

# FUTURE EARTH SOUTH ASIA WEBINAR SERIES - I

futurearth

SOUTH ASIA REGIONAL OFFICE



## BEST PRACTICES: DELIBERATING ON A WAY FORWARD WEBINAR

March 2021



DATES

March 11th

March 12th

TIME

10:00 - 13:45 IST

09:00 - 13:30 IST

### 4 KEYNOTE TALKS

Steering Communities Towards Sustainability:  
Lessons from Long-term Practitioners

### 3 TALKS

Sustainable Agro-Ecology in the Indian Himayalan  
Region (IHR)

### 3 TALKS

The Air We Breathe; The Water We Drink: Health  
Risks from Pollution

### 3 TALKS

Turning Challenges into Opportunities: Working  
the Water-Energy-Food Nexus

### 9 PANELISTS

Bridging the Gaps between Science, Policy and  
Practice

Organized by: Future Earth (FE) South Asia, Divecha Centre for Climate Change (DCCC),  
Indian Institute of Science (IISc), Bangalore & FE National Committee-India

YEAR: 2021

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Future Earth National Committee-India

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4 Keynote Talks - Steering Communities Towards Sustainability: Lessons from Practitioners  
9 Panelists - Bridging the Gaps between Science, Policy and Practice  
3 Talks - Sustainable Agro-Ecology in the Indian Himalayan Region (IHR)  
3 Talks - The Air We Breathe; The Water We Drink: Health Risks from Pollution  
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# BACKGROUND

## A. BACKGROUND OF FUTURE EARTH (FE)

[Future Earth](#) was announced in June 2012 at the UN Conference on Sustainable Development (Rio+20) and became fully operational at the end of 2015. Future Earth began life as a new paradigm emerged in international politics, with the launch of the [Sustainable Development Goals](#) and the [Paris Agreement](#) on climate change, throughout which Future Earth played a significant role at the interface between science and international policy. Now, Future Earth coordinates and catalyses the world-class research necessary to support the transition to sustainability, with a mission to “build and connect global knowledge to intensify the impact of research and find new ways to accelerate sustainable development”.

Future Earth harnesses the experience and reach of thousands of scientists and innovators from across the globe. This global community is spread over a series of networks and governing and advisory bodies. The [structure of Future Earth](#) includes: Governing Council, Secretariat, Advisory Committee and Interdisciplinary and Intercontinental Teamwork Across the Globe.

## A I. OUR STRATEGY

Future Earth develops the knowledge and tools that government, communities, and companies need to meet the United Nations’ 17 Sustainable Development Goals. By understanding connections among environmental, social and economic systems, Future Earth works to facilitate research and innovation, build and mobilize [networks](#) by linking policy, business and civil leaders with researchers to address themes like health, urbanization, natural assets and more.

## A II. THE FUTURE EARTH SOUTH ASIA REGIONAL OFFICE

The day-to-day operations of Future Earth are carried out by the Secretariat, which is based in five Global Hubs and in four Regional Centers and Offices. The Global Hubs are located in Canada (Montreal), France (Paris), Japan (Tokyo), Sweden (Stockholm) and the USA (Boulder and Fort Collins, Colorado, and Fairfax, Virginia). The Regional Centers and Offices are located in Africa (South Africa), Asia (Japan), the Middle East and North Africa (Cyprus), and South Asia (India).

The Regional Office for South Asia was set up on 9 July 2016 and is hosted by the [Divecha Centre for Climate Change](#), Indian Institute of Science, Bangalore, India. The [Regional Office for Future Earth South Asia](#) has a domain that spans the region of SAARC and the two Indian Ocean Island Countries of Mauritius and Maldives. The Regional Office consults with the Governing Council of Future Earth South Asia, which comprises 18 representatives from six countries. The mandate of this office is to integrate the available information and develop strategic knowledge and region-specific strategies to tackle the consequences of climate change. The Office also strives to voice the concerns of South Asia and ensure that regional priorities are made part of the strategic development of Future Earth activities.

The Regional Office is currently developing a Five-year Knowledge to Action Program (2020-2025) to address issues related to Food Insecurity, Water Insecurity and Air Pollution in South Asia. The program will also include a Health Sensitization initiative.

### A III. FUTURE EARTH NATIONAL COMMITTEES AND WORKING GROUPS IN SOUTH ASIA

The FE South Asia office liaisons, coordinates and guides the programs and work of the Future Earth Community in South Asia. Various Future Earth Working Groups and [National Committees](#) exist globally and new ones are emerging. National Committees are self-organized and autonomous entity led by innovative leaders. While various Working groups and National Committees are being formed in South Asia, in India, the FE National Committee has been set up since 2016. The National Committee in India is hosted by the Indian National Science Academy (INSA) and INSA has recently appointed new members for the year 2020-2025. The chair of the NC is Dr M. N. Rajeevan, Secretary, Ministry of Earth Sciences. The Committee currently comprises of members working on various aspects related to sustainability and climate change. [The National Committee-India](#) is meeting during this event to develop a two-year national program corresponding with the themes of the South Asia Regional Program.

### B. WEBINAR GOALS

The Webinar and the Program at Future Earth intends to focus on bringing science and knowledge, policy and practice closer together, with an emphasis on the water-energy-food nexus, associated public health risks, and science communication.

The main objectives of the Webinar are:

1. To Introduce and Invite Stakeholders to the Future Earth Community
2. To Announce a Grant to Help Small-Scale Sustainability Programs in south Asia scale up.
3. To Partner, Engage and gain Insights from Speakers, Invited guests, Participants and Stakeholders

### B I. RATIONALE AND LEARNING OBJECTIVES: EVENT HIGHLIGHTS (MARCH 11-12, 2021)

**Lessons from Best Practices in South Asia:** A key focus of the upcoming webinar is deliberations from practitioners and invited speakers. The insights that they have gained from their experiences will help refine the programs at Future Earth that we are currently developing. We believe that there are many such best practices in India and South Asia that need to be publicized and scaled up.

**Day 1: March 11. 10:00 to 13:45 IST:** Panel Discussion: Science-Society-Policy Gaps – Towards a Pragmatic Solution- The first day event is a panel discussion on Program Implementation Gaps, vis-à-vis with science/knowledge-policy-practice, and a way forward to narrow these gaps.

**Day 2: March 12. 09:00 to 13:30 IST:** Thematic Session: Food Security, Water-Energy-Food Nexus and Health Risks from pollution. The second day event will include sessions on Sustainable agro-ecology in the Indian Himalayan Region (IHR), the water-energy-food nexus, and associated public health risks. The discussions of these sessions will also revolve around science/knowledge-policy-practice gaps as impediments to on-ground solutions.

**Day 2 (post-webinar event): March 12. 15:00 to 17:30 IST:** Future Earth National Committee Workshop (members only). After the Webinar, a workshop for the Future Earth National Committee -India will take place, during which NC members will convene to discuss the Program Development Process where a two-year FE National program would be planned and initiated under their leadership.

## **B II. ENGAGEMENT WITH SPEAKERS AND STAKEHOLDERS IN THE DESIGN AND IMPLEMENTATION OF THE PILOT PROGRAMS IN SOUTH ASIA**

One of the programs at FE South Asia is a Community driven Program that will be developed through transdisciplinary learnings from practitioners, scientists, self-help groups, politicians and nongovernmental and government organisations. Inputs from all the speakers and panellists from the online webinar will go into defining the framework for this program. The stakeholders and webinar speakers will be invited to be part of the pilot program and play a crucial part in steering the course of their future expansion. [Pilot Program details- see next]

## **B III. GRANT PROGRAM ANNOUNCEMENT TO SUPPORT COMMUNITY (ANNOUNCING SOON):**

Future Earth South Asia will be launching a grant program to help community-driven pilot programs on sustainability to scale up. We aim to achieve a knowledge-to-action change at the ground level that would benefit the environment, society and economy. This grant will be an opportunity for Future Earth and the Community to get involved in on-ground projects. The selected programs will benefit from the collective know-how of Future Earth's members, partners and the Community. The selected programs will also benefit as Future Earth South Asia will employ a scientific team [the team would include: researchers, field assistants and technicians] and other personnel (scientific equipments)] for the selected programs, and they would work side by side with the Community/Lead applicant of the program. This will give the programs an opportunity to expand.

Proposals will be invited from individuals, NGOs, local communities and self-help groups working to tackle issues related to Food insecurity, Water insecurity, Health Risks associated with Air and Water pollution. Proposals from credit deficient areas in South Asia will be given priority.



