



SECOND MEETING OF THE GOVERNING COUNCIL OF FUTURE EARTH SOUTH ASIA

MEETING REPORT

ORGANISED BY:
FUTURE EARTH SOUTH ASIA AND
DIVECHA CENTRE FOR CLIMATE CHANGE,
INDIAN INSTITUTE OF SCIENCE, BENGALURU

futureearth
SOUTH ASIA REGIONAL OFFICE

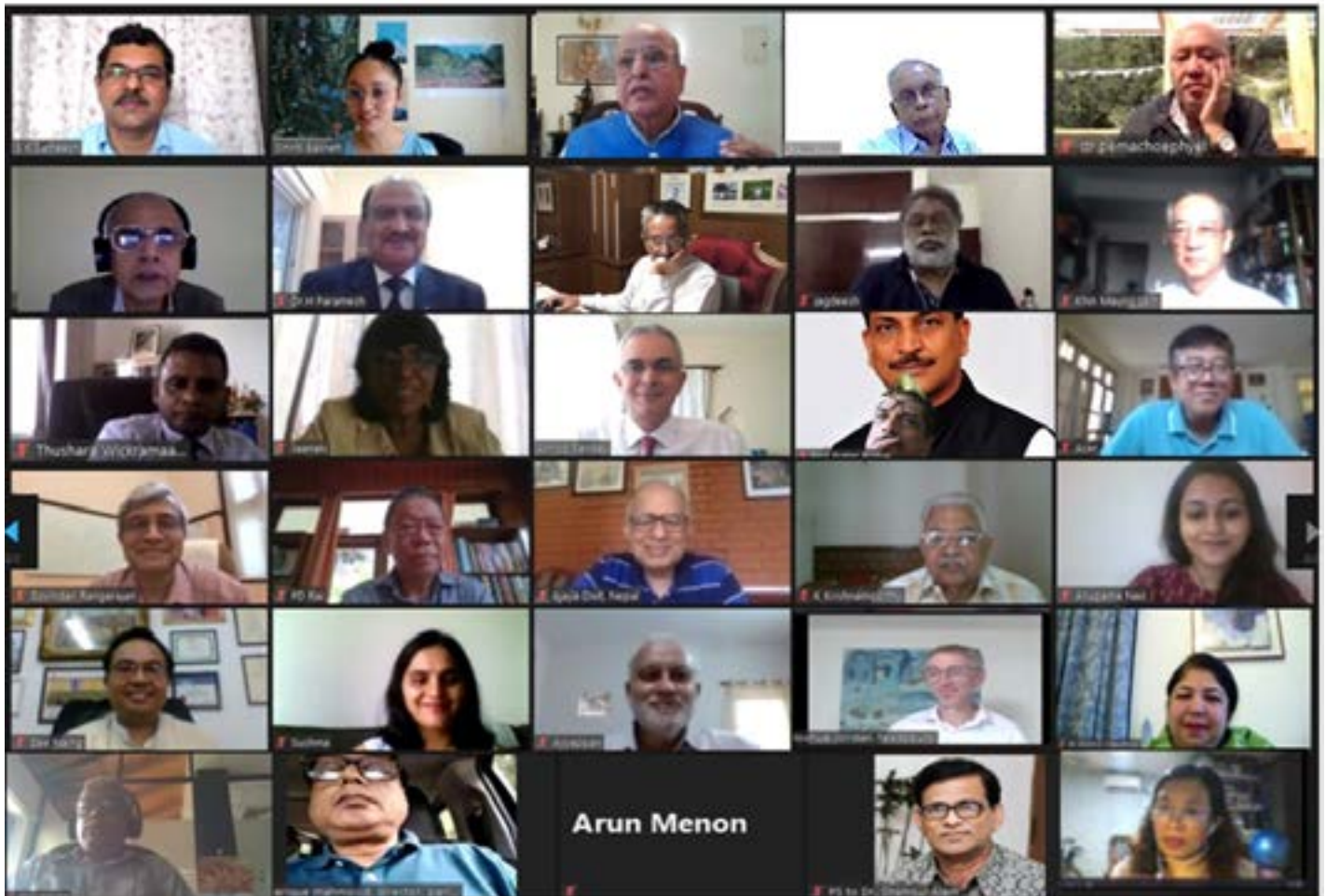


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INTRODUCTION

The Governing Council of Future Earth South Asia met online for the 2nd Governing Council Meeting on 6 October, 2020. The Meeting was chaired by Dr K Kasturirangan and attended by 29 participants, including delegates from Bangladesh, Bhutan, India, Myanmar, Nepal and Sri Lanka, as well as the Executive Director of Future Earth from Colorado, USA. The event was a one-day session and included discussions on major updates, priority setting and a working plan for the program, in the form of perspectives from the Chair, the Director of Future Earth and Future Earth South Asia, from GC members and from Invited Guests. *The event agenda is listed in Appendix I.*



Attendees

29 Attendees (pictures): [Left to right, row-wise]: Row 1 - Prof. S. K. Satheesh, Dr. Smriti Basnett, Dr. K. Kasturirangan, Dr. R. Srinivasan, Dr. Pema Choephyel. Row 2 - Prof. J. Srinivasan, Dr. H. Paramesh, Mr. Prithvi Raj Singh, Mr. Jagdeesh Rao Puppala, Dr. Khin Maung Lwin. Row 3 - Dr. W. A. R. T. Wickramaarachchi, Dr. Jaanaki Gooneratne, Dr. Arnico Panday, Mr. Rajiv Pratap Rudy, Mr. U. Tin Maung Aye Htoo, Row 4 - Prof. Govindan Rangarajan, Mr. P. D. Rai, Mr. Ajaya Dixit, Dr. K. Krishnamoorthy, Ms. Anupama Nair. Row 5 - Dr. Zaw Naing, Sushma Bharadwaj, Dr. S. Ayyappan, Dr. Josh Tewksbury, Dr. Shirin Sharmin Chaudhury, Dr. D. M. Athula H Senaratne, PS Bangladesh Parliament, Arun Menon, PS to Dr. Shamsul Alam, Dr. Ohmar Khaing. *A detailed list of GC Members, Invited Guests and Participants is listed in Appendix II.*

Members who were not present: Dr. Swarnim Wagle from Nepal and Dr. Shamsul Alam from Bangladesh will be participating in the future events.

MEETING HIGHLIGHTS



Picture: Inaugural Session. Address by the Chair.

HIGHLIGHT 1: Highlights of the meeting

Insights from GC members, theme-experts and invited guests, shared as highlights:

- **Changes in Future Earth Organization:** Future Earth network undergoing structural changes to become flatter and more representative. We are in the process of elevating Future Earth South Asia to one of the global offices.
- **Priority Setting:** Food and nutrition security, water security, flood management, agrarian distress and circular rural economy, the nexus between water-energy-food, and air pollution expressed as priorities for South Asia. Cross-cutting issues related to health and climate change also expressed as a priority.
- **Suggested Approaches for Regional Program/ Science for People:** Tapping into existing national and international networks, connecting science-policy-society, aligning research with policy, connecting micro and macro-level stakeholders, increasing role of social sciences, enhancing governance systems, and training journalist and non-scientists to better engage with science.
- **Lessons from COVID-19:** To learn from each other's failures and successes with regards to the response to the pandemic.
- **Integrating pan-Hindukush and Himalayan Region:** Inclusion of pan-Hindukush and Himalayan region in the Future Earth Program
- **Next Plan of Action:** Online meetings -Stakeholder engagement process, South Asia Webinars and Workshops - to achieve the above

SECTION A: INAUGURAL AND INTRODUCTORY REMARKS



From left to right: Dr. K. Kasturirangan, Prof. Govindan Rangarajan, Prof. S. K. Satheesh and Dr. Josh Tewksbury.

