Convergence of Policy Research and Conservation Action	
05:15- 06:00 PM	Chair: Prof. Rajeswari S. Raha, Professor, Department of International Relations and Governance Studies, School of Humanities and Social Sciences, Shiv Nadar IoE Panelists: 1) Mr. Musaffar Hussain, Assistant Professor, Department of Political Science, Maulana Abul Kalam Azad National Urdu University, Hyderabad 2) Mr. Abheer Gupta, Director, Achi Association India, Leh 3) Dr. Kulbhushansingh Sarayawanshi, Scientist, Nature Conservation Foundation, Bengaluru 4) Prof. Siddiqi Wahid, Distinguished Fellow, Centre of Excellence for Himalayan Studies, School of Humanities and Social Sciences, Shiv Nadar IoE
06:00-06:10 PM	Closing Remarks: Dr. Jabin T. Jacob Director, Centre of Excellence for Himalayan Studies, School of Humanities and Social Sciences, Shiv Nadar IoE

Department of Civil Engineering

EXPERT GUEST LECTURE

Geopolymers - Industrial byproduct based Eco-friendly Low Carbon Footprint Binders as alternate to Portland Cements and Petroleum based Organic resins

DATE 07-March-2024 (Thursday)

TIME 12 PM - 1 PM (IST)

VENUE D217, Shiv Nadar IoE

SPEAKER



Dr. N. P. Rajamane
Fellow of ISAE, Fulbright-Nehru Scholar (2023-2024)
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UNIVERSITY OPERATIONS

At Shiv Nadar University, we have taken multiple initiatives following a structured sustainability framework with specific targets and timelines, advancing several sustainable development goals.

Green Building Design and Operations

All buildings on campus comply with the National Building Code, certified by the Indian Green Building Council (IGBC) or Leadership in Energy and Environmental Design (LEED).

- Several buildings are LEED Gold certified and incorporate green building principles such as natural lighting, efficient insulation, sustainable materials, and low-flow plumbing fixtures, thus making them water and energy-efficient.
- Besides achieving EHS certification, the university has a policy that promotes environmentally friendly and low-emission practices in water, energy, waste, habitat protection, etc. We have also been awarded ISO 14001:2015 and ISO 45001:2018 accreditation without any non-conformance or observation.

Renewable Energy on Campus

We have undertaken an initiative to transition to clean energy sources on campus.

- A 1.6 MW solar power plant installed and

commissioned on campus covers as much as 26 percent of the campus's needs. The goal is to go to 30 percent and beyond.



Renewable Energy Generation
- 270 % rise between 2019-20 and 2023-24

Enhance Energy Efficiency

As a part of our Energy Consumption Analysis and Conservation Plan, we review our energy use continually to identify opportunities for improvement. To document the energy consumption of each building, electricity meters are installed in every building, and a complete analysis of energy consumption is reported every month in the "Energy Performance Index Report." This helps to check waste continuously.

Many energy-efficient appliances have been incorporated, such as:

- **Energy Optimization Monitors** in our LEED and IGBC- Gold certified building with integrated sensors, IoT devices, and automation systems for optimized energy use and reduced overall environmental impact
- **Effective electric vehicle infrastructure** on campus to transition 50% of the car fleet to electric vehicles, increase mobility on campus, and reduce carbon footprint and dependency on fossil fuels.
- **Modular sewage treatment plant technology is installed on campus** and has a capacity of 734 KLD. The STP currently treats 550 KLD of water from the entire campus, including campus housing.
- **Monitoring platforms** installed to track energy usage, waste generation, water consumption, and other sustainability metrics to enable informed decisions for continuous improvement
- **1.6 MW solar panels** installed on campus across academic and residential blocks to transition from complete captive power and generate clean, sustainable energy on campus
- **Energy-saving policy embraced**, replacing 11 KV grid power with a 33 KV grid power supply and removing the need to run standby power through diesel generators.



Green House Gas Emissions:
13.94% reduction between
2023-24 and 2022-23

Alternative Mode of transport to achieve sustainable transportation

Shiv Nadar University is a residential campus for all students and many faculty and staff members. For those who stay outside the campus, a well-planned transport system is in place, and employees are encouraged to be sensitive to their use and optimize their air and road travel. For weekly needs, planned shuttles are provided. To transition to clean power and reduce dependence on fossil fuels, we plan to transition 50% of the car fleet to electric vehicles. The university currently has 60% CNG, 30% petrol, and 10% diesel cars. The plan is that any new inventory added to this would be an electric vehicle.

On campus, we use sustainable transportation options such as walking, biking, carpooling, and public transit. We have a fleet of E-buses and Golf carts with over 150 seating capacity. This, in turn, has helped increase mobility on a large campus like ours and is also a step towards reducing the carbon footprint and dependency on fossil fuels.

Geo-tagging of the Campus's rich plant life is in progress.

In a drive to geo-tag trees on campus, we have carried out an inventory of and affixed QR codes on 13500 trees with 44 individual species present within the boundary of Shiv Nadar University using the census method. More than 20 primary and secondary attributes have been recorded for each of these trees, including Latitude and Longitude, Local Name, Girth, Height, Condition, and Canopy Diameter, to name a few. The trees have been assigned a specific QR code, which, when scanned, gives detailed information about the tree.

The university has beautifully landscaped gardens, tree avenues, and sprawling grassy areas developed and planned by a horticulturist, thus increasing the tree cover and overall greenery on campus.

With a green cover of 35.5 hectares, we have created a sequestration potential of 5412.8 MTCO₂e. Please highlight this.

To date, we have the following ground cover:

S.NO	PARTICULARS	TOTAL QUANTITY
1	Trees/Palms	18,117
2	Shrubs	1,70,127
3	Ground Covers	3,03,624
4	Grass	3,44,123 sqm.