## WEBINAR AGENDA

MARCH 11, 10:00 – 13:45

MARCH 12, 09:30 – 13:30

### BEST PRACTISES: DELIBERATING ON A WAY FORWARD

*Organized by: Future Earth (FE) South Asia, Divecha Centre for Climate Change (DCCC), Indian Institute of Science (IISc), Bangalore & FE National Committee-India*

Date (2021)	Time (IST)	Agenda
<b>DAY 1: Thursday, 11 March.</b>		
11 March	10:00 – 10:30	Inaugural (30 minutes)
11 March	10:30 – 11:00	2 Keynote Talks : Steering Communities Towards Sustainability: Lessons from Long-term Practitioners (30 minutes)
11 March	11:00 – 13:45	Session I: Panel Discussion Bridging the Gaps between Science, Policy and Practice (2 hours, 30 minutes)
<b>DAY 2: Friday, 12 March.</b>		
12 March	09:00 – 09:30	Welcome and Briefing (30 minutes)
12 March	09:30 – 10:00	2 Keynote Talks : Steering Communities Towards Sustainability: Lessons from Long-term Practitioners (30 minutes)
12 March	10:00 – 11:00	Session II: Sustainable Agro-Ecology in the Indian Himalayan Region (IHR): Experiences, Challenges and Solutions (1 hour)
12 March	11:10 – 12:10	Session III: The Air We Breathe; The Water We Drink: Health Risks from Pollution (1 hour)
12 March	12:10 – 13:10	Session IV: Turning Challenges into Opportunities: Working the Water-Energy-Food Nexus (1 hour)
12 March	13:10 – 13:30	Closing Remarks (20 minutes)
12 March	15:00 – 17:30	In-house Meeting: Workshop on Program Development for FE National Committee (NC)-India (2 hours, 30 minutes)

# DETAILED AGENDA

MARCH 11, 2021

[TIME: 10:00 TO 13:45 - INDIA STANDARD TIME]

## DAY 1: Thursday, 11 March.

### Log in and Check

09:30 – 10:00 Log into the Waiting Room (Online Meeting Link, sending soon)  
Ms. Anupama Nair, Program Coordinator, Future Earth South Asia  
(Co-host)

Host and Event Moderator, Smriti Basnett, Co-Director, Future Earth South Asia,  
Divecha Centre for Climate Change, IISc

### Inaugural Session [10:00 to 10:30]

10:00 – 10:05 Welcome by Prof. S. K. Satheesh, Director - Future Earth South Asia  
and Chair - Divecha Centre for Climate Change, IISc

10:05 – 10:10 Introduction of Future Earth by Dr Josh Tewksbury,  
Executive Director, Future Earth

10:10 – 10:15 Activities and Webinar Objectives by Dr. Smriti Basnett,  
Co-Director Future Earth South Asia

10:15 – 10:20 Address and Introductory Remarks by Dr. M. N. Rajeevan, Chair,  
National Committee, Future Earth India, and Secretary, Ministry of  
Earth Sciences, Government of India

10:20 – 10:30 Address by Chief Guest, Dr. K. VijayRaghavan,  
Principal Scientific Adviser to the Government of India

### Keynote Talks- [10:30 – 11:00]

#### Steering Communities Towards Sustainability: Lessons from Long-term Practitioner

10:30 – 10:45 Promise of Commons - Reflections on work of Foundation for  
Ecological Security (FES) on village commons and path ahead by  
Jagdeesh Rao Puppala, Anchor and Curator, FES.

10:45 – 11:00 Integrated Springshed Development and Bio-Diversity Conservation -  
Experience sharing on the success of ecology work of EB-Project  
Nature at Soi Village, Arunachal Pradesh by Egam Basar, Founder,  
EB-Project Nature



## Session I: Panel Discussion [11:00 – 13:45]

### Bridging the Gaps between Science, Policy and Practice – A Pragmatic Way Forward

**Session Moderator:** Dr. Sandeep Tambe, Professor, Indian Institute of Forest Management, Member-IFS.

11:00 – 11:10 Introduction of Session Structure and Speakers, Smriti Basnett

Panelists (9)

#### A. Science/Practice Group (4)

1. Dr. Harini Nagendra, Professor, Azim Premji University
2. Prof. J Srinivasan, Distinguished Scientist and Former Chair, Divecha Centre for Climate Change, IISc
3. Dr. Arabinda Mitra, Scientific Secretary, Office of Principal Scientific Advisor, Government of India
4. Dr. Himanshu Kulkarni, Director, Advanced Centre for Water Resources Development and Management (ACWADAM)

#### B. Policy/Practice Group (4)

1. Mr. B. M. S. Rathore, Chief Policy Advisor, International Centre for Integrated Mountain Development (ICIMOD)
2. Ms. Kanupriya Harish, Executive Director, Jal Bhagirathi Foundation
3. Ms. Ulka Kelkar, Director, Climate Program, World Resources Institute (WRI) – India
4. Mr. P. D. Rai, President, Integrated Mountain Initiative (IMI)

#### C. The View from the Fence

1. Mr. Pallava Bagla, Science Journalist

- 11:10 – 11:15 Context Setting and Panel Discussion led by Moderator, Dr Sandeep Tambe
- 11:15 – 13:00 Panelist answers 3 Questions (3 minutes each per question) [1 hour, 15 mins]
- 12:55 – 13:10 Counterpoint Discussion between Panelists (15 mins)
- 13:10 – 13:40 Fifteen Questions from the audience directed to the Panelist by the Moderator (30 minutes).
- 13:40 – 13:45 Closing Remarks by Dr Sandeep Tambe

#### Announcements

**Next Session – March 12, 9:00 – 13:30.** Session on Food Security, Health associated with Air and Water pollution and W-E-F Nexus (**Connecting Science-Practice-Policy**)





# DETAILED AGENDA

MARCH 12, 2021

[TIME: 09:00 TO 13:30 - INDIA STANDARD TIME]

## DAY 2: Friday, 12 March.

### Log in and Check Time [9:00 – 9:30]

08:45 – 09:00 Log into the Waiting Room (Online Meeting Link, sending soon)  
Ms. Anupama Nair, Program Coordinator, Future Earth South Asia  
(Co-host)

Host and Event Moderator, Dr. Smriti Basnett, Co-Director, Future Earth South Asia, DCCC, IISc

### Welcome and Briefing [9:00 – 9:30]

09:00 – 09:10 Introduction and Session Briefing, Smriti Basnett, Co-Director,  
FE South Asia, DCCC, IISc

09:10 – 09:20 Recap of Day 1, Ms. Anupama Nair, Future Earth South Asia

09:20 – 09:25 Welcome by Prof. S. K. Satheesh, Director - Future Earth South Asia  
and Chair - Divecha Centre for Climate Change, IISc

09:25 – 09:30 Welcome by Dr. M. N. Rajeevan, Chair, National Committee, Future  
Earth India, and Secretary, Ministry of Earth Sciences,  
Government of India

### Keynote Talks- [09:30 – 11:00]

#### Steering Communities Towards Sustainability: Lessons from Long-term Practitioners

09:30 – 09:45 Success story and journey of Jalbhagirathi Foundation, Rajasthan  
by Ms. Kanupriya  
Harish, Executive Director

09:45 – 10:00 Journey of Zero Waste Himalaya by Ms. Priyadarshinee Shrestha,  
Team Leader, WWFIndia Khangchendzonga Landscape



## **Session II: Sustainable Agro-Ecology in the Indian Himalayan Region (IHR): Experiences, Challenges and Solutions [10:00 - 11:00]**

Moderator: Roshan Rai, Development Practitioner, Darjeeling Ladenla Road Perna (DLR Perna)

- 10:00 – 10:10 Food Security in IHR and Organic Farming - Experiences and Challenges by Binita Shah, Founder, SUPA Agricultural Research Group (SARG), Uttarakhand.
- 10:10 – 10:20 The Chizami Journey - Strengthening the practice of ecological farming and sustainable livelihoods in IHR by Seno Tshah, Farmer, Teacher and Community Development Worker.
- 10:20 – 10:35 Traditional Upland Farming Connecting Science-Practice-Food Policies - by Amba Jamir, Environmental lawyer, Development Communicator and Consultant.
- 10:35 – 11:00 Discussion led by Moderator (Challenges and Solutions in bridging Science, Practice and Policy)  
Questions from the audience

## **Session III: The Air We Breathe; The Water We Drink: Health Risks from Pollution [11:00 -12:10]**

Moderator: Dr. Sunderrajan Krishnan, Executive Director, India Natural Resource Economics and Management (INREM) Foundation

- 11:00 – 11:20 Health Risks associated with Air Pollution - Dr. H. Paramesh, Visiting Professor, DivechaCentre for Climate Change, IISc
- 11:20 – 11:40 Arsenic, Health Impacts and Cancer - Prof. Ashok Ghosh, Professor and Head of Department (Research), Mahavir Cancer Sansthan and Research Centre
- 11:40 – 12:00 Fluoride, Nutrition and Health - Dr. Tapas Chakma, Head, Division of Non-Communicable Diseases ICMR-National Institute of Research in Tribal Health, Madhya Pradesh
- 12:00 – 12:10 Discussion led by Moderator (Connecting Science, Practice and Health Policies)  
Questions from the audience



#### **Session IV: Turning Challenges into Opportunities: Working the Water-Energy-Food Nexus [12:10 – 13:10]**

Moderator: Dr. Aditi Mukherji, Principal Researcher, International Water Management Institute