Prof. Govindan Rangarajan, Director, IISc, welcomed all attendees and introduced IISc, Divecha Centre for Climate Change and Future Earth South Asia. He noted that countries in the South Asia region face common problems with special regards to climate change, and highlighted the importance of Future Earth South Asia to bring all countries and their efforts to tackle these issues together.

Dr. K. Kasturirangan, Chair, Governing Council, Future Earth South Asia, addressed the meeting with a few introductory remarks.

Dr. Josh Tewksbury, Executive Director, Future Earth, began by acknowledging the Regional Office for its contribution to Future Earth, as well as its suggestions for the currently undergoing structural changes in the Future Earth global network. He also emphasized on the need for organizations like Future Earth to address the need for knowledge to translate to action.

INTRODUCTORY REMARKS BY THE CHAIR

*Dr. K. Kasturirangan, Chair,
Governing Council, Future
Earth South Asia*



In the Introductory address, Dr. K. Kasturirangan reminded all participants of the four focus areas: Food, Air, Water, Health (FAWH) that were given priority during the first Governing Council meeting where the GC members felt that the four themes needed the intervention of science, policy, and practice for proactive engagement. He noted and shared that these suggestions have been incorporated in the five-year knowledge-to-action program that the Future Earth South Asia Office is developing.

As an introductory discussion, the Chair invited the different regional members and invited guests to exchange their thoughts on the four thematic areas and suggest means of engagement with the regional program, the region, and engagements within the respective countries.

HIGHLIGHT 2: INTRODUCTORY REMARKS BY THE CHAIR

Some key points and areas of action highlighted by Dr. K. Kasturirangan are as follows:

- **Knowledge to Action Programme:** The suggestions on the four broad themes will be incorporated in the five-year knowledge-to-action program that the Future Earth South Asia Office is developing.
- **SDGs and Climate Targets:** The envisioned program would focus on the 2030 Sustainable Development Goals (SDGs) targets, linkages with the SDGs and on the Paris agreement's 2°C climate target.
- **Science-Policy Pathway Initiative:** The outcomes of the program would include policy briefs, deliberation at various administrative levels, public forums, and legislatures in South Asia.
- **Science-Society Engagement:** Building partnerships between various social and scientific communities and decision-making bodies in the political as well as private sectors in South Asia is the priority of the Regional Office.
- **Advocate for Future Earth:** The Council Members would advocate for Future Earth in the countries they represent, provide overall guidance, strategic direction, and vision for Future Earth in South Asia and in their country.
- **Building Future Earth Community:** As the next step, the GC Members would help enlist stakeholders in South Asia through a stakeholder mapping process, and/or facilitate the formation of a Working Group (WG) or National Committee (NC), with a focus on the priorities of the region, that is Food, Air, Energy, Water, and Health.

He concluded his address by expressing his hope for a productive meeting - noting that enormous amounts of information have been generated through research and that ground-level actions needed to be urgently initiated.

He once again welcomed all attendees and opened the meeting by inviting Prof. Satheesh, Dr. Josh and Dr. Smriti to share an overview and progress of Future Earth. He further invited the Governing Council Members and Invited Guests for discussion.

SECTION B: PERSPECTIVES FROM FUTURE EARTH

Regional Perspective

Prof. Satheesh, Director, Future Earth South Asia highlighted the need to develop a new economic model—one that works for people and the planet—to deviate from the business-as-usual trajectory and achieve the Sustainable Development Goals by 2030. In addition to mitigating the consequences of climate change, he recommended focusing on sustainable adaptation to climate change as well, since effects of climate change are already being felt around the world and will continue to disrupt natural and human systems. He suggested that climate change targets and SDGs should be met through sustainable means, which research in South Asia region is exploring. He concluded by emphasising the main goal of Future Earth South Asia as delivering solutions-oriented knowledge for sustainable responses to challenges faced by society, and the importance of interaction between researchers and policymakers and public officials in decision making processes.

*Prof. S. K. Satheesh, Director,
Future Earth South Asia*





*Dr. Josh Tewksbury,
Director, Future Earth*

Global Perspective

Dr. Josh Tewksbury, Director, Future Earth noted the points made by Prof. Satheesh, adding that solutions coming from science have to be embedded in the local context and need to be fast enough to address systemic problems. He observed that each country has its own organization of science, which allows the voice of science to reach decision making, and that Future Earth aims to help that voice grow in each country. It also aims to connect researchers working in various fields with one another, in order to develop new ways of using science to direct decision making. He remarked that Future Earth South Asia is far ahead of many regions in terms of integrating different disciplines and stakeholders, although large gaps still exist between creation and uptake of evidence, which merits significant changes in behaviour. Dr. Tewksbury proceeded to give a few global examples of six challenges that Future Earth aims to address: science for impact; collective leadership; narratives for change; systems thinking; responding to the moment; and building the field. He noted that funding for science in all countries is generally at the national level, and what Future Earth would like to achieve is to take national level funding from multiple countries to bring them together at a global level. He explained the ongoing structural transition in Future Earth, levelling different offices with the objectives of being more inclusive, representative and collaborative, and he added that the South Asia regional office has already begun the process of transitioning to a global office. He ended his presentation by expressing his excitement to work with the community to support a broader voice for different parts of the world.

Regional Program, Activities and Progress



*Dr. Smriti Basnett, Co-Director,
Future Earth South Asia*

Dr. Smriti Basnett, Co-Director South Asia presented the key highlights from the (i) 1st GC meeting; (ii) the Preparatory Meeting held on 6th September; and the (iii) results of the Online Survey with reference to the Theme and Stakeholder Mapping Survey. The main points conveyed prior to the meeting were related to the selection of specific themes and the stakeholder engagement process, which all GC members will be involved with over the coming months. She announced the availability of a working document on “**A Review Report on Water Security, Food Security, Air Quality and associated Health Risks: South Asia**”, prepared by 33 researchers from Divecha Centre for Climate Change and 9 other organisations.

Dr. Basnett then presented the results of a brief online survey, where a majority of GC members were interested in working on issues related to climate change adaptation, water-energy-food nexus and influencing policy level changes (see highlight 3 below).

