



5-6 June 2022

International Consultation on 'Biodiversity, Climate Change and Adaptation'

The Concept: Any consideration of a climate-resilient future for India must have biodiversity, agriculture, and food and nutrition security at its core. The time scale of reaching the 1.5 degrees C threshold of global warming is projected to lie within the next decade and a half. On this time scale, large parts of the Global South, including India, will continue to have substantial numbers of small and marginal producers contributing a significant proportion of total production. In the same time frame, income growth in these regions, however reasonably rapid, is likely to leave large sections of the population with low incomes and relative poverty. Maintaining the impetus for growth in agricultural production, reversing the current trends of food insecurity and strengthening food security, and taking urgent action to bridge the serious nutrition gaps – all need to be among our core concerns in the near and medium-term.

Climate adaptation and mitigation policies are however under pressure to undertake a paradigm shift, which sees agrobiodiversity, agriculture and related areas as low-hanging fruit for climate mitigation efforts. Global scenarios of mitigation project high levels of carbon sequestration through afforestation, but also through soil carbon sequestration and agroforestry. The use of land for carbon sequestration activity and biofuel crop production, and its diversion from food production will be very significant if these scenarios are played out in the real world. On the other hand, ecological concerns are often set against the need for the intensification of agricultural production, which is inevitable if increasingly less land is set aside for food production. On the plea that damage to ecosystems and biodiversity undermines human well-being, agricultural production and its increase is sought to be counter-posed to ecosystem health.

Maintaining the impetus for growth in productivity and production will be particularly challenging, though, in large parts of the world, technological advance has so far stayed ahead of the negative impact of climate change. In many regions, there is considerable scope for an increase in productivity and production, even within the existing levels of technology. However, this is unlikely to hold in the future for several crops in several regions. New inputs, techniques, and practices that contribute to overcoming abiotic stresses are essential. Without agricultural science breakthroughs, it is not evident that incremental advance in productivity is sufficient for the future. Nor can even the potential for agriculture and crop production as the setting for high levels of mitigation be put on the agenda without such advances. Increasing climate extremes will provide new challenges to climate resilience in agriculture.

There is considerable agreement that adaptation cannot be managed without a rural socio-economic transformation that needs to cover considerable ground. If agriculture is not to be the setting for increased deprivation due to climate change, with further losses in food and nutrition security, it has been argued that is essential to provide state support to agriculture, increase public investment, while deploying advanced scientific and technological knowledge, also techniques to support this sector.

It is in this background that MSSRF plans to hold a two-day international consultation on Biodiversity, Climate Change and Adaptation. It is anticipated that with a series of key interventions by a global panel of experts, a number of themes related to the issues outlined above can be fruitfully explored.

This conference celebrates the 25th year of the Wayanad Centre of the M. S. Swaminathan Research Foundation. Located in the biodiversity hotspot of the Western Ghats of India, within the State of Kerala, the location of the Centre is the site of an even more concentrated and complex version of the challenges that we have indicated above. While the conference will also engage with themes and issues that are rooted in the local landscape and ecology, it will nevertheless also explore important global and national issues related to the themes of climate change, agriculture, food and nutrition security, and gender in biodiversity.

Climate adaptation has become a priority area for many countries and regions, both developing and developed. In response, a vast array of information and knowledge has been generated over the years through completed and ongoing research on climate-related impacts and risks, vulnerability, and adaptation to climate variability and change.

Globally, nature-based solutions have a vital role to play in mitigating climate change, while simultaneously providing adaptation and other benefits, says [UNEP & IUCN \(2021\)](#). We need to assess the scope for nature-based solutions in developing countries, especially countries with a high population density such as India.

In light of this, it is essential to assess the current state of knowledge available and what specific information is still required in order to identify areas that require attention and research to further our understanding. This information will be useful to inform policy and decision-makers on viable and appropriate adaptation options.

International Consultation on 'Biodiversity, Climate Change and Adaptation'

Tentative Program Schedule

Day 1 June 5, 2022

Time Zone – IST

09:30 am to 11:15 am Session I: Inauguration		
The session will gather experiences from experts on Biodiversity, Climate Change and Adaptation. Eminent speakers from national and international institutions will participate and present their views and set the stage for further discussions.		
08:30 am to 09:30 am	Registration	
09:30 am to 09:35 am	Welcome and Chair	Prof Madhura Swaminathan Chairperson M S Swaminathan Research Foundation (MSSRF) Chennai, Tamil Nadu, India
09:35 am to 09:40 am	Message	Prof M S Swaminathan Founder Chairman M S Swaminathan Research Foundation (MSSRF), Chennai, Tamil Nadu, India
09:40 am to 10:00 am	Speakers	1. Dr Anand Patwardhan Professor, UMD School of Public Policy and Centre for Global Sustainability University of Maryland, USA (Topic: <i>The Challenges of Climate Adaptation</i>)
10:00 am to 10:15 am		2. Dr V Venu IAS Additional Chief Secretary Department of Environment and Climate Change Government of Kerala Thiruvananthapuram, Kerala, India
10:15 am to 10:30 am		3. Dr Ashish Chaturvedi Head, Environment & Energy United Nations Development Program in India Delhi, India
10:30 am to 10:45 am		4. Mr Itchell Guiney Deputy Director, Climate Change Carbon Sinks Department of Forestry, Fisheries and the Environment, South Africa (Topic: <i>Nature-based Solutions</i>)
10:45 am to 11:00 am		5. Dr Sreeja Jaiswal Consultant, Climate Change Group M S Swaminathan Research Foundation (Topic: <i>Climate Adaptation in IPCC AR6 and MSSRF's Initiatives</i>)
11.00 am to 11.15 am	Discussion	