- 12:10 – 12:20 Food Crisis – Dr Purnima Menon, Senior Research Fellow, International Food Policy Research Institute (IFPRI), New Delhi.
- 12:20 – 12:30 Water Crisis – Dr. Veena Srinivasan, Senior Fellow and Director – Centre for Social and Environmental Innovation, Ashoka Trust for Research in Ecology and the Environment (ATREE), Bengaluru
- 12:30 – 12:40 Energy Crisis – Ms. Ulka Kelkar, Director – Climate Program, World Resources Institute India
- 12:40 – 13:10 Discussion led by Moderator (Connecting Science, Practice, W-E-F Policies) Questions from the audience

#### **Closing Remarks [13:10 – 13:30]**

- 13:10 – 13:30 Concluding Remarks by Dr. M. N. Rajeevan, Chair, National Committee, Future Earth India, and Secretary, Ministry of Earth Sciences, Government of India
- 13:20 – 13:30 Concluding Remarks by Prof. S. K. Satheesh, Director - Future Earth South Asia and Chair - Divecha Centre for Climate Change, IISc
- 13:30 Closing and Announcements by Dr Smriti Basnett, Co-Director, FE South Asia, DCCC, IISc

***Next Meeting: 15:00, 12 March: Workshop for FE National Committee-India***



**IN-HOUSE MEETING:  
FUTURE EARTH NATIONAL COMMITTEE-INDIA  
MARCH 12 2021  
[TIME: 15:00 - 17:30 - INDIA STANDARD TIME]**

**Workshop on Program Development for FE National Committee (NC)-India**

**Session Chair: Dr. M. N. Rajeevan, Chair, FE NC-India, Secretary, Ministry of Earth Sciences, Government of India**

- |               |   |
|---------------|---|
| 15:00 – 15:10 | Overview of National Committee Structures in Asia, FE South Asia Office |
| 15:10 – 15:20 | Program Strategy, Timeline and Operation Mechanism, Chair               |
| 15:20 – 16:30 | Question led Discussion by Members (5 minutes each x 3 Questions)       |
| 16:30 – 17:15 | Group Discussion and Remarks from NC Members                            |
| 17:15 – 17:30 | Plan of Action and Closing Remarks by Chairs                            |



# WEBINAR THEMES AND CONCEPT

## I. Inaugural Session

March 11, 10:00 - 10:30 IST

The Inaugural session includes messages from the Chairs and Directors of Future Earth, followed by a keynote address by Dr K ViyayaRaghavan, Principal Scientific Advisor to the government of India. The Future Earth South Asia Regional Office is currently developing a Five-year Knowledge to Action Program (2020-2025) to address issues related to Food Insecurity, Water Insecurity, Air Pollution and Associated Health Risks from Pollution, in South Asia. This Webinar is designed to address few of the themes. Corresponding with the South Asia Regional Program is a Sustainability Program for Future Earth in India, which is currently being developed by the newly formed National Committee of Future Earth-India. We hope to engage with all speakers and participants throughout the webinar and the program, leading up to its final outcomes in 2025 and beyond.

## II. 4 Keynote Talks: Steering Communities Towards Sustainability: Lessons from Long-term Practitioners

March 11, 10:30 - 11:00 IST  
March 12, 09:30 - 10:30 IST

Our keynote speakers are community leaders and award-winning practitioners with multiple years of experience working on environmental concerns in various parts of the country. They will talk about the challenges they face and how they generate effective community-level changes towards sustainability.

Tune in to learn from their lessons on working for commons, biodiversity, water and waste management, and the insights they have gained over time.

## III. 9 Panelist on Bridging the Gaps between Science, Policy and Practice - A Pragmatic Way Forward

March 11, 11:00 - 13:45 IST

**Setting the context:** Developing economies are confronted by serious environmental problems related to water, air, land, and biodiversity that may be worsening due to climate change. These problems threaten to undermine future growth, food security, and political stability. Decision making in the sustainability domain is complex, as it invariably involves tradeoffs between the economic, social, and environmental dimensions and uncertainties. Hence, solving such problems requires deeper engagements among academicians, policy makers and practitioners. Provisioning a sustainable future for its 1.4 billion citizens while preserving its biological and cultural heritage is the sustainability and environmental policy challenge India faces.

**The disconnect of science:** One of the biggest hurdles in responding to this sustainability challenge is the disconnect between scientists, policy makers and practitioners. Operating at the science, policy, practice interface (SPPI) is often contentious. Policy makers and practitioners seldom demand scientific inputs for decision making, scientists largely focus on disciplinary studies pursuing their research interests, with stakeholders rarely venturing out of their worlds. The common perception is that scientists and policy makers in India live in two parallel worlds which is surprising, as they are both trying to address the same sustainability challenges. In today's panel discussion we delve deeper into these issues to explore opportunities for policy makers, academicians and practitioners to collaborate and engage and explore possibilities of intersection of their separate worlds.

Join our panelists-experts in science, practice and policy as they discuss current limitations of the science-practice-policy interface, and how these gaps can be reduced to facilitate the transition to sustainability.

#### **IV. 3 Talks: Sustainable Agro-Ecology in the Indian Himalayan Region(IHR): Experiences, Challenges and Solutions**

**March 12, 10:00 - 11:00 IST**

Food Security is a complex issue wherein many perspectives, opinions and philosophies intersect. While agricultural Science has not focussed on the Indian Himalayan Region and finds it hard to address the region's complexity and diversity, multiple systems of knowledge have evolved within the region's communities, who are the true custodians of its diversity.

A variety of threats, viz. shifting precipitation patterns, increasing urbanisation, changing food cultures, groundwater depletion, fading springs and land-use changes are threatening water and food security in the Himalayas today. Adding to these challenges are gaps between scientific interventions, implementation and agricultural policies.

Join this session to hear about the speakers' insights on organic farming, traditional farming practices, sustainable livelihoods, the diversity of agro socio ecology across the IHR, and a need for better and suitable science interventions and policies.

#### **V. 3 Talks: The Air We Breathe; The Water We Drink: Health Risks associated with Air and Water Pollution**

**March 12, 11:10 - 12:10 IST**

Air and water pollution are serious environmental concerns that affect an increasingly large number of people throughout the world today. A large section of India's population are estimated to be at high risk of developing cancer and chronic illnesses, making it urgent to drastically reduce pollution levels.

This Thematic Session will include talks on COVID-19 and other health issues by Doctors of Medicine and researchers specialised in the field of public health, particularly air pollution, and arsenic and fluoride contamination of drinking water.

**VI: 3 Talks on Turning Challenges into Opportunities:  
Working the Water(W)-Energy(E)-Food(F) Nexus**

**March 12, 12:10 - 13:10 IST**

The demand for water, energy and food is on the rise all around the world, fuelled by rising population, and rapid urbanization. Conventional approaches to manage these essential resources prioritize one sector over the other, often neglecting crucial links between them. Recognizing the inextricability of the water-energy-food nexus can enable researchers, practitioners and policy-makers to think beyond sectors and ensure potable water, clean energy and food security for all.

Join this Thematic Session to learn more about the WEF nexus and how it can be used to improve water, energy and food security in India.



## PROFILES OF SPEAKERS

### INVITED GUESTS, FUTURE EARTH CHAIRS AND DIRECTORS



**K. VijayRaghavan**

PRINCIPAL SCIENTIFIC  
ADVISOR, GOVERNMENT OF  
INDIA



Dr K VijayRaghavan has a Bachelor of Technology graduate in Chemical Engineering from IIT Kanpur, and completed his doctoral work in 1983 in the field of Molecular Biology from the Tata Institute of Fundamental Research. He worked as a Research Fellow from 1984 to 1985 and then as a Senior Research Fellow from 1986 to 1988, at the California Institute of Technology. In 1988, he joined the Tata Institute of Fundamental Research as a Reader. He was instrumental in establishing the National Centre for Biological Sciences (NCBS) in Bengaluru in 1992, under the aegis of the Tata Institute of Fundamental Research (TIFR). He undertook in-depth research to understand the important principles and mechanisms that control the nervous system and muscles during development, and how these neuromuscular systems direct specific locomotory behaviours. He is the former Director of the National Centre for Biological Sciences, Bengaluru, where he is currently serving as Emeritus Professor. He served as Secretary, Department of Biotechnology (DBT), Government of India from January 2013 to January 2018.



**S. K. Satheesh**

DIRECTOR, FUTURE EARTH SOUTH ASIA  
REGIONAL OFFICE, AND CHAIR, DIVECHA  
CENTRE FOR CLIMATE CHANGE, INDIAN  
INSTITUTE OF SCIENCE



Prof S K Satheesh is an Indian meteorologist and a professor at the Centre for Atmospheric and Oceanic Sciences of the Indian Institute of Science (IISc). He holds the chair of the Divecha Centre for Climate Change, a centre undertaking research on climate variability, climate change and their impact on the environment. He is known for his studies on atmospheric aerosols and is an elected fellow of all the three major Indian science academies, i.e., Indian Academy of Sciences, Indian National Science Academy and the National Academy of Sciences, India, as well as The World Academy of Sciences.