She concluded her presentation by briefly explaining a phase-wise Working Plan for Future Earth South Asia, the next step of which is the stakeholder engagement process, and the final outcomes would potentially result in a pilot project implementation, eventually delivering a policy brief. ***The Phase Wise Working Plan for the Regional Programme is listed in Appendix III.***

HIGHLIGHT 3: RESPONSES FROM GC MEMBERS: REGIONAL PROGRAMME PRIORITY - FOOD, AIR, WATER, HEALTH (FAWH)

1. (W)Climate Change and Water Security: Adaptation and Impact Reduction.
2. (W)Mainstreaming the Water-Energy-Food Nexus: A viable approach for South Asia.
3. (F)Environmental Stresses on Agriculture (including climate change).
4. (F)Futuristic Policy and Institutional Framework for Improved Food Security.
5. (H)Environmental Restoration: A priority for good health and sustainability.
6. (A)Indoor Air Pollution: Status and Way Forward.
7. (A)Challenges for Decarbonizing the Electricity Sector.
8. (A)Transition to Renewable Energy: Maintaining grid stability and reliability with more variable renewable energy generation.

SECTION C: GOVERNING COUNCIL SESSION



*Dr. Shirin Sharmin Chaudhury,
Hon'ble Member of Parliament
and Speaker, Bangladesh*

Perspectives from Bangladesh

Dr. Shirin Sharmin Chaudhury, expressed her interest in working on issues related to water security and food security as a part of the Future Earth program. She briefly described various successful initiatives undertaken by the Bangladeshi Government under the leadership of PM Sheikh Hasina, including programs to increase availability and access to agricultural subsidies, credit and food to the people of Bangladesh. She also described 'My House, My Farm Model' designed by the PM as a successful intervention to improve food security in Bangladesh which she suggested could be adopted by other countries as best practices. Hon'ble Speaker concluded by noting few challenges that continue to persist in the food and water security areas in Bangladesh, and expressed her willingness to engage with the Future Earth community to tackle them collectively for the welfare of the people in South Asia.



*Dr. Pema Choephyel, Former CEO,
Bhutan Trust for Environmental
Conservation*

Perspectives from Bhutan

Representing Bhutan, **Dr. Pema Choephyel** expressed the interest of GC members in Bhutan to work on food security and water security. He presented a brief overview of development of agriculture and water management in Bhutan, noting a few challenges such as high dependence on food imports, weak agricultural value chains, and low reach of irrigation and drinking water facilities. He also described recent interventions made by the Government in addressing these issues. He ended his talk by pointing to the various reminders that COVID-19 pandemic and lockdown gave, with regards to challenges in food supply and security, and it is serving as an opportunity to enhance food production and agricultural supply chains in the country.



*Mr. Rajiv Pratap Rudy, Hon'ble
Member of Parliament, India*

Perspectives from India

Mr. Rajiv Pratap Rudy expressed his interest in focusing on water security, drawing from experiences in his constituency in the state of Bihar. He spoke about the recent spates of flooding that occurred in his constituency, which most people never expected in the area, and how damaging they have been. He linked this problem with siltation, deforestation and groundwater depletion, describing how food and health security are being threatened by these processes. In his concluding remarks, he commented that partnership between local, national, regional and global networks will go a long way to protect people and the environment from disasters like floods, since many different aspects are involved.



Mr. P. D. Rai, President, Integrated Mountain Initiative (IMI); Former Member of Parliament, India

Mr. P. D. Rai gave examples of a few networks where stakeholders have been interacting on the kind of issues being spoken about in the Future Earth South Asia GC. Addressing questions regarding how to bring global targets down to local scale and vice versa, he suggested that organizations like the Integrated Mountain Initiative would be in a position to fill such gaps. He expressed his interest in addressing issues of water security in the Indian Northeast region, and concluded by remarking that Future Earth has an immensely important mandate and that he hopes that all available resources within this network will be used to address these issues at the parliament level or within regions like the northeast.



Dr. M. Rajeevan, Secretary, Ministry of Earth Sciences, Government of India

Dr. M. Rajeevan spoke about new research findings in food security, and pointed to the lack of proper collection and sharing of data with regards to air pollution, and water mismanagement being major problems in the South Asia region. He said that there is a discord between different ministries and departments, resulting in policies that do not align with each other. Dr. Rajeevan suggested that government organizations and ministries be added to the type of stakeholders in the shared stakeholder register, and he also pointed to the need for good collaboration between all member countries, with more frequent dialogues and discussions between GC members and stakeholders to exchange data, knowledge and expertise.



Mr. Jagdeesh Rao Puppala, Anchor and Curator, Foundation for Ecological Security, India

Mr. Jagdeesh Rao Puppala emphasized on the need to work on science to policy to action, the need to involve the social sciences, the need to move beyond action in silos, and the need for partnerships. He briefly explained the need for ecological governance, and insights acquired from regular interactions with communities in various rural areas regarding an agro-ecological continuum and employment generation in rural areas. He also emphasized on the need for activities undertaken by Future Earth to be aligned with government targets, and he offered to connect with existing networks of practitioners in India for the program.



Mr. Prithvi Raj Singh, Managing Trustee, Jal Bhagirathi Foundation, India

Mr. Prithvi Raj Singh observed that there are various macro and micro stakeholders, which need to be linked by means of certain governance structures. With regards to priority setting, he noted that no one theme is more important than the other and that a holistic approach needs to be taken to try and identify stakeholders and explore the creation of synergies between different themes. He suggested building institutions and communities through stakeholder engagement, and that more members be added to the GC.

*Mr. Ajaya Dixit, Executive Director,
Institute for Social and Environmental
Transition, Nepal*



Perspectives from Nepal

Mr. Ajaya Dixit listed various relevant topics relevant to Nepal in terms of challenges and ongoing interventions, including maternal health, farmer irrigation systems, local climate change adaptation, tourism, wildlife conservation and air pollution. He observed that the risk profile in South Asia is increasing and that there is very little dialogue across disciplines. In terms of what Future Earth can offer going forward, he suggested beginning a conversation between the natural sciences, social sciences and indigenous knowledge systems about increasing resilience to floods. He remarked that springs are drying up in the Himalayan region, leading to water, food and health insecurity, and drudgery for women. He suggested the creation of a pan Hindukush-Himalayan region program to build on ongoing activities addressing these issues, over the period of a year or two, as a tangible form of action that could be linked with the SDGs, the Paris Agreement target and the Sendai Framework.

*Dr. Arnico Panday, CEO,
Ullens Education Foundation,
Former Senior Atmospheric
Scientist, ICIMOD, Nepal*



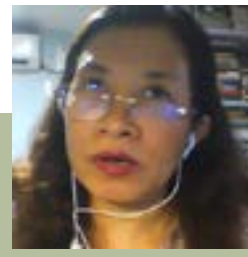
Dr. Arnico Panday spoke about how data collection and analysis regarding air pollution has developed over the past six years, and the status of air pollution in various parts of Nepal, based on his experience working in ICIMOD. He also spoke about his experience with getting various households to switch to cleaner and more efficient technology from brick kilns, and how that project succeeded over a short period of time. He put forth some of his major concerns, which included that climate change should not be ignored and that political leaders, journalists and the broader public do not understand or take science as seriously as is needed. He remarked that making science relevant and connecting it to society is key to making lasting changes, and he suggested that training programs could be conducted for journalists and other members of society to better understand and engage with science. He also suggested that some time be given to develop a plan for the Future Earth program owing to presently challenging circumstances, highlighting that what society needs is a clear message of what is already known, not the uncertainties of the unknown that scientists focus on.