Reduce waste and Recycle

We have implemented comprehensive waste reduction and recycling programs to encourage a culture of rethinking consumption patterns on campus. The following are some examples,

- The university has a comprehensive and documented food waste tracking system to measure and monitor food waste at each level, i.e., production, handling, storage, processing, and distribution. Taking efficient measures and maintaining a daily food waste log, we reported a considerable decrease in food waste per person in 2024. This also gives the dining hall vendors a minimum guarantee to keep a check on production, and food waste is used for composting on campus.
- The campus has a restrictive use of plastic. This behaviour is encouraged on campus through communiques and posters for responsible consumption and conservation. Since 2019, plastic waste has been monitored, tracked, and disposed of through green disposal methods. To date, we have achieved a 47% decrease in plastic waste disposal. Wastepaper collection and disposal happen through government-certified recyclers, which provide recycled paper, paper, and other stationery. Besides, using recycling bins across campus, composting organic waste, and reducing single-use plastics. We have special contracts and systems for safely disposing of hazardous and medical waste.
- Free Store is a student-led initiative on campus to promote recycling. The university community has enthusiastically responded to converting pre-loved clothes into re-loved garments for someone else.

Educate, Engage, and Encourage

- We have set the culture of holding a sustainable University Convocation, which includes a full spectrum of associated digital experiences, significantly reducing the volume of printed convocation materials.

- The university has its own independent program towards energy conservation, renewable energy, and efficiency through reduced consumption in Scope 1, 2, and 3. Besides, we are also developing a road map towards expediting steps to achieve net-zero and become a smart campus in every sense.
- We offer a year-long series of short programs and masterclasses for school students.

Community Initiative - Dadri Development Project

Shiv Nadar University is located in a region called Dadri in Uttar Pradesh. Dadri is a rapidly urbanizing rural region with high socio-economic inequality and low SDG outcomes. The university is deeply committed to generating a positive impact on the area and, accordingly, has assumed a central role in the Dadri Development Project, a transformative initiative convened by the Shiv Nadar Foundation

(SNF), a non-governmental organization. The project aims to create a “model sustainable rural community around Shiv Nadar University.” This commitment is shared by the university leadership, staff, and students and is instilled in the core of the university’s academic mission.

The projects include well-considered, need-based interventions with multi-stakeholder engagement, implemented in phases, supported by thorough evidence, and subjected to rigorous monitoring and evaluation. These projects focus on education, health care, skill development for employability, social safety, nature conservation, agriculture, and imparting knowledge on effective use of resources in our daily life.

PARTNERSHIPS

Partnership with Industry

Dr. Sanjeev Yadav, Associate Professor, Department of Chemical Engineering, and his research group work with Varhad Capitals Pvt Ltd, a Nagpur-based industry. The industry is supporting work on biomass conversion into bioenergy and has signed a Memorandum of Understanding for three years. Varhad is leading the initiatives in carbon dioxide removal (CDR) and soil enhancement. They cultivated a vast network of farmers through 165 farmer cooperatives in India. Using carbon-rich materials like cotton and pigeon pea stalks, they achieved a Carbon Dioxide Removal rate of 2.4 tons of CO₂ per ton of biochar.



Dr. Yadav and his research group have also designed a portable pyrolyzer capable of using various kinds of waste biomass, especially agri-residues, to produce biochar. This has already yielded large biochar production across many states with the help of the industry partner. Biochar production is a sustainable and environmentally responsible process that manages agricultural waste efficiently.

Industry-Academia partnership to drive sustainable technological advancements

Shiv Nadar University, in partnership with Bharat Petroleum's Corporate Research & Development Centre (CRDC), is a significant stride towards advancing sustainable chemical processing technologies. By focusing on process intensification for highly exothermic reactions, the project aims to develop novel reactor designs that enhance energy efficiency and reduce waste. This initiative aligns with several critical sustainable development goals, including Goal 9: Industry, Innovation, and Infrastructure, by fostering sustainable industrial innovation and infrastructure development through advanced reactor designs. Goal 12: Responsible Consumption and Production – By emphasizing efficient heat management and reducing the environmental impact of chemical processes. Goal 13: Climate Action - By enhancing energy efficiency and minimizing waste, our collaboration contributes to efforts to mitigate climate change impacts.

This partnership exemplifies how industry-academia collaborations can drive sustainable technological advancements, aligning with India's commitment to the United Nations Sustainable Development

Goals (SDGs). This partnership project is going to have a positive impact on industry standards and environmental sustainability.

Solvated Ionic Liquid-based sacrificial SulfonAmide assisted Na-ion Capacitor (SILSACap)

Dr. Binson Babu, Assistant Professor, Department of Physics, has received a grant from the Science and Engineering Research Board (SRG). This grant of INR 28,03,785.00 supports the project SILSACap for two years.

The "SILSACap" project aims to develop a safe, high-power, and energy Sodium ion Capacitor (NIC) with a target of cycling stability of > 15,000 cycles with > 90% capacity retention at the practical level through a holistic approach with systematic innovations of the electrode, electrolytes, and evaluation of the storage interfaces.

The successful development of the 'SILSACap' concept will contribute to the advancement of sustainable high-power/energy Na-storage devices, which is an essential requirement of the future post-lithium era. Its accomplishment will likely have a major impact on fundamental sciences in general and strengthen interdisciplinary research activities. Moreover, the success of the project has an economic and technological impact by creating novel storage products, services, and business processes. It has also had a social impact by contributing long-term to India's decarbonization policy (e.g., COP27 climate summit) and aligning with the Sustainable Development Goals (SDGs).



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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.**

SHIV NADAR

INSTITUTION OF EMINENCE DEEMED TO BE
UNIVERSITY
DELHI NCR

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