The Council of Scientific and Industrial Research, the apex agency of the Government of India for scientific research, awarded him the Shanti Swarup Bhatnagar Prize for Science and Technology, one of the highest Indian science awards for his contributions to Earth, Atmosphere, Ocean and Planetary Sciences in 2009. He received the TWAS Prize of The World Academy of Sciences in 2011. In 2018, he received the Infosys Prize (in Physical Sciences category), one of the highest monetary awards in India that recognize excellence in science and research, for his work in the field of climate change.



In recent years, Prof Satheesh has conceived and led numerous field experiments in remote and hostile environments, in pursuit of the science of aerosols, employing research ships and aircrafts, besides a network of ground-based observatories. The campaigns in which Prof Satheesh was the Chief Mission Scientist remain benchmarks in scientific planning, meticulous execution, creative data analysis and interpretation. Currently, as the Director of Future Earth South Asia Regional office, Prof Satheesh is responsible for entwining his knowledge for action plans for sustainable development. In recognition of his outstanding research contributions in the field of Atmospheric Science and Technology the Ministry of Earth Sciences honoured him with the “National Award in the field of Atmospheric Science and Technology” for the year 2019.



### **M. N. Rajeevan**

CHAIR, FUTURE EARTH NATIONAL  
COMMITTEE INDIA, AND SECRETARY,  
MINISTRY OF EARTH SCIENCES,  
GOVERNMENT OF INDIA



Dr M Rajeevan is a Meteorologist who has held important positions at the Indian Institute of Tropical Meteorology-Pune, National Atmospheric Research Laboratory-Tirupati, Indian Meteorological Department-Pune, and Tata Institute of Fundamental Research-Mumbai, before his appointment as Secretary in the Ministry of Earth Sciences, Government of India, in 2015. He had served as a Scientist-G and Adviser to the Ministry before his current appointment. He has contributed significantly to the development of many application tools and prediction models for societal applications like long-range prediction models, gridded climate data sets and many other climate application products for regional climate services. He has also developed advanced statistical prediction models for operational long range forecasts of monsoon seasonal rainfall, and high resolution climate data sets like the high resolution gridded rainfall and temperature data sets, among other contributions.

Dr Rajeevan is a fellow of the Indian Academy of Sciences, the Indian National Science Academy and the National Science Academy of India. He is a member of the International Academy of Astronautics as well as a High-level Adviser on Climate Services and Expert Member of the Research Board of the World Meteorological Organization (WMO). He is the Chairman of the Board of Governors of Indian Institute of Science Education and Research (IISER), Thiruvananthapuram, and the Chairman of t and S. V. University, Tirupati, and had over 118 peer-reviewed publications to his name.



### **Josh Tewksbury**

EXECUTIVE DIRECTOR, FUTURE EARTH



Josh Tewksbury was trained as an ecologist, evolutionary biologist, and conservation biologist. He has 20+ years of active research focused on climate impacts on plants and animals; the influence of fragmentation, connectivity, invasive species and mutualism loss on populations and communities; the evolution and functional significance of chemical defense in plants; and other topics.

Before joining Future Earth as the Director of the Colorado Global Hub, Josh was the founding director of the Luc Hoffmann Institute, a global research center integrated within the International Secretariat of the World Wide Fund for Nature in Geneva Switzerland. While there, Josh started the Luc Hoffmann Fellows program and launched over a dozen research projects, including work on the Food-Energy-Water nexus in Southeast Asia, Development corridors in East Africa, global mapping of threats to biodiversity and the development of regionally-appropriate low-carbon sustainability targets for urban areas.

Prior to his work at the Luc Hoffmann Institute, Josh was the Maggie and Doug Walker Endowed Professor of Natural History at the University of Washington, with appointments both in the Department of Biology and the College of the Environment, which he worked to create. He now serves as the interim Executive Director of Future Earth.

## PRACTITIONERS (LEAD TALKS)



### Jagdeesh Rao Puppala

ANCHOR AND CURATOR,  
FOUNDATION FOR ECOLOGICAL  
SECURITY (FES)



Mr Jagdeesh Rao Puppala has been the Chief Executive of Foundation for Ecological Security (FES) since its inception in 2001 till July 2020. As the 'Anchor and Curator' at FES, he has now taken on the responsibilities of influencing policy, advancing knowledge generation and exchange and constituency building for the Promise of Commons initiative that aims to improve the governance and management of 30 million acres of village commons (community forests and pastures) in India.

A practitioner from the very beginning, Jagdeesh's 34 year professional engagement has been on interrelated issues of poverty and environmental degradation and on 'systems thinking' at the interface of ecology, society and economy. Jagdeesh has been conferred the prestigious 'Skoll Award for Social Entrepreneurship', 2015, and the Rainer Arnhold (Mulago) Conservation Fellowship, 2017. His areas of interest include Commons, decentralized governance, biodiversity informatics, systems thinking and history of science and law.





## Egam Basar

FOUNDER, EGAM BASAR(EB)-PROJECT NATURE



Egam Basar is the Mission Director of Arunachal Pradesh Horticulture Research and Development Mission (APHRDM) and also Member Secretary of Master Plan Development Committee for Agriculture and Allied Sectors in Arunachal Pradesh.

Egam also pursues a personal mission of nature conservation known as EB-Project Nature that functions in Arunachal Pradesh.



## Kanupriya Harish

EXECUTIVE DIRECTOR, JAL BHAGIRATHI FOUNDATION



Kanupriya Harish is a development professional working with Jal Bhagirathi Foundation, an NGO which implements projects to create water availability for water distressed communities in the Thar desert in Western Rajasthan, India. She has implemented and managed a large portfolio of projects across 300 villages to revive traditional water harvesting systems through facilitation and capacity building of community institutions to address drinking water scarcity and climate change.



## Priyadarshinee Shrestha

TEAM LEAD, WWF-INDIA,  
KANCHENDZONGA LANDSCAPE



Priyadarshinee Shrestha, Team Lead, WWF-India, has been working on issues of sustainable development, nature conservation, and waste management in Sikkim-Darjeeling Himalaya for the last twenty years with various organisations. She is a core member of the Zero Waste Himalaya, a platform advocating for sustainable waste policies and practices. Currently, she is the Team Leader of WWF - India's Khangchendzonga Landscape Programme in Sikkim, and the Secretary for Integrated Mountain Initiative.





**Pallava Bagla**

SCIENCE JOURNALIST



Pallava Bagla (58) is a charismatic Indian science communicator respected for his deep understanding of his country's S&T system. He has won many national and international awards for his work. He anchors a weekly program 'Life in Science with Pallava Bagla' on the India Science Channel. Explaining complexities of science in a simple language is his forte. His pioneering work showcasing India's missions to Mars and Moon has been applauded and aired in English and Hindi for New Delhi Television and online. In his over two decades of writing for the prestigious American weekly Science, his stories have highlighted India to the world.

He was won three National Awards for his science writing and in 2010, he was awarded the 'David Perlman Award for Excellence in Science Journalism' considered the Oscar of science journalism and given by the American Geophysical Union, Washington DC, for his landmark writings which exposed the Himalayan glacier blunder by the UN's Intergovernmental Panel on Climate Change (IPCC). He runs a regular photo blog on Twitter, Facebook and Instagram titled 'Enjoy Nature' and used to pen a weekly column of S&T for the Press Trust of India (PTI) and has authored several books. He is a photographer for the world's top photo agency Getty Images. His YouTube Channel 'New Frontiers in Science and Development' is very popular.

Author of several books, he also served as 'Shri Raman Pai chair Visiting Professor in Science Communication' at the National Institute of Advanced Studies, Bengaluru which resulted in the book 'Bridging the Communication Gap in Science and Technology: Lessons from India' edited by Pallava Bagla and V. V. Binoy and published by Springer in 2017. He served as President of the International Science Writers Association and was a member of the Executive Board of the World Federation of Science Journalists. He can be reached at [Pallava.bagla@gmail.com](mailto:Pallava.bagla@gmail.com); Twitter: [pallavabagla](https://twitter.com/pallavabagla)



**Himanshu Kulkarni**

EXECUTIVE DIRECTOR,  
ADVANCED CENTRE FOR WATER  
RESOURCES DEVELOPMENT  
AND MANAGEMENT



Dr. Himanshu Kulkarni leads ACWADAM, a not-for-profit knowledge institution and think-tank working on groundwater since 1998. He is a hydrogeologist by qualification - PhD from Pune University in 1987 - and has been working on aquifers and groundwater across India's diverse groundwater typology for more than 37 years now. He has been a CSIR researcher and scientist, UNESCO scholar and a Fulbright Fellow at different times of his career.