Perspectives from Myanmar



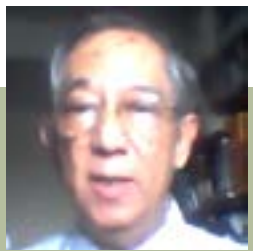
Mr. U. Tin Maung Aye Htoo, Deputy Director General, Ministry of Agriculture, Livestock and Irrigation

Mr. U. Tin Maung Aye Htoo began by announcing that he will be retiring from government service in four months. He suggested including a few government departments for the Myanmar National Committee. He commented on the aim of the Government of Myanmar to make inclusive, competitive and sustainable food systems for farmers in Myanmar, and that national policies regarding water use and conservation, and environment conservation have also been developed. He listed some food security related goals of the government, and highlighted the need to improve the status of irrigation in Myanmar. He added that the development of water resources is low and that water availability, agriculture and hydropower are important concerns for Myanmar.



Dr. Ohnmar Khaing, Board Member, Center for Economic and Social Development, Myanmar

Dr. Ohnmar Khaing informed that the Agricultural Development Strategy developed by the Government of Myanmar in 2018 has given rise to different projects supported by the World Bank and Asian Development Bank, especially with regards to Climate Smart Agriculture. These projects are exploring various aspects of agricultural development, livestock and fisheries over the next three years. She noted the importance to improve food security and quality, and for food products to be of international quality. She also suggested that ongoing strategies in Myanmar could be combined, that Future Earth could bring them together, and that she and her colleagues would be happy to help with these efforts.



Dr. Khin Maung Lwin, Advisor, National Water Resources Committee, Former Director, Central Health Education Bureau, Ministry of Health, Myanmar

Dr. Khin Maung Lwin informed that GC members from Myanmar had initially thought of focusing on water security in Yangon, but since the city has since been undergoing a health crisis due to COVID-19, his concerns to address this problem have become more urgent. He expressed his thanks to the Indian government for their help with the response to COVID. He remarked that reservoirs near Yangon will soon be exhausted and that wells are getting contaminated with polluted water. A secondary concern for Yangon now is food security, especially since supply chains have been disrupted due to trade and travel restrictions related to the pandemic, and a scarcity of commodities is expected. He spoke about other challenges imposed by the pandemic on Myanmar, and emphasized on the need to work on a new green normal after things improve.



Dr. Zaw Naing, Managing Director, Mandalay Technology, Myanmar

Dr. Zaw Naing began by briefly explaining the undergoing political and economic transition in Myanmar, observing that development in Myanmar has not been to as great an extent as other countries in the region. He described the deteriorating state of food security, water security and air pollution in Myanmar, as well as the lack of capacity of scientific research in the country to address these issues so far. He remarked about recent changes in agricultural systems with regards to land rights, and highlighted the problems of low profitability of the agricultural sector and the youth of Myanmar moving to neighbouring countries for better opportunities. He requested the attendees for their support and assistance to help with the mentioned problems, as Myanmar is in its initial stage of economic transition.



*Dr. M. Jaanaki Gooneratne,
Food Scientist and Nutritionist,
Sri Lanka*

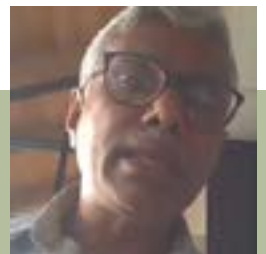
Perspectives from Sri Lanka

Dr. Jaanaki Gooneratne expressed the interest of all GC members from Sri Lanka in working on food security. She gave a brief overview of some of the main issues in Sri Lanka in terms of food and nutrition security, highlighting the relatively high prevalence of stunting, wasting, anemia and overweight. She described three major reasons for why Sri Lanka faces these issues, namely: low economic access to nutritional food, low resilience of agricultural systems to the impacts of climate change, and high consumption of staple food—especially rice. She concluded by suggesting that Sri Lanka needs to focus on making agriculture more profitable and climate smart, include smart water management systems and weather-based decision management, improve diet diversity and implement consumer-oriented programs. She also added that inter-ministerial action is required to send out accurate messages to the public.



*Dr. W. A. R. T. Wickramaarachchi,
Director, National Plant Quarantine
Service, Ministry of Agriculture,
Government of Sri Lanka*

Dr. Wickramaarachchi concurred with the points made by Dr. Jaanaki, emphasizing on the low contribution of agriculture sector to Sri Lanka's total GDP and climate change as being major challenges. He noted that agricultural land productivity, access to agricultural machinery, availability of labour during peak season, and low agricultural variety are also significant problems in the context of agriculture in Sri Lanka. He noted that Sri Lanka is a net food importer, with the exceptions of tea and rice. Although improved varieties of crops are being developed, he pointed to their limited scale in terms of trade. He also pointed to the need to improve value addition, and proceeded to give a few details regarding the types of agricultural produce grown in Sri Lanka. He concluded by noting that policy and research in Sri Lanka are not aligned with one another and that Sri Lanka has adopted ICT (information and communication technology) as part of its agricultural extension processes, but that it needs revisiting.



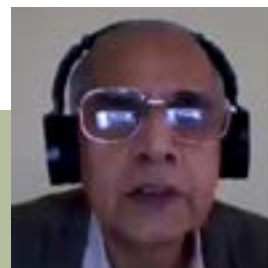
*Dr. D. M. Athula H. Senaratne, Research
Fellow and Head, Environmental
Economics Policy Research, Institute
of Policy Studies of Sri Lanka*

Dr. Athula Senaratne thanked his colleagues for their informative and comprehensive descriptions of the state of agriculture and food security in Sri Lanka. He added that agricultural development in Sri Lanka has been policy-driven, although what needs changing is a focus from policy whereby food security is equated with self-sufficiency in cereal crop production. He suggested that the policy needs to focus on availability, access and utilization, and that greater emphasis needs to be placed on value chains and farming systems instead of individual farm units. He conveyed his hope of developing a research and academic program to help improve food security in Sri Lanka along these lines.

SECTION D: REMARKS AND DISCUSSION

Perspectives from Ex-Officio Members and Invited Guests

Prof. J. Srinivasan, Distinguished Scientist and Former Chair, Divecha Centre for Climate Change, Indian Institute of Science



Prof. J. Srinivasan noted that there had been a good discussion during the meeting on issues of food security and water issues in South Asia, and added that he appreciated the observations made by Dr. Arnico Panday regarding air pollution. He expressed that there had not been much discussion on health, however, especially in terms of the COVID situation in South Asia. He agreed with the GC members from Myanmar that the situation is getting worse in the region, pointing out that there are significant variations between countries in the region in terms of the number of cases per million people. There have been fewer positive cases of COVID per million people in Sri Lanka than in India or Bangladesh. He suggested that it would be important to know why such variations exist between countries in the region, and understand what Sri Lanka has done right to control the spread of COVID, and how others can learn from each other's experiences.