11:15 am to 11:45 am	Tea break/ Visit to Exhibition
<p>Session Coordinators: Dr N Anil Kumar, Dr Shakeela V</p> <p>Rapporteurs: Dr Merlin Lopus, Mr Goutham</p>	
<p>11:45 am to 01: 45 pm Session II: Biodiversity Conservation</p>	
<p>Biodiversity is declining at an alarming rate over the past few decades and millions of species are facing significant challenges to their existence on the earth. The major drivers of this alarming decline in biodiversity are: climate change, changes in land use pattern & habitat loss, exploitation of organisms, pollution and invasive alien species. To arrest the loss of biodiversity, a complementary of <i>in-situ</i>, <i>ex-situ</i> and community conservation strategies are adopted across the world.</p> <p>The session will deliberate on the experiences in biodiversity conservation highlighting the major challenges, practices and strategies developed to address the challenges, and the way forward.</p>	
<p>Chair:</p> <p>Dr M Balakrishnan Professor (Rtd.), Department of Zoological Sciences Addis Ababa University, Ethiopia Retd. Prof. of Zoology, University of Kerala</p> <p>Co-Chair: Dr E D Israel Oliver King Director Biodiversity MSSRF</p> <p>[20 minutes to each speaker]</p> <p>Session Coordinators: Dr E D Israel Oliver King, Mr Girigan Gopi</p> <p>Rapporteurs: Dr Archana Bhatt, Mr Isaac</p>	<p>Speakers:</p> <ol style="list-style-type: none"> 1. Dr N Anil Kumar Senior Director, MSSRF Community Agrobiodiversity Centre Wayanad, Kerala, India (Topic: <i>Community-based in-situ/ex-situ conservation: CA&C, MSSRF</i>) 2. Prof Sanjay Deshmukh Professor of Life Sciences Formerly Vice Chancellor, University of Mumbai Mumbai, India (Topic: <i>Community based In- situ/Ex-situ Biodiversity Conservation efforts in the context of Climate Change in Maharashtra</i>) 3. Dr K M Sreekumar Professor & HOD Department of Agricultural Entomology Kerala Agricultural University Kasaragod, Kerala (Topic: <i>Conservation Biological Control</i>) 4. Dr Suneetha Subramanian Research Fellow UNU Institute of Advanced Studies Tokyo, Japan (Topic: <i>Strengthening and Promoting Bio-cultural Diversity: Implications for Human well-being</i>)

01:05 to 01:45 pm	Open discussion and conclusion
01:45 pm to 02:45 pm	Lunch break
02:45 pm - 04:45 pm Session III: Agrobiodiversity Conservation & Livelihoods: Kerala Experience	
<p>Despite having a crucial role in sustaining agriculture, mitigating climate change and ensuring food security, agrobiodiversity is increasingly disappearing from farmlands and homesteads. The unique climate and landscape diversity made Kerala endowed with rich agrobiodiversity. The state of Kerala has witnessed extreme climate events and considered as a climate hotspot. The state is also undergoing tremendous economic transformation with immense implications on biodiversity. In this context, there is a pressing need to design effective conservation strategies to mainstream agrobiodiversity for ensuring livelihoods.</p> <p>The session will focus on deliberating the Kerala experience in conserving agrobiodiversity highlighting challenges in conservation, measures taken to address the challenges and the road ahead.</p>	
<p>Chair:</p> <p>Dr R Rengalakshmi Director Ecotechnology MSSRF</p> <p>[20 minutes to each speaker]</p> <p>Session Coordinators: Dr Md.Hossain & Mr Joseph John</p> <p>Rapporteurs: Mr Sanjeev R Mr Peeyush Priya Ms Saima</p>	<p>Speakers:</p> <ol style="list-style-type: none"> 1. Dr B Mohan Kumar Vice Chancellor Arunachal University of Studies Dibrugarh, India (Topic "<i>Biodiversity Coldspots: the case of Tropical Home gardens in Kerala</i>") 2. Dr C George Thomas Chairman Kerala State Biodiversity Board Thiruvananthapuram, Kerala, India (Topic: <i>Agrobiodiversity Conservation and Livelihood: Kerala Experience</i>) 3. Dr Sarada Krishnan Executive Director, International Women's Coffee Alliance, Director of Programs, The Crop Trust Director of Horticulture & Centre for Global Initiatives, Denver Botanic Gardens, United States (Topic: <i>Challenges to Conservation in the context of Climate Change</i>)
<i>Screening of video on Seed Village program by CAbC (2 minutes)</i>	