ACWADAM has partnered with a variety of organisations on piloting and mainstreaming the ideas of participatory groundwater management and springshed management across India, neighbouring Nepal, Bhutan, Vietnam some work in Africa. ACWADAM's work under Dr. Kulkarni has followed the principle of bringing communities closer to their aquifers and managing groundwater as a common pool resource through the process of Aquifer-based Participatory Groundwater Management. He has, through ACWADAM, steered the concept of hydrogeology based 'springshed' management that has now become so important from local to national levels in India and its neighbouring regions. Dr. Kulkarni has, before co-founding ACWADAM, worked at Pune University for 13 years, after which he also worked with the corporate sector for a couple of years.

Through ACWADAM's collaboration with educational institutions, Dr. Kulkarni works as adjunct faculty and course advisor at Shiv Nadar University for the post-graduate course on Water Science and Policy. He is also visiting faculty and a member of the Board of Studies at TISS, Mumbai. He has supervised PhDs and many postgraduate dissertations. He continues to advise the Government of India and has held many advisory positions on various committees of the Government. He is currently also a member of the committee that is drafting India's new National Water Policy. Dr. Kulkarni has anchored several international action research collaborations in the subject of groundwater, particularly in his lead role at ACWADAM.

## **Kanupriya Harish**

EXECUTIVE DIRECTOR, JAL BHAGIRATHI FOUNDATION



## **B. M. S. Rathore**

CHIEF POLICY ADVISOR, INTERNATIONAL  
CENTRE FOR INTEGRATED MOUNTAIN  
DEVELOPMENT (ICIMOD)



Mr Brij Mohan Singh Rathore, a professional forester from Indian Forest Service, has over 30 years of professional experience in the field of participatory forestry, regeneration of degraded lands, watershed management, and landscape approach to bio- diversity conservation, rural development, and environmental education.

He has worked in Government (at field, state and national level), research & training Institutions and NGOs. As Joint Secretary in the Ministry of Environment, Forests & Climate Change, he was the country focal point for United Nations Convention on Combating Desertification (UNCCD), and represented the country as Vice Chair on UNCCD CoP Bureau, as well as Chair of Asia & Pacific region. While working with UNDP, FAO and WWF, he was engaged with countries of South Asia and Asia /pacific in capacity building for biodiversity conservation and eco development.

He has been recipient of national award, "Indira Priyadarshini Vraksha Mitra" for community based forest management, and State Governments' Gold Medal for professional excellence in forestry. A gold medallist in Masters of Science (Botany), he holds a Masters diploma in Forestry from Indira Gandhi National Forest Academy Dehradun.

He brings rich experience of engaging multiple stakeholders including policy, science and practitioners' constituencies for conservation and sustainable livelihood outcomes at landscape level.



### **J. Srinivasan**

DISTINGUISHED SCIENTIST, DIVECHA CENTRE  
FOR CLIMATE CHANGE, IISC



Prof J. Srinivasan established the Divecha Centre for Climate Change at Indian Institute of Science, Bangalore, in 2009. He obtained his B.Tech from IIT, Madras, M.S. from State University of New York and PhD from Stanford University. He was the Chairman of Centre for Atmospheric and Oceanic Sciences from 1997-2005 and Chairman, Mechanical Sciences Division from 2005-2009 at Indian Institute of Science. He was Senior Resident Research Associate at NASA, Langley from 1993-1995. He was a lead author of the 2nd and 4th IPCC reports on Climate change and a review editor of the 3rd IPCC report on Climate Change. He was the principal investigator of the Indo-French satellite mission Megha-Tropiques which was launched in October 2011. He has published more than 125 research papers in climate and thermal sciences. He is a fellow of the Indian Academy of Sciences, Indian National Science Academy, Indian National Academy of Engineering, and the World Academy of Art and Science. He was a "J.C.Bose National Research Fellow" during 2007-2012. He received the lifetime achievement award of the Ministry of Earth Sciences in 2019. His major scientific contributions are in the area of monsoon models, impact of aerosols on climate and impact of clouds on the earth's radiation budget.



### **Ulka Kelkar**

DIRECTOR-CLIMATE PROGRAM, WORLD  
RESOURCES INSTITUTE (WRI) - INDIA



Ulka Kelkar is Director, Climate program, WRI India. She is an economist with two decades of experience in climate change research, capacity building and outreach. She leads WRI India's work on climate policy which aims to support India's pathway to a climate-resilient low-carbon economy through judicious national policies, carbon market mechanisms, and effective implementation in states and cities. Before joining WRI India, Ulka worked as a consultant climate assessment specialist for the Asian Development Bank, and as a research fellow with The Energy and Resources Institute (TERI) and Ashoka Trust for Research in Ecology and the Environment (ATREE). She conducted field research in seven Indian states to assess how rural communities can adapt to climate change. She collaborated with architects and financial analysts to devise business models for low-cost climate-resilient housing in disaster-prone regions of Bangladesh and Nepal.

She used behavioural economics to understand what might motivate urban households to switch to renewable energy technologies. She has worked with the corporate sector on measuring greenhouse gas emissions and developing clean development mechanism (CDM) projects. Her policy contributions include the South Asian Association for Regional Cooperation (SAARC) roadmap for regional cooperation on climate change, National Strategy Study on CDM in India, Maharashtra State Action Plan on Climate Change, and the first national communications of India and Bhutan to the United Nations Framework Convention on Climate Change (UNFCCC). Her research has been published in journals like Annual Review of Environment & Resources, Global Environmental Change, Climate Policy, and Mitigation & Adaptation Strategies for Global Change.

She has a master's degree in economics from Jawaharlal Nehru University, New Delhi. She lives in Bangalore with her husband and daughter.



### **Arabinda Mitra**

SCIENTIFIC SECRETARY, OFFICE OF PRINCIPAL  
SCIENTIFIC ADVISOR, GOVERNMENT OF INDIA



Arabinda Mitra holds a PhD in Marine Geology from University of Cambridge, U.K. As an Earth Scientist by training, he has held various scientific positions in the Departments of Atomic Energy; Ocean Development; and Science & Technology of the Government of India. At the National Centre for Polar & Ocean Research, Goa, he played a seminal role in formulating and implementing the long-term science strategy of the Indian Antarctic expedition and establishing the low temperature ice-core laboratory. In 2004, Dr. Mitra was appointed as the first Executive Director of the bi-national Indo-U.S. Science and Technology Forum. He proficiently enriched the scope and contents of Indo-American cooperation in Science, Technology and Innovation by linking academia, research laboratories and industry.

Dr. Mitra assumed the position of Adviser & Head International Cooperation at the Department of Science & Technology in 2011, where he oversaw India's bilateral STI engagements with 44 countries across the globe including collaboration with Africa. In 2018, he was appointed as the Scientific Secretary in the Office of the Principal Scientific Adviser to the Government of India with the mandate to assess the national status in emerging scientific and technological domains, formulate policy interventions, develop national missions in S&T and render periodic advice to the Government.

He has won several academic awards including Cambridge-Nehru Fellowship, ORS Award of UK; Bursary Award of St. Edmund's College UK; JSPS Fellowship of Japan and was elected as a Fellow of the Geological Society, London. He has been a member of the Indian expedition to Antarctica and has undertaken scientific cruises to the Indian, Atlantic and Southern Oceans.





## Harini Nagendra

DIRECTOR, RESEARCH CENTRE AND  
PROFESSOR-SUSTAINABILITY, AZIM  
PREMJI UNIVERSITY



Harini Nagendra is an ecologist and Professor of Sustainability. Over the past 25 years, she has been at the leading edge of research examining conservation in forests and cities of South Asia from the perspective of both landscape ecology and social justice. For her interdisciplinary research and practice, she has received a number of awards including the 2009 Cozzarelli Prize from the US National Academy of Sciences, the 2013 Elinor Ostrom Senior Scholar award, and the 2017 Clarivate Web of Science award. Her publications include the books “Nature in the City: Bengaluru in the Past, Present and Future” (Oxford University Press, 2016) and “Cities and Canopies: Trees in Indian Cities” (Penguin, 2019, with Seema Mundoli) as well as recent papers in Nature, Nature Sustainability, and Science.

Harini Nagendra writes a monthly column ‘The Green Goblin’ in the Deccan Herald newspaper, and is a well known public speaker and writer on issues of urban sustainability in India. Professor Nagendra has been a Lead Author on the IPCC AR5 reports, and a past Science Committee member of DIVERSITAS and the Global Land Programme. She engages with international science and policy through her involvement as a Steering Committee member of the Future Earth Programme for Ecosystem Change and Society, and the Future Earth Urban Knowledge Advisory Network.



## P. D. Rai

PRESIDENT, INTEGRATED MOUNTAIN  
INITIATIVE (IMI)



Prem Das Rai is a founding member and the current President of Integrated Mountain Initiative (IMI). He is a former Member of Parliament, two terms – 2009 – 2019, from Sikkim and belongs to the Sikkim Democratic Front Party.