Dr. K. Krishnamoorthy, Distinguished Visiting Scientist, Centre for Atmospheric and Oceanic Sciences, Indian Institute of Science, and Former Chair, National Committee of India, Future Earth



Dr. K. Krishnamoorthy highlighted some decisions taken in the previous GC meeting on the way forward, especially regarding the development of pathways for sustainable development through the integration of social and scientific research. He announced that the Indian National Science Academy reconstituted the Future Earth National Committee with Dr. M. Rajeevan as Chair of the newly constituted committee. The onus of carrying out the previously prepared Future Earth mission document about relevant issues in South Asia now lies with the newly constituted committee to take forward. Addressing the ongoing COVID pandemic, he noted that various positive environmental benefits were observed despite the setback on economic growth. The lockdown provided unequivocal evidence of large improvements in air quality and visibility, thus presenting a unique opportunity for climate and environmental scientists to make accurate assessments of anthropogenic emissions. Assessments made over the past few months could call for stricter regulations in the transport sector. He concluded by saying that this would require close integration of scientific research with policy making, developing innovative pathways for sustainable development, and that he hopes to see the Future Earth South Asia office be involved in this interface.



*Dr. Josh Tewksbury,
Executive Director, Future Earth*

Dr. Josh Tewksbury expressed his appreciation for all the work done in the South Asia region so far, particularly in the four recurring themes, and the major ways in which the different members of the Governing Council are approaching these; by increasing the initial breadth of science in the region, the integration of different sectors and parts of scientific community, building strong engagement—particularly in social science—which is critical in allowing integration of the work being done on natural and physical sciences, and allowing that work to penetrate deeper into system. In terms of how Future Earth might be able to support some of these initiatives, he believes that Future Earth communities are already working together at a global scale, and that one of the things that is important for communities around the world to engage with is the shift in the secretariat focus. He reported that over the next 6 to 9 months, Future Earth will be working hard towards being a service-driven secretariat. In order to support the Governing Council in South Asia, in the interests they represent, he would like to support the products needed to drive the South Asia region forward by establishing relationships and funding to elevate the work. He emphasized on the achievement of impact by refocusing on communication, network, support and many liaison functions, to work as a better listening ear for the needs of different structures and responding. If Future Earth can support South Asia office so that products that are created have a broader impact around the world, they can support translation and creation of work that might fit different audiences, from primary research done in South Asia region, or similarly in other regions. He believes that the Governing Council of the South Asia region and member countries have an important opportunity that he would like to support, and explore how regional work can support global research projects and communities. He expressed that he looks forward to working with the South Asia office collectively and creatively in a co-designing process, and requested all GC members not to hesitate with putting forth their ideas to figure out what would work best. He concluded by expressing his pleasure to work with scientists and collective intelligence in the region.



*Dr. S. Ayyappan, Chancellor, Central Agricultural
University, Imphal; Former Director General, Indian
Council of Agricultural Research (ICAR), New Delhi*

Dr. S. Ayyappan announced that his focus is mainly on food security in South Asia, remarking that food security is an overarching mechanism in the region, especially since biodiversity in contiguous between the countries. He noted that there are many varieties in food production systems successfully in place in India that could work well in other countries in the region, and that international assets

such as Future Earth could serve as a mechanism to exchange such knowledge. Biotic stresses such as pest attacks and disease have been on the rise—many of which are transboundary—highlighting the importance of working collectively to resolve these issues. He also pointed to similarities in dealing with tropical agriculture, which tends to be complex due to high biodiversity, similarities in terms of facing impacts of climate change and other stresses, and also in terms of having high proportions of the population depending on the agriculture sector in spite of its relatively low contribution to GDPs of South Asian countries. Seed to market value chains have been disrupted owing to the COVID pandemic, and remunerative opportunities have been demanded by rural communities. A paradigm that considers agriculture, food, nutrition, health, environment and employment has become very important and policymakers need to look at the entire spectrum. There needs to be greater focus on strengthening food production system related activities, supporting value addition, alternative or secondary agriculture, higher value compounds and food safety. He noted that a shift in diets towards increased consumption of protein has been observed, and that food production systems need to adapt accordingly, while being sustainable and considerate of potential impacts on climate change. He also pointed out the need to increase input use efficiency in order to optimize the usage of all resources by the sector, for which enhancement of research, technology and policy development is needed. He concluded by expressing his hope for the development of good science-based technology farming practices that can support not just traditional farmers, but also new players in the sector.

HIGHLIGHT 4: AREAS OF INTERVENTION TO IMPROVE FOOD SECURITY IN SOUTH ASIA SUGGESTED BY Dr. S. AYYAPPAN

- Biotic stresses: pest attacks and diseases.
- Tropical agriculture: complex biodiversity, impacts of climate change, large number of dependent population.
- Strengthening food production systems, value addition, alternative or secondary agriculture, higher value compounds and food safety.
- Adaptation of food production systems to changing diets and climate change.

*Dr. H. Paramesh, Pediatric Pulmonologist
and Visiting Professor, Divecha Centre
for Climate Change*



Dr. H. Paramesh started his talk by emphasizing on climate change as being the most important factor for future on earth. He said that the nexus between good health, good air, good water and nutritious food is very important as well, noting health as a priority for good economy as well. He observed that 70 percent of mortalities related to pollution are due to air pollution, another 20 percent due to water pollution and the remaining 10 from chemical, food and soil pollution. He reminded the attendees that nearly 90 percent of global warming is due to CO₂, which is being emitted at a much higher rate than what the Earth can naturally absorb. Air pollution, global warming and climate change are interrelated, and the primary and secondary impacts of these are affecting peoples' health. He observed that there is enough epidemiological data for sustainable health related issues to be acted upon right now, pointing out the need to fill gaps between evidence and uptake, and then work on them. He added that the COVID pandemic and lockdown period have given sufficient scientific evidence with regards to environmental changes. Interesting observations have been made about mortality to COVID, which he suggested that we try to understand. Noise pollution and population growth should also be focused on. He concluded by urging everyone to think locally and act locally to propagate progress and development globally, and requesting all to work together for a better future.



*Dr. R. Srinivasan, Lead, Water Quality Lab, Divecha
Centre for Climate Change, Indian Institute of Science*

Dr. R. Srinivasan informed the attendees that his team at DCCC has been looking at water security in South Asia, specifying that the status of water security of a country can be gauged by its capability to access clean water for industrial, agricultural and domestic uses. He noted that annual per capita availability of water is already less than 1700 cubic meters in India, Pakistan and Mauritius. Although many countries in South Asia are in the water safe category, they have problems associated with changing quantity, quality and variable distribution. Inadequate wastewater management, accompanied by extensive use of fertilizers and pesticides in the agriculture sector, he noted, has resulted in instances of recorded chronic kidney diseases of unknown etiology. An additional burden of geogenic contamination and diseases arising from arsenic, fluoride and uranium exist in South Asian countries. He also noted the persistence of transboundary water issues between various countries in the region. Steps towards climate change resilience need to be taken in all sectors. He suggested that more protein-rich crops be grown in regions experiencing water scarcity. There is a need to move to alternative sources of water in agriculture, industry and urban environments, and to educate the public about the same. There is also a need for stronger implementation of existing rules, regulations, guidelines and policies with regards to anthropogenic contamination, especially from medical waste. Some other problem areas he mentioned include the need for technological solutions to be sustainable, treatment of saline and brackish water in island and coastal nations, and glacial recession and glacial lake outbursts.



