

## Future Earth and its prospects in South Asia

'Future Earth' was officially announced at the UN Conference on Sustainable Development (Rio+20) in 2012, and a permanent secretariat was set up in 2015. Future Earth is a global initiative aiming to create a sustainable and equitable world for all people. It uses a transdisciplinary research and system thinking approach in which basic and applied research are combined to produce knowledge that can be used to make decisions by practitioners and policymakers at all levels of governance. It works closely with the National and the International Science Academies and Society in advancing knowledge.

Between 2021 and 2022, Future Earth underwent a transformation to become a more effective and inclusive organisation. At the moment, the day-to-day operations of Future Earth are facilitated by a well-distributed network of nine newly established Global Secretariat Hubs located in Africa, Canada, China, France, Japan, South Asia (hosted by the Indian Institute of Science), Sweden, Taipei, and the United States. Future Earth is a research program and the Secretariat aids in knowledge advancement through its various science communication products that are presented as policy briefs to head of states at various international forums.

Future Earth is governed by the Governing Council, the General Assembly, and the nine Secretariats. The Custodians include the United Nations Educational, Cultural and Scientific Organization (UNESCO), the UN Environment Programme (UNEP), the International Science Council (ISC), and the Belmont Forum. The Global Research Networks (GRNs), the National and Regional Structures, nine Global Secretariat Hub Boards of Directors and funders, representatives from low and middle-income countries and Early Career Research Networks comprise the Assembly that shape the vision and mission of Future Earth and foster the advancement of scientific knowledge. The science at Future Earth is mainly carried out within the twenty-seven Global Research Networks (GRNs), many of which came from the former research programmes. The GRNs co-design and co-produce solutions-oriented science for global sustainable development and deliver products and services for society.

As a knowledge advancement organization, Future Earth envisions to accelerate the change for a sustainable planet and some of the knowledge advancement initiatives and outputs that future Earth delivers include: the 10 New Insights in Climate Science, a report in which experts carry out a hori-

zon scan in fields related to climate change on latest findings and most important new emerging fields; the Science-based Pathways for Sustainability (Pathways) Initiative; the Anthropocene magazine, Future Earth's premier independent magazine; the Sustainability Research and Innovation Congress, a central global platform for transdisciplinary research and innovation in sustainability; the Global Carbon Budget presented by the Global Carbon Project; modeling about climate and biodiversity scenarios released by the Analysis Integration and Modeling of the Earth System (AIMES) and bio-DISCOVERY as well as the Emergent Risks and Extreme Events KAN; publications by the Sustainability in the Digital Age; the 'Our Future on Earth' report; the Global Risks Perception Initiative; the Future of Washing Initiative; the Earth Leadership Program; the European Space Agency Partnership Program; the Program for Early-stage Grants Advancing Sustainability Science (PEGASuS); the Earth Commission; the Food-Water-Air-Health and Sustainable Community program of South Asia, among many others.

The South Asia Office of Future Earth was established in 2016 and engages with stakeholders from SAARC countries, Myanmar, and Mauritius. It functions to generate 'Science for the People' and develop the knowledge required for regional societies to face challenges posed by global environmental change in the area of – Water, Air, Food, Sustainable Communities and Health (WAFH). The main focus of the regional office is to promote scientific co-operation between India and neighbouring countries in Future Earth related activities.

The regional office is:

- (a) Promoting the implementation of specific activities of Future Earth over this region.
- (b) Ensuring that regional priorities are made part of the strategic development of Future Earth.
- (c) Operating as primary contact between interested researchers, research institutions, funders and other interested parties, and Future Earth.
- (d) Providing up-to-date and timely information about the objectives and organization of Future Earth, actively reaching out to researchers and stakeholders over this region.

This requires contributions from a new type of approach that links various disciplines. Central to achieving the vision is a commitment to co-design and co-produce knowledge in

collaboration with various partners to develop solutions-oriented research that responds to the challenges faced by society due to global environmental change. For this purpose, the scientific community must engage with diverse decision-makers in government, the private sector and civil society.

With this context, the regional office is involved in developing the strategic knowledge required to face challenges posed by global environmental change and identify and implement potential solutions. With a fair degree of confidence from the existing knowledge and evidence, the regional office is interacting with laboratories and institutions under various ministries and departments in integrating information to support developing national and international policies related to climate change and related sciences. Since the degree of climate change and its effects on people differ from one part of the world to another and between rural and urban areas, the office is developing region-specific strategies to tackle the effects of climate change. Another objective is inspiring and supporting a new generation of scholars and practitioners doing integrated science for global sustainability to carry forward Future Earth's vision and mission. It is necessary to build a diverse and connected community of participants and organisations, including scientists, policymakers, civil society and private sector from the region.

The Future Earth South Asia Office is developing a Five-year Knowledge to Action Program to tackle issues related to Food Insecurity, Water Insecurity and Air Pollution in South Asia. A Health Sensitization Program has also been put in place by engaging with the member countries to address the sustainability problems. The program focuses on the 2030 SDG targets, the Paris Agreement's 2°C Climate Targets and promotes the concept of a circular economy within the planetary boundary framework. Some of the outcomes of this program will include policy briefs and deliberations at various administrative levels, public forums and legislatures in South Asia (through a regional/country-wise approach).

The Global Hub South Asia is also planning to establish on-ground pilot projects to explore the possibilities of building sustainable urban and rural communities. Besides the regional work, the Global Hub, along with the eight other global secretariat hubs will host many global staff (around 17 full-time staff) that support the global functions of coordination, communication, networking, strategy and planning. In addition, the South Asia Hub is supporting the Bengaluru Water Solution Lab of the Water Future Program and will be hosting and supporting the Regional Project Office of

the Monsoon Asia Integrated Research for Sustainability (MAIRS). MAIRS is a regional consortium for the integrated study of earth system processes in Asia.

Future Earth aims to change the way research is conducted, and as a global sustainability science and knowledge advancement organisation, it will continue to deliver the message from the science community to the people, policymakers and humanity at large and vice versa. The need for connecting governments, civil society, research funders and the private sector and the need for a transdisciplinary and interdisciplinary approach to science has been raised in many forums, and the need for a new way of thinking to bridge the gap between science-generated and implementation is very crucial at this age and time.

The Future Earth platform and the Future Earth global community continue to explore new insights and pathways for solutions for people and planetary health, ranging from integrated earth system analyses to planetary stewardship and social transformation. Future Earth addresses the complex and interlinked global problems in the environment and in the human society by breaking the walls between its classical research disciplines and this has been achieved by bringing together stakeholders from various disciplines. It continues to produce integrated research, strengthens research and engages with stakeholders from society, decision-making bodies, scientific disciplines from humanities, social sciences and natural sciences communities by networking with 27 Global Research Networks and through international open science conferences, technical workshops, training programs, and early career.

This stakeholder engagement process through Webinars and Conferences is a part of the Science–Society–Policy Outreach program of the South Asia Regional Office, and the Global Hub South Asia is building four Thematic Working Groups. The purpose of the South Asia Working Groups is to mobilize sustainable scientists and policymakers, business and leaders from Society to bring about collaborative solutions to address food insecurity and malnutrition; risks to coastal communities and ecology; regional planning and associated health risks in South Asia.

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