He is a former Deputy Chairman of the State Planning Commission, Govt. of Sikkim, and has also chaired the Sikkim Industrial Development and Investment Corporation. He has the distinction of being the first Member of Parliament with the dual and prestigious IIT and IIM degrees from Kanpur and Ahmedabad respectively. He was a member of the Standing Committee on Finance and the Subordinate Legislation Committee of Lok Sabha. He was the Chairman of the Library Committee of the Parliament of India. He is also an Eisenhower Fellow (2000) from India. He was awarded the prestigious and selective Eisenhower Fellowship for his contribution to Sikkim’s economic and industrial growth.





## SPEAKERS

### Session I: Food Security and Sustainable Agro-Ecology in the Indian Himalayan Region (IHR): Experiences, Challenges and Solutions



**Amba Jamir**

ENVIRONMENTAL LAWYER,  
DEVELOPMENT COMMUNICATOR AND  
CONSULTANT



A development consulting expert with over two decades of multidisciplinary and multi- team experience from policy formulation to project development, implementation and review. Amba is professionally trained as an environmental lawyer and development communicator. He is a grassroots convenor, trainer and facilitator with experience in the Asia Pacific region in areas of education, rural development, community institutions and resource management, livelihood, policy advocacy and envisioning. Amba works directly with policy makers, NGOs, community leaders, farmers and the poorest of the poor in mountain regions, particularly the Eastern Himalayas. He has extensive experience working in local, national and international NGOs, the government and with advanced regional policy and research think tanks such as the Institute for Global Environmental Strategies (IGES), Japan. He is a founding member of the Sustainable Development Forum Nagaland (SDFN) and the Integrated Mountain Initiative (IMI).



**Seno Tsuhah**

FARMER, TEACHER AND COMMUNITY  
DEVELOPMENT WORKER



Seno is a member of North East Network (NEN), a women's rights organization in North-East India. She has 20 years of experience in working with grassroots communities of Nagaland particularly women. Seno Tsuhah is a farmer, primary school teacher and community development worker based in Chizami village in Phek district of Nagaland, Northeast India. The work involves mobilizing and organizing, awareness-raising, capacity building, research and documentation and advocacy.

Her engagement with ecological issues ranges from strategic policy advocacy with village institutions, state, regional and national networks, mobilizing young people in cultural and environmental audio-visual documentation and enabling women farmers in strengthening the practice of ecological farming and sustainable livelihoods.





## Binita Shah

CEO/FOUNDER, SUPA AGRICULTURAL RESEARCH GROUP (SARG), UTTARAKHAND



Binita Shah, is an organic/ Biodynamic Farmer and Social –Entrepreneur and Agriculture Development Professional. She is the CEO / Founder of SARG Vikas Samiti. SARG is a national player in Organic Agriculture Development with special focus in Biodynamic Agriculture and development. SARG is working in four states of India with nearly 50,000 farmers and more than 100 farmers organizations. She is an international Consultant with a number of Organic Food Export companies namely Nature BioFoods Sonapat , Sunstar Rice Exports, Delhi , Pure Life P Ltd , Dubai/ Mozambique etc. Ms. Binita is the Secretary , Sustainable Development Forum Uttarakhand.

## Session II: Health and Risks associated with Air and Water Pollution



### H. Paramesh

PEDIATRIC PULMONOLOGIST AND VISITING PROFESSOR, DIVECHA CENTRE FOR CLIMATE CHANGE, IISC



Rtd Prof Dr H Paramesh is a pediatric pulmonologist and environmentalist. He is the Founder Member and Past Chairman of the Respiratory Chapter of the Indian Academy of Pediatrics (IAP), the Founder Life Patron of the Respiratory Chapter of Karnataka, the Founder President of IAP's Environment Chapter and Allergy and Immunology Chapter, the Founder President of the Indian Medical Association of Bangalore East, and he is also the Founder Member and Adviser of the Thalassemia Society of Bangalore. He is the past National President of the Indian Academy of Allergy and a past National President of the Pediatric Association of India. He is currently a Visiting Professor at the Divecha Centre for Climate Change, IISc, and is a Visiting Professor in universities in countries including the USA, Canada, Italy, Nepal and the UK. He is a member of the WHO-NGO Climate-Health Working Group, Geneva, and is an Adviser to the WHO, UNICEF, COMHAD and Alliance for Global Health, Geneva. Dr Paramesh has been invited to present over 665 scientific papers and talks, has received 43 oration awards, written chapters in 42 textbooks and has 88 publications in national and international journals.

He has also received numerous local, state, national and international awards for his work in environment and health.





## Ashok Ghosh

PROFESSOR AND HEAD OF DEPARTMENT-  
RESEARCH, MAHAVIR CANCER SANSTHAN  
AND RESEARCH CENTRE



Dr. Ashok Kumar Ghosh is Chairman of Bihar State Pollution Control Board .He is also working as Professor and HoD, Research at Mahavir Cancer Institute and Research Centre, Patna.The main areas of his research is ground water quality and quantity. Dr. Ghosh has worked extensively groundwater arsenic contamination and its health impact.He is PI of DST supported project INNOWATER. Dr.Ghosh is also working on International Project DELTAP supported by NWO Wotro of Netherlands, Project NUTRI-SAM supported by DST-UKIERI and Project FAR-Ganga supported by DST-NERC.He has active research collaborations with Technical University of Delft,The Netherlands, University of Manchester, UK and University of Salford, UK.



## Tapas Chakma

HEAD, DIVISION OF NON-COMMUNICABLE  
DISEASES, ICMR-NATIONAL INSTITUTE OF  
RESEARCH IN TRIBAL HEALTH, MADHYA PRADESH



Dr Tapas Chakma is currently Scientist 'G' and Director Grade Scientist at ICMR-National Institute of Research in Tribal Health, Jabalpur, MBBS, from Jabalpur Medical College. He has a MAE (Master of Applied Epidemiology) from SCTIMS, Trivandrum. He has published more than 30 research papers in peer reviewed national and international journals. He has co-authored a book titled Integrated Fluorosis Mitigation, and contributed radiological findings in a book titled Treatise in Fluorosis. He has also written a chapter in a book titles Gender Issues in Water and Sanitation Programmes: Lessons from India.

His work on fluorosis has been selected as one of the 16 best success stories of ICMR in the last few decades, published by ICMR in the book titled Touching lives through Research, which is available at [www.icmr.nic.in](http://www.icmr.nic.in). He has also written a policy brief on Fluorosis, also available on the ICMR website. Dr. Chakma was the Editor of the Tribal Health Bulletin from 2003 to 2013, and has been a Reviewer for many national and International Journals including the Indian Journal of Medical research, Water lines, Fluoride, and Pan African Medical Journal.

He is recipient of many awards including the Dr BC Roy Oration award, conferred by IMA MP State Branch at Gwalior in 2019, "Best Practice in Tribal Health" by Ministry of Health, Government of India (GOI) in 2015, "Certificate of Excellence in Medical Research" by CDC, Atlanta, USA in 2006, "M.P. Young Scientist Award" conferred by MP Council for Science and Technology in 1998, and "Vijay Narayan Memorial Award" for "Best Research Paper" in the 25th National Conference of PSM in 1997.

He is a recognized Expert in Fluorosis by UNICEF, the National Programme for Prevention and Control of Fluorosis, Ministry of Health, and Central Ground Water Board, Ministry of Drinking Water. He is also member of various Task force of GOI including the ICMR Task force on Fluorosis and ICMR Task force on Hypertension. He is a Member of the Expert Committee on Tribal Health, Ministry of Health, GOI, the Expert Committee on Climate Change, IISc Bangalore, and the Bureau of Indian Standard (water quality). He has presented or chaired various invited lectures in more than 50 national and international conferences and workshops. He has also completed 27 projects as principal investigator and reports submitted to various national and international agencies.

### Session III: Water-Energy-Food Nexus Perspectives



#### **Purnima Menon**

SENIOR RESEARCH FELLOW,  
INTERNATIONAL FOOD POLICY RESEARCH  
INSTITUTE (IFPRI), NEW DELHI



Purnima Menon is a senior research fellow at the International Food Policy Research Institute, and is based in New Delhi, India. She is the theme leader for South Asia Nutrition Programs in IFPRI's Poverty, Health, and Nutrition Division. In her work in India, Dr. Menon directs POSHAN (Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India), an initiative to support more use of evidence for nutrition in India. She conducts implementation research on scaling up maternal and child nutrition interventions, including on evaluating large-scale behavior change communications programs in nutrition and health.

Dr. Menon has research experience in India, Bangladesh, Ethiopia, Haiti, VietNam and Nepal, has published extensively, and invests deeply in research translation in her engagements with policy communities.

In addition to her research, Dr. Menon co-convenes a global nutrition policy course with the Institute for Development Studies in the United Kingdom, and has designed and taught many adaptations of this course in India as well. She serves on several national and global advisory groups, including the State of the World's Children, the Global Nutrition Report, and the Countdown to 2030.

Dr. Menon has a PhD in International Nutrition from Cornell University and an MSc in Nutrition from the University of Delhi. She speaks many languages, and has lived both in India and the United States of America. She lives in India with her husband, Jitendra Balakrishnan, and their daughter.