HIGHLIGHT 5: IMPORTANT POINTS OF INTERVENTION IDENTIFIED BY Dr. R. SRINIVASAN : WATER SECURITY IN SOUTH ASIA

- Water Scarcity: India, Pakistan and Mauritius already classified as water stressed countries.
- Sanitation and Sewage Treatment: Inadequate water availability for sanitation facilities and solid and liquid sewage treatment.
- Anthropogenic and Geogenic Contamination of Water: Industrial and agricultural pollutants, and geogenic contaminants have severe implications on health.
- Climate Change Adaptation: Need to enhance resilience to impacts of climate change.
- Alternative Sources of Water: Need to incorporate conjunctive water resources in all sectors.

REMARKS AND DISCUSSION: GC MEMBERS

- Mr. Ajaya Dixit commented upon the difficulty to organize and get things done during the ongoing pandemic, and he raised a question regarding how to bridge the gaps across different scales (local, national, regional, global), and how to take knowledge and understanding from the local level to higher levels.
- Dr. Arnico Panday added to Mr. Dixit's concern about the COVID pandemic, saying that it is a learning opportunity with regards to getting science through to decision makers. Scientific research usually focuses on answering specific questions whereas decision-makers need broad assessments, and we need to find out how to bridge the gap between the two.
- Dr. Zaw Naing commented that both Dr. Paramesh and Dr. R. Srinivasan had described problems that are specific to various countries as well as the region as a whole, and that there is therefore a possibility and a need to work together. On behalf of all GC members from Myanmar, he extended his hands to learn, work and grow together with all other countries in the region, and he expressed his interest in working on a regional pilot project with other members.



- Mr. Ajaya Dixit added that the discussions at the meeting were very interesting as they included various perspectives from government organizations, policy makers, researchers, community level work and activism, and other views. He agreed that there are common problems and that it would be good to find collective solutions to them, pointing this out as the biggest potential strength of this group. He thanked Future Earth for bringing the South Asian countries together and he expressed his hope to see more interaction between different groups horizontally as well. He further suggested the group to think about the next immediate steps that can be taken before the next GC meeting in April, 2021. He confirmed that he would work on the stakeholder listing and requested Dr. Basnett to start arranging the stakeholder workshops as soon as possible.
- Mr. P. D. Rai reemphasised the need for further interaction between GC members and to work across geographical boundaries. People in the Indian Northeast would be fascinated to work with Myanmar as they share the same geographical, social, community and societal conditions. Another significant impact of COVID-19, he observed, has been the rediscovery of ecotourism. Tourism has been the main economic growth factor in the Indian mountain states and making it more sustainable is crucial. He reported that the Government of India has pointed out the need to re-evaluate and rediscover the lost tradition of bamboo. Taking this up, the Integrated Mountain Initiative has initiated two large projects related to bamboo and ecotourism respectively. Small scale agriculture is also being encouraged in the form of homestead farming, which is being promoted along with ecotourism. Although contamination from geogenic pollutants such as Uranium have not been found in the Indian northeast, the problem of glacial melt has been increasing, and he concluded by saying that he would like to work towards water security for the area.
- Dr. Pema Choephyel remarked that, given the diversity, knowledge, information, it is very critical to have this platform to share the knowledge and experiences within the countries, between the countries and at regional level. He suggested to start off with a circular economy at the local level, as suggested by Mr. Jagdeesh Rao Puppala, as it increases community resilience and that this should be explored. He wished to submit a request to the Chair and secretariat to establish a knowledge bank and create a platform for sharing experiences between countries.
- Dr. Jaanaki Gooneratne requested for the outcomes of this meeting to be shared in the form of an output report so that the presentations may be referred to again, and to be able to rethink about the same. Dr. Kasturirangan and Dr. Basnett assured her that that would be done.

SECTION E: CONCLUDING REMARKS BY THE CHAIR

Prof. Satheesh, Director, Future Earth South Asia summed up the highlights of the meeting (refer Highlight 2) and commented on the challenges imposed by the ongoing COVID-19 pandemic. Acknowledging that organizing events and activities during the next few months might be difficult, he suggested that Future Earth Activities and Knowledge sharing be conducted online.

REMARKS BY THE CHAIR

*Dr. K. Kasturirangan, Chair,
Governing Council, Future
Earth South Asia*



Dr. K. Kasturirangan noted the views expressed by all GC members, ex-officio members and invited guests during the meeting as valuable inputs to the deliberations and suggested the following steps of action as key points while moving ahead (see Highlight 6, below).

HIGHLIGHT 6. CONCLUDING REMARKS BY CHAIR

- **Recognise the Diversity and Complexity of South Asia:** Recognise the diversity, complexity and plurality of the systems in South Asia and incorporate these values in the Regional Program.
- **Address Commonalities and Uniqueness specific to region and Countries:** Collectively address issues that are common to all countries in the region as well as those that are unique to one or more.
- **Grassroots Action for Social Change:** To effectively communicate science in order to achieve ground level action in the various country-specific areas of intervention suggested by various GC members
- **Integrated Approach:** Need to address multiple dimensions of problems—political, economic, social, cultural—and not just scientific solutions alone.
- **Engagement process:** Explore connectivity between local, regional and global levels in models and adopt successful models from the region.
- **Working Plan and Timeline:** Need to come to a common understanding with regards to next steps of action—stakeholder engagement, forming working group and national committees, organizing webinars, pilot projects, and mechanisms available to do these.

The Chair concluded his remarks by thanking all GC members for taking the time to attend the meeting and presenting their valuable insights, and thanked and appreciated Prof. Satheesh and Dr. Smriti Basnett for their vision and efforts for Future Earth South Asia. The chair encouraged work on an international-community level on agendas that would address pressing survival issues on earth in the coming years.

This was followed by a vote of thanks from Prof. Satheesh and Dr. Smriti Basnett and the Third Governing Council Meeting of Future Earth South Asia was announced to be tentatively held between 6-8 April 2021 in-person or Online

APPENDIX I: AGENDA

DETAILED AGENDA: 6 October, 2020 (10:30 am to 5:30 pm IST)

10:15 AM Log in to the Waiting Lounge (Online Link)

Inaugural Session: **10:30 to 11:10**

Moderator: Prof. S.K. Satheesh, Executive Director, Future Earth South Asia and Chair, Divecha Centre for Climate Change (DCCC), IISc

10:30	10:40	Welcome address by Prof. Govindan Rangarajan, Director, Indian Institute of Science (IISc)
10:40	10:50	Introduction of the Chair, Governing Council and Invited Guests by Dr. Smriti Basnett, Co-Director, South Asia, DCCC, IISc
10:50	11:05	Address and Introductory Remarks by Padma Vibhushan, Dr. K. Kasturirangan, Chair, Governing Council, Future Earth South Asia
11:05	11:10	Message from Josh Tewksbury, Executive Director, Future Earth

(Virtual Group Photo)

GC Chair Presides over the meeting: 11:15 to 5:30 pm

11:15	11:25	Regional Perspective by S.K. Satheesh, Executive Director, Future Earth South Asia
11:25	11:40	Global Perspective by Josh Tewksbury, Executive Director, Future Earth.
11:40	11:50	Regional Program, Activities and Progress, by Smriti Basnett - <i>Results from the GC survey# (refer form)</i>