Dr. Menon's publications are available on Google Scholar and she engages on social media via her Twitter handle @PMenonIFPRI.





## Veena Srinivasan

SENIOR FELLOW AND DIRECTOR-CENTRE FOR SOCIAL AND ENVIRONMENTAL INNOVATION, ASHOKA TRUST FOR RESEARCH IN ECOLOGY AND THE ENVIRONMENT (ATREE), BENGALURU



Veena Srinivasan is a Fellow at the Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore, where she leads the Water, Land and Society Programme. She also leads the Centre for Social and Environmental Innovation. Veena's research interests include inter-sectoral water allocation, impacts of multiple stressors on water resources, ground and surface water linkages, and sustainable water management policy and practice.

Veena's recent research has focused on understanding anthropogenic and climatic influences in urbanizing watersheds and identifying appropriate policies and adaptation measures. As co-PI of the "Adapting to Climate Change in Urbanizing Watersheds (ACCUWa)", she has focused on measuring and modelling the socio-hydrology of Arkavathy and Noyyal Basins to understand the impacts of human activity on ground and surface water resources. More recently, she has initiated work on Bangalore's lakes with the goal of understanding how lakes can contribute to water security as well as creating a citizen's dashboard which synthesizes data from low-cost sensors and data collected by citizen scientists to help manage lakes better.

Veena has won several awards for her work including the 2015 Jim Dooge Award for best paper in the journal Hydrology and Earth System Science from the European Geophysical Union, the 2012 Water Resources Research Editor's Choice Award from the American Geophysical Union. She is also a recipient of the Teresa Heinz Environmental Scholars Award.

Veena received her PhD from Stanford University's Emmet Interdisciplinary Program in Environment and Resources (E-IPER). As a post-doctoral scholar at Stanford, Veena was instrumental in developing a framework for a Global Freshwater Initiative at Stanford to understand patterns in the nature and causes of global water crises. Prior to joining Stanford University, Veena worked for several years on energy and water issues in India, California and globally in the private and non-profit sectors.

Veena holds a Masters in Energy and Environmental Studies from Boston University and a B-Tech in Engineering Physics from the Indian Institute of Technology, Bombay.

## Ulka Kelkar

DIRECTOR-CLIMATE PROGRAM, WORLD RESOURCES INSTITUTE (WRI) - INDIA



## MODERATORS



**Sandeep Tambe** (NC-India)

PROFESSOR, INDIAN INSTITUTE OF FOREST  
MANAGEMENT (IIFM) - BHOPAL



Dr Sandeep Tambe is a member of the Indian Forest Service and has diverse work experience, having worked in government, NGO and academic institutions. He served for 16 years in Sikkim state before joining the Indian Institute of Forest Management, Bhopal, 2015 onwards. While in Sikkim, he contributed to securing wildlife areas, effectively implementing livelihood programs and reviving Himalayan springs. He has also contributed towards policy formulation for lake conservation, eco-development, mountain guardian's policy, trekking regulations, pro-poor targeting, effective social audits, convergence partnerships and post-earthquake reconstruction. His present research interests are water security, rural livelihoods, tackling wicked problems and co-producing sustainability solutions. He graduated from the Indian Institute of Technology (IIT) Mumbai, is a postgraduate in Forestry from the Forest Research Institute (FRI) and obtained his Ph.D. from the Wildlife Institute of India (WII).



**Roshan Rai**

DEVELOPMENT PRACTITIONER, DARJEELING  
LADENLA ROAD (DLR PRERNA)



Roshan P. Rai is a development practitioner with DLR Prerna, an NGO based in Darjeeling. [www.darjeelingprerna.org](http://www.darjeelingprerna.org). He works on issues of environment and social equity in the Darjeeling Himalaya and the team partnered to evolve Darjeeling's first small farmer certified organic and fair trade collective. He has partnered extensively with community-based conservation initiatives with focus on human wildlife conflict in the Darjeeling and Sikkim Himalaya. His work at present focuses on local food cultures, water and climate change. He is part of the core team of Zero Waste Himalaya and has partnered with local urban bodies, communities and educational institutions in promoting sustainable waste management practices. The team has been undertaking peer educators training and campaigns like the Plastic Freedom Challenge in the Darjeeling and Sikkim Himalaya. Roshan bases his experience and community initiatives within the Darjeeling and Sikkim Himalaya and simultaneously engages with the IMI family to place it within the policy landscape.





## Sunderrajan Krishnan (NC-India)

EXECUTIVE DIRECTOR, INDIA NATURAL  
RESOURCES ECONOMICS AND MANAGEMENT  
(INREM) FOUNDATION



Dr Sunderrajan Krishnan is the Executive Director of INREM Foundation since 2007. He has a BTech in Civil Engineering from IIT Bombay and a PhD in Geological and Environmental Sciences from Stanford University. He has been a member of Indian Planning Commission 12th five-year plan working groups for ‘Sustainable Groundwater Management’ and ‘Water Database Development and Management’. Currently, he is a member of the Bureau of Indian Standards (BIS) Water Quality Committee for Handbook of Water Resource Management.

Dr Krishnan’s work has mainly been in the two areas of Water harvesting and groundwater management, and in Water quality and health. Within these areas, he has been involved in several projects, ranging from policy analysis, impact analysis, to designing field interventions and communications. The emphasis is on problem definition and problem solving, and when needed, interactions with disciplines such as agriculture, public health, nutrition, and others. The path breaking work of reversing Fluorosis is something that Dr Krishnan and INREM is known for.

His main work currently is in the area of water quality problems in India and the diseases linked with these. This work within INREM has led to the formation of the ‘Water Quality Network’ ([www.waterquality.network](http://www.waterquality.network)) which is coordinated by the organization and is helping to solve the problem across the country. WaterhealthAI ([www.waterhealth.ai](http://www.waterhealth.ai)) is his recent enterprise working on bringing data, AI and exponential technologies to solving Water and Health problems.



## Aditi Mukherji (NC-India)

PRINCIPAL RESEARCHER, INTERNATIONAL  
WATER MANAGEMENT INSTITUTE (IWMI),  
NEW DELHI



Dr Aditi Mukherji is a Principal Researcher and leads the Research Group on Climate Change Adaptation and Resilience (CCAR) at the [International Water Management Institute](#). Before this, she led the [Water and Air Theme](#) at the International Centre for Integrated Mountain Development (ICIMOD) in Nepal.

She has over 20 years of experience working on policies and institutions of water resources management with a special focus on water-energy-food nexus. Her areas of specialization are groundwater governance, energy-irrigation nexus, climate change adaptation and community management of water resources. She has worked in South Asia including the Hindu Kush Himalayan region, Nile basin and in Central Asia. She has published over 60 peer reviewed research papers, including three edited books by Taylor and Francis. In 2012, she was awarded the Inaugural Norman Borlaug Field Award, endowed by the Rockefeller Foundation and given by the World Food Prize Foundation, USA.

She is currently a part of the 6th Assessment Report (AR6) team of the [Intergovernmental Panel on Climate Change](#) (IPCC) and is the Coordinating Lead Author (CLA) of the Water Chapter in the Working Group II on Adaptation and Vulnerability. She is also a member of the Core Writing Team for the IPCC's AR6 Synthesis Report.

Aditi is a human geographer by training and has a PhD from Cambridge University, United Kingdom.

## MEMBERS OF FUTURE EARTH NATIONAL COMMITTEE-INDIA

### **M. N. Rajeevan**

CHAIR, FUTURE EARTH NATIONAL COMMITTEE INDIA, AND SECRETARY, MINISTRY OF EARTH SCIENCES, GOVERNMENT OF INDIA

### **Aditi Mukherji**

PRINCIPAL RESEARCHER, INTERNATIONAL WATER MANAGEMENT INSTITUTE (IWMI), NEW DELHI



### **Ravi S. Nanjundiah**

DIRECTOR, INDIAN INSTITUTE OF TROPICAL METEOROLOGY (IITM) - PUNE



Ravi S Nanjundiah is the Director of Indian Institute of Tropical Meteorology (IITM) and also the Mission Director for Monsoon Mission. IITM looks at all aspects of tropical meteorology, ranging from synoptic to paleo-scales. The Monsoon Mission has been entrusted with the task of improving prediction of monsoon at various scales and also applying the forecasts to various sectors such as agriculture and energy. His interests include monsoons and its variability at various scales, and application of High Performance Computing to earth system models. He also works on using AI/ Machine Learning for climate related issues such as downscaling and prediction.

Prior to his joining IITM, he was a Professor at the Centre for Atmospheric and Oceanic Sciences, Indian Institute of Science (IISc), Bengaluru (currently on deputation to IITM). He is a Fellow of the Indian Academy of Sciences, Fellow of the India Meteorological Society and Adjunct Professor of Tata Institute for Fundamental Research (TIFR). He received the NVIDIA innovation award (2013) and Sir C V Raman Young Scientist Award in Earth Sciences (2000). He has guided 12 PhDs. Ravi did his PhD from IISc, Bengaluru (1992) and M E (Mechanical, 1986) also from IISc, Bengaluru. He was a Postdoctoral Fellow at the Mathematics and Computer Science Division of Argonne National Laboratory USA. He has over 90 publications.







## S Suresh Babu

HEAD, AEROSOL TRACE GASES AND RADIATIVE FORCING BRANCH (ATRF), SPACE PHYSICS LAB, VIKRAM SARABHAI SPACE CENTRE, INDIAN SPACE RESEARCH ORGANIZATION (ISRO)



Dr S Suresh Babu is Head and Scientist SG of the Aerosols Trace gases and Radiative Forcing (ATRF) Branch of the Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO. He completed his MSc and MPhil in Physics from the University College, Thiruvananthapuram, followed by his PhD from VSSC, ISRO. He is specialized in the study of atmospheric aerosols, radiative forcing and climate change. He received the Shanti Swarup Bhatnagar Prize in Earth Atmosphere Ocean and Planetary Sciences for the year 2017 and has been the Associate Editor, Journal of Earth System Science, Springer & Indian Academy of Science, since 2016. He won the SwarnaJayanti Fellowship Award of Department of Science and Technology (DST), Government of India, 2015 – 2020, and is a Founder Member (chosen by INSA Council), Indian National Young Academy of Science (INYAS), New Delhi, 2015. He won the NASI-SCOPUS Young Scientist Award from Elsevier Sciences, 2009, and the National Academy of Sciences India (NASI) Young Scientist Platinum Jubilee Award in Physical Sciences, 2009. He was a Young Associate of the Indian Academy of Sciences, 2007 and won the Indian National Science Academy (INSA) Young Scientist Medal Award in 2006.

## Sandeep Tambe

PROFESSOR, INDIAN INSTITUTE OF FOREST MANAGEMENT (IIFM) - BHOPAL

## Sunderrajan Krishnan

EXECUTIVE DIRECTOR, INDIA NATURAL RESOURCES ECONOMICS AND MANAGEMENT (INREM) FOUNDATION



## T R Shankar Raman

SCIENTIST, NATURE CONSERVATION FOUNDATION



Dr T R Shankar Raman likes to imagine himself as a writer turned wildlife scientist turned writer, living in a landscape of rainforests and plantations in the Anamalai hills of southern India. As a wildlife scientist, he focuses on the ecology and conservation of tropical forests and wildlife—especially rainforest plants, birds, and mammals—mainly in the Western Ghats. He writes creative nonfiction and essays on nature and conservation for newspapers, magazines, and blogs, besides occasional book reviews and op-ed or feature articles.

His book *The Wild Heart of India: Nature and Conservation in the City, the Country, and the Wild* was published in 2019 by Oxford University Press, India. In 2018, he co-authored *Pillars of Life: Magnificent Trees of the Western Ghats* with Divya Mudappa (Illustrations by Nirupa Rao and Sartaj Ghuman).

As a participant in an open initiative called [WikiProject Nature and Conservation in India](#), he has also been contributing media (his images, video and audio recordings) to Wikimedia Commons and editing Wikipedia pages related to nature and conservation in India.



### Vandana Prasad

DIRECTOR, BIRBAL SAHNI  
INSTITUTE OF PALEOSCIENCES



Dr Vandana Prasad is an Evolutionary biologist interested in the early history of grasses, high resolution biostratigraphy, biotic turnover, paleo-environment and relative sea level change during Late Cretaceous-early Palaeogene. She was a Visiting Scientist at the Institute of Geology, University Louis Pasteur, Strasbourg, France in 1998, was selected to attend 1st In-House Science Meet of the Autonomous Institutions under DST to present outstanding contribution in Paleobotany held at Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, September 23-24, 2006, and she was invited to be a member of the Indian delegation team of young scientist to participate in the 2nd Indo-American frontiers of Science symposium organized by Indo-U.S Science and Technology Forum in partnership with the U.S. National Academy of Sciences to present outstanding contribution Irvine, California, January 2007.

She was awarded the “Diamond Jubilee Medal-2006 & Citation” by the BSIP for publishing papers of high quality in Refereed Journals, and the Smithsonian Fellowship to undertake “comparative study of low latitude Palaeogene flora of India and South American subcontinents” at Smithsonian tropical Research institute, Panama, May- June, 2007. She was a nodal person in conducting the International Earth Science Olympiad entrance exam for college students in Lucknow in 2010. She served as an Expert member in the DST Earth Science Fast Track programme for Young Scientist between 2012 and 2015, and was nominated as guide for Summer Research Fellowship Programme (Inspire/KVPY) 2012, jointly sponsored by the three national science Academies of the country. Her research paper was awarded the Prof S. K Singh Memorial Gold Medal for Best paper published in the journal of Paleontological Society, India for 2012. She was a member in the Indian delegation team to attend Indo-German workshop on ‘Environmental challenges in Asia at GeoForschungs Zentrum Potsdam, 14-17 January, 2013, sponsored by DST and DFG.

She is a Life member of the Paleobotanical Society of India and the Palaeontological Society of India, and a Member of NECLIME (Neogene Climate Evolution in Eurasia).

## ORGANIZERS AND FUTURE EARTH SOUTH ASIA STAFF

### S. K. Satheesh

DIRECTOR, FUTURE EARTH SOUTH ASIA REGIONAL OFFICE, AND CHAIR, DIVECHA CENTRE FOR CLIMATE CHANGE, INDIAN INSTITUTE OF SCIENCE

## M. N. Rajeevan

CHAIR, FUTURE EARTH NATIONAL COMMITTEE INDIA, AND SECRETARY, MINISTRY OF EARTH SCIENCES, GOVERNMENT OF INDIA



### Smriti Basnett

WEBINAR CONVENOR  
CO-DIRECTOR, FUTURE EARTH SOUTH ASIA,  
DIVECHA CENTRE FOR CLIMATE CHANGE, IISC



Dr Smriti Basnett's concern for society and environment fuels her desire to bring about the changes she wants to see around her. Smriti believes that change can be most effectively wrought by interdisciplinary and transdisciplinary approaches. She works tirelessly to this end through the Future Earth Program at Divecha Centre for Climate Change (DCCC) located in the Indian Institute of Science (IISc), Bangalore. Smriti manages and directs programs for South Asia, pushing for the espousal of the Sustainable Development Goals in national and regional policies. She is currently working to establish Working Groups and Committees on Food Security, Water Security, Clean Air and Health in South Asia for Future Earth.

Smriti Started her career as a Junior Research Fellow in the Sikkim Glacier Commission from DST-Sikkim, continued her research at ISRO, SAC, Ahmedabad and DCCC, IISc, Bangalore between 2007 and 2016. After her PhD on 'Glacier and Snow Studies in Sikkim Himalaya', she worked with Sikkim University and local communities. She led many glacier expeditions, developed the university curriculum and helped establish DST's Centre of excellence on water resources, cryosphere and climate change at Sikkim University. While monitoring glaciers in North Sikkim, Smriti spent a lot of time working with the local communities, conducting science and art awareness programs in various urban and rural schools, documenting narratives on yak herding and trying her hand at the local traditional farming practises. She is a CoLeader in the UNESCO Project, 'Himalayan Glaciers and Risks to Local Communities', and conducts training, workshops and capacity development activities in Bhutan, Nepal and Sikkim. Smriti is a skier, volunteers to work with the rural schools in North Sikkim and also to work with the Indian Himalayan Integrated Mountain Initiative (IMI). Smriti was a Berkner fellow and represented South Asia at the American Geophysical Union (AGU) and an ICIMOD fellow at the HUC-IHCAP glacier training and expedition (2017).

## Sandeep Tambe (NC-India)

PROFESSOR, INDIAN INSTITUTE OF FOREST MANAGEMENT (IIFM) - BHOPAL

### Anupama Nair



PROGRAM COORDINATOR, FUTURE EARTH SOUTH ASIA REGIONAL OFFICE, DIVECHA CENTRE FOR CLIMATE CHANGE, INDIAN INSTITUTE OF SCIENCE



Anupama Nair assists in organizing events and activities for the Future Earth South Asia Regional Office. She was associated with the Water Solutions Lab and the Climate and Energy Policy group at the Divecha Centre for Climate Change, Indian Institute of Science, since May 2019, before working full-time as a Program Coordinator for the Future Earth Regional Office. Anupama completed her Masters in Natural Resources and Governance in 2019 from the Tata Institute of Social Sciences, shortly after receiving an Honours in Zoology from the University of Delhi. Her interdisciplinary background in the natural and social sciences fuels her interest in environmental governance and policy, which she hopes to engage with through her work.

## RAPPORTEURS

### **Anupama Nair**

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## CREATIVES (CREDITS)

### **Madhusudan T**

PROJECT ASSISTANT, DCCC, IISC

### **Rockstar Social India**





*Indian Institute of Science (IISc) main building*

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SOUTH ASIA REGIONAL OFFICE

  
DIVECHA CENTRE  
FOR CLIMATE CHANGE



*Painting by Sartaj Ghuman*