Governing Council Session: 11:45 to 3:30 pm

Country Perspective by the GC Members

Engagement of GC members with the Regional Program, Region and their respective Countries

Discussion:

(i) Stakeholder Mapping and Priority Setting: Focus - Water, Food, Air and the associated Health Risks (apropos to the theme and stakeholder enlisting exercise and the preparatory meeting #)

(ii) Building Institutions and Communities through Stakeholder Identification, Working Groups and National Committees: possibilities, challenges and strategies

(iii) Comments/Suggestions: Regional Programme (document enclosed)

11:45 - 12:05	1. Shirin Sharmin Chaudhury; 2. Shamsul Alam, Bangladesh
12:05 - 12:25	1. Karma Dema Dorji; 2. Pema Choephyel, Bhutan
12:25 - 1:00	1. P.D Rai; 2. Rajiv Pratap Rudy; 3. M. Rajeevan; 4. Jagdeesh R Puppala, 5. Prithvi Raj Singh, India

1:00 2:00 One Hour Break

2:00 - 2:40	1. Ohnmar Khaing, 2. U Tin Maung Aye Htoo, 3. Khin Maung Lwin, 4. Zaw Naing, Myanmar
2:40 - 3:00	1. Ajaya Dixit; 2. Arnico Pandey, Nepal
3:00 - 3:20	1. M. Jaanaki Gooneratne; 2. D M Athula H Senaratne; Sri Lanka

2:30 3:30 Discussion: GC Members

3:30 3:50 20 Minutes Short Break

Remarks by Members: 3:30 to 5:30

3:50	4:10	Remarks by Members (Ex officio) (10 minutes each) 1. J. Srinivasan; 2. K. Krishnamoorthy.
4:10	4:50	Remarks by Invited Members (10 minutes each) 1. Josh Tewksbury; 2. S. Ayyappan; 3. H Paramesh; 4. R. Srinivasan.
4:50	5:10	Remarks by GC Members
5:10	5:30	Concluding Remarks by the Chair, Governing Council

APPENDIX II: LIST OF MEMBERS

MEMBER LIST: GOVERNING COUNCIL - FUTURE EARTH SOUTH ASIA AND INVITED GUESTS

CHAIR

K. Kasturirangan (Padma Vibhushan), Governing Council Chair, Future Earth South Asia
Govindan Rangarajan, Director, Indian Institute of Science (IISc)
S.K. Satheesh, Executive Director, Future Earth South Asia; Chair, Divecha Centre for Climate Change, IISc and Member Secretary, Governing Council of Future Earth

BANGLADESH

Shirin Sharmin Chaudhury, Hon'ble Member of Parliament and Hon'ble Speaker, Bangladesh Parliament
Shamsul Alam, Member (Senior Secretary), General Economics Division, Bangladesh Planning Commission

BHUTAN

His Excellency, **Lyonpo Yeshey Penjore**, Minister of Agriculture and Forests, Bhutan
Karma Dema Dorji, Director, National Soil Service Center (NSSC), Department of Agriculture, Ministry of Agriculture and Forestry, Bhutan
Pema Choephyel, Former Director/CEO, Bhutan Trust Fund for Environmental Conservation

INDIA

Prem Das Rai, President, Integrated Mountain Initiative (IMI); Former Member of Parliament, Former Member - Parliamentary Standing Committee on Finance
Rajiv Pratap Rudy, Member of Parliament. Former Union Minister (Skill Development); Former Chair, Parliamentary Standing Committee on Water Resources
M. Rajeevan, Secretary, Ministry of Earth Sciences (MoES), GOI, New Delhi
Jagdeesh Rao Puppala, Anchor and Curator, Foundation for Ecological Security (FES)
Prithvi Raj Singh, Founder-Trustee and Chief Functionary, Jal Bhagirathi Foundation

MYANMAR

Khin Maung Lwin, Advisor, National Water Resources Committee & Former Director, Central Health Education Bureau, Ministry of Health, Myanmar
Ohnmar Khaing, Board Member of Center for Economic and Social Development, Myanmar
U Tin Maung Aye Htoo, Deputy Director General, Ministry of Agriculture, Livestock and Irrigation
Zaw Naing, Managing Director, Mandalay Technology, Advisory Board Member, CVT Coordinating Board Member, GEGG and AIGE



NEPAL

Swarnim Waglé, Chair, Institute for Integrated Development, Former Vice Chair of National Planning Commission, Government of Nepal

Arnico K. Panday, CEO, Ullens Education Foundation-Nepal, Former Senior Atmospheric Scientist, ICIMOD, Nepal

Ajaya Dixit, Director General, Institute for Social and Environmental Transition – Nepal (NGO)

SRI LANKA

Mahavidanage Jaanaki Gooneratne, Former Head/ Senior Deputy Director, Food Technology Section, Ministry of Science and Technology, Colombo, Sri Lanka

D.M. Athula H Senaratne, Research Fellow and Head/Environmental Economics Policy Research, Institute of Policy Studies of Sri Lanka

W.A.R.T Wickramaarachchi, Director, National Plant Quarantine Service, Department of Agriculture, Ministry of Agriculture, Government of Sri Lanka

MEMBERS (Ex- officio)

J. Srinivasan, Director, Monsoon Asia Integrated Research for Sustainability (MAIRSE- FE), Future Earth, Divecha Centre for Climate Change (DCCC), IISc

K. Krishnamoorthy, Former Chair, National Committee Future Earth, India

INVITED MEMBERS

Josh Tewksbery, Executive Director, Future Earth and Director, Future Earth Global Hub, Colorado

S. Ayyappan, Chancellor, Central Agricultural University, Imphal; Former Director of General, Indian Council of Agricultural Research (ICAR), New Delhi

H. Paramesh, Pulmonologist, Visiting Professor, Divecha Centre for Climate Change, IISc

R. Srinivasan, Visiting Scientist, Water Solution Lab, Divecha Centre for Climate Change, IISc

FUTURE EARTH SOUTH ASIA

CONVENOR: **Smriti Basnett**, Co-Director, Future Earth-South Asia, DCCC, IISc Bangalore

Coordinator: **Anupama Nair**, Program Coordinator, Future Earth South Asia, DCCC, IISc Bangalore

Rapporteur and Future Earth Officers: **Anupama Nair**, **Sushma Bharadwaj** and **Arun Menon**

APPENDIX III: THE PHASE WISE WORKING PLAN FOR THE REGIONAL PROGRAMME

STAGES	DETAILS	TARGET
I	Assessment: Water Security, Food Security, Air Quality and associated Health Risks: South Asia. Report Assessment (being carried out by 33 researchers from DCCC, IISc and outside)	Completed
II	Identifying Stakeholders: (Time Sensitive) - Enlisting Stakeholders through GC Members for the four themes (Water Security/Food Security/ Air Pollution and Health- (Virtual)	Oct/Nov 2020
III	Webinars and Working Group Workshops: National Webinars/South Asia Webinars with the Future Earth Research Groups and the Country Working Groups (2020-2021) Meet (In person): Conferences and Workshops for the Working Group (whenever feasible)	2021 -2023
IV	Meet (In person): 3rd Governing Council Meeting South Asia (Mid 2021)/ National and International Meet with the stakeholders	Mid -2021
V	Pilot Project Implementation - Field Visit: Identify households/Community in South Asia to test the programme and the model	2022 - 2025
VI	International Summit (In person): Conferences and Workshops for the Working Group	Sept 2022
FINAL	Policy Brief: Release a Regional Policy Brief on Pathway to address the issue and Recommendations for Implementation at International Conventions and in the Parliament before the Parliamentary Committee (country specific)	2025

APPENDIX IV: PHOTOS FROM THE MEETING

Future Earth transition and the US Global Hub: transition for transparency, inclusivity, collaboration, and service

Principles of the transition:

- Inclusive processes defining a common mandate
- A new model with
 - Governance & management that is *flatter* & better represents the community
 - More global, collaborative, responsive secretariat structure, in service of our community

Organizational Structure Diagram:

```

    graph TD
      subgraph Assembly
        GA[Future Earth Assembly]
        GC[Governing Council]
      end
      subgraph Secretariat
        subgraph Country_A [Country A]
          CCO[Central Coordination Office]
        end
        subgraph Country_B [Country B, C, D, E...]
          GO[Global Office]
        end
        CCO <--> GO
      end
      GRN[Global Research Networks] --> GC
      SSO[Sustainability Stakeholder Organizations] --> GC
      NS[National Structures from all countries (w/ or w/o Global Office)] --> GC
      GC <--> Secretariat
    
```

[Top Right]: Mr. Rajiv Pratap Rudy presenting insights from his constituency and other experiences from India. [Top Left]: Prof. Govindan Rangarajan, Director IISc, welcoming the participants. [Below]: Dr. Josh Tewksbury presenting ongoing structural transition at Future Earth

Tackling Food Insecurity, Air Pollution,
Water Insecurity and Associated Health
Risks in South Asia

A FUTURE EARTH WORKING DOCUMENT

September 2020

33 Contributors

A Future Earth Working Document

July, August 2020 and ongoing: A
Review Report on Water Security, Food
Security, Air Quality and associated
Health Risks: South Asia

33 Contributors from DCCC and 9
other organisations

Covers Reviews on SAARC and Indian Ocean
Island Countries



The event was graced and attended by Dr. K. Katturangan, Prof. S. K. Sathyan, Dr. Shreshth Nair, Prof. Dr. Chandrabalar Shetty, Dr. Vjaskumar Gaj (IPS), Principal Secretary to Government of Karnataka, Professor P. Srinivasan, Distinguished Scientist

Launch of the Report: "Our Future on
Earth 2020"

Event: February 13, 2020

300 students (Bangalore)

India - Local media coverage : Hindu,
Prajavani, Vijaya Karnataka and Sikkim Express.

The Online coverage expanded to over 200
international media outlets in 60 countries
and a dozen languages



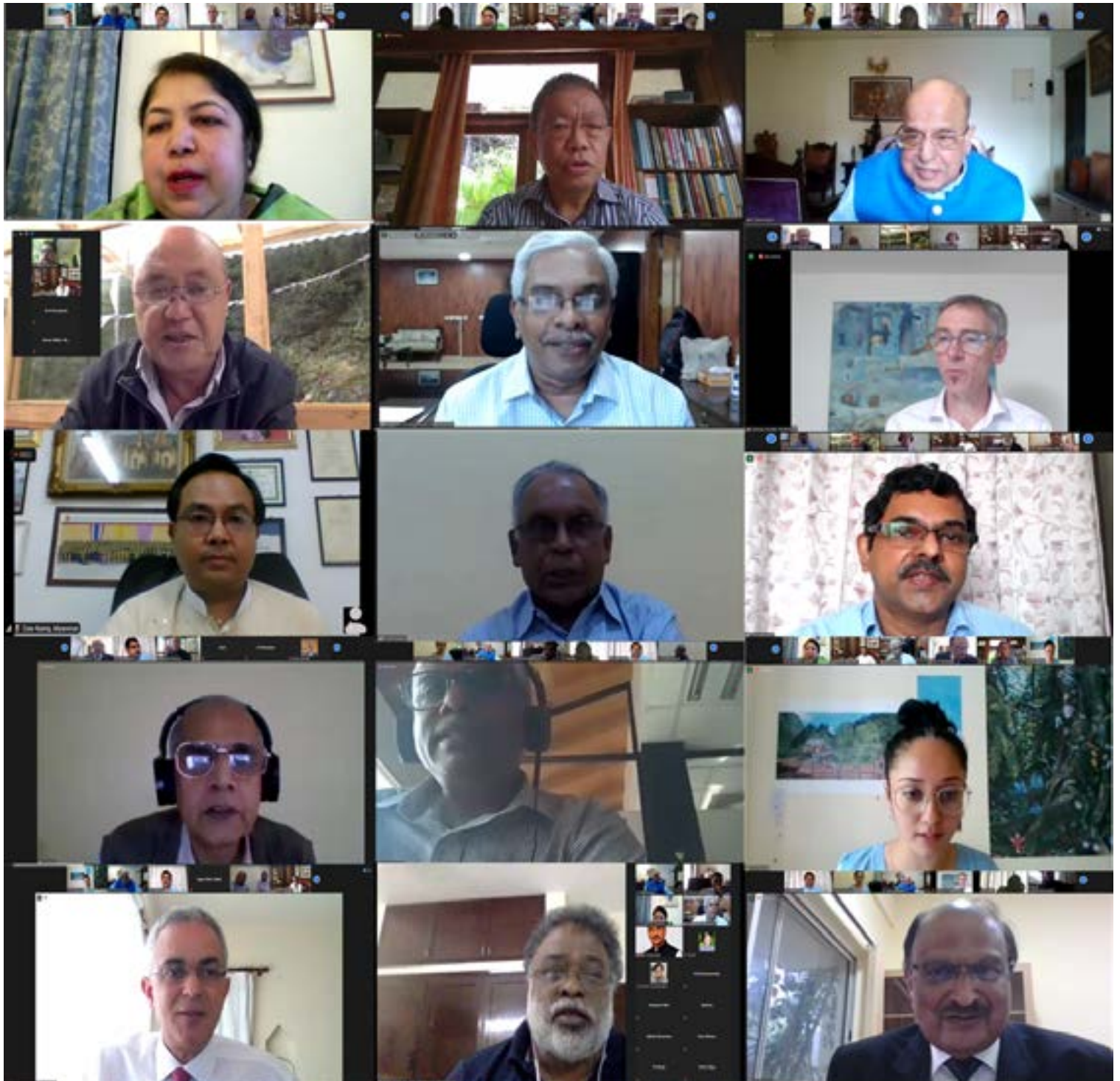
Governing Council- South Asia Regional
Office of Future Earth formed.

Highlights:

First GC Meeting: 23rd of September 2019.

- I. The discussion focused on solution-oriented research and the need for scientific community to engage with policy makers.
- II. Four Working Group Themes Identified for South Asia
 1. Water Security
 2. Food Security
 3. Clean Air and Energy
 4. Health Risks

Future Meeting: The next Meeting was Scheduled in April, 2020.



Discussion taking place during the 2nd GC Meeting



Discussion taking place during the 2nd GC Meeting