04:05 to 04:45 pm	Open discussion and conclusion
04:45 pm	Tea

Day 2: June 6, 2022

09:30 am to 11:30 am Session IV: Climate Adaptation	
<p>The session will deliberate on the various Strategies for Climate Adaptation and learning from different parts of the world.</p> <p>While the world grapple under the impacts of climate change, affecting almost all areas of life, adaptation is gaining momentum and getting increased attention throughout the world. Climate adaptation greatly reduce the risks associated with climate change and considered essential for a climate resilient future. To implement climate change adaptation practices, it is necessary to get an insight on significant gaps in knowledge, attitude and practices associated with climate adaptation as well as learning lessons from successful cases. The session will specifically deliberate on experiences of global experts on strategies for climate adaptation and brings together lessons learned from science, stakeholders and on-the-ground implementation programs on how ecosystem-based adaptation (EbA) strategies could be harnessed to build resilience and strengthen adaptation to climate change</p>	
<p>Chair:</p> <p>Mr V Namasivayam Member Kerala State Planning Board</p> <p>[20 minutes to each speaker]</p> <p>Co-Chair: Prof. Madhura Swaminathan Chairperson MSSRF</p> <p>Session Coordinators: Dr V R Prabavathy Mr Sivan V V</p> <p>Rapporteurs: Dr Merlin Lopus, Mr Goutham</p>	<p>Speakers:</p> <ol style="list-style-type: none"> Dr Purvi Mehta Deputy Director & Head of Asia for Agriculture Bill & Melinda Gates Foundation (Topic: <i>Strategies for Climate Adaptation</i>) Dr Vania Azevedo Leader of CIP's Global Program of Biodiversity for the Future and Head, Gene bank, CIP, Peru (Topic: <i>Linking the Ex- and in-Situ conservation of Potato landraces in Peru: Current State and Future Outlook</i>) Dr R Ramasubramanian Senior Fellow Coastal Systems Research, MSSRF Tamil Nadu, India (Topic: <i>Importance of Mangrove Restoration</i>) Dr C G Madhusoodhanan Research Associate, Indian Institute of Technology Bombay Co-founder and CEO, EQUINOCT Community Sourced Modelling Solutions (Topic: <i>Possibilities of co-creating Climate Solutions in Coastal Kerala</i>)

10:50 to 11:30 am	Open discussion and conclusion
11:30 am to 11:45 am	Tea break
11:45 am to 01:30 pm Session V: Narrowing Agrobiodiversity and its challenges on Food and Nutrition Security	
<p>The session will deliberate on the implications of Climate Change on agrobiodiversity and Food & Nutrition Security, with special emphasis to improve the diversity of crops in Nutri-gardens at homesteads.</p> <p>Climate change and reduction in agrobiodiversity are two contemporary challenges that raise concern over global food and nutrition security. Emergence of commercial agriculture and subsequent decline in crop and animal genetic diversity poses threat to the very sustainability of food systems. Most importantly, narrowing on-farm agrobiodiversity puts food and nutritional security of the dependent communities at risk. In redesigning the farming systems with mainstreaming nutrition, reviving the conservation traditions and practices of agrobiodiversity has greater role to play. The in-situ (on-farm) and ex situ (non-farm) conservation of agrobiodiversity pathways could lead to increased availability of crop genetic resources for different stakeholders/partners.</p>	
<p>Chair:</p> <p>Dr K K Narayanan Managing Director Metahelix Life Sciences</p> <p>[20 minutes to each speaker]</p> <p>Session Coordinators: Dr R Rengalakshmi Ms C S Dhanya</p> <p>Rapporteurs: Dr Archana Bhatt & Mr Devshali</p>	<p>Speakers:</p> <ol style="list-style-type: none"> 1. Prof Himanshu Pathak Director, ICAR-National Institute of Abiotic Stress Management (NIASM), Pune (Topic: <i>Implications of Climate Change and Agrobiodiversity on Food and Nutrition Security</i>) 2. Dr M Nedunchezhiyan Principal Scientist Regional Centre of ICAR – Central Tuber Crops Research Institute, Bhubaneswar (Topic: <i>Food and Nutrition security through Root and Tuber Crops</i>) 3. Dr G N Hariharan Executive Director, M S Swaminathan Research Foundation (MSSRF), Chennai, India (Topic: <i>Nutri-garden programme of MSSRF</i>) 4. Dr Jacob John Professor & Head Integrated Farming Systems Research Station Kerala Agricultural University Karamana, Thiruvananthapuram (Topic: <i>Homesteads with focus on Agrobiodiversity Conservation</i>)

01:05 to 01:30 pm	Open discussion and conclusion
01:30 pm to 02:30 pm	Lunch
02:30 pm to 03:30 pm	Session VI: Closing Session - The Priorities for Kerala
This session will brief the recommendations emerged out of technical sessions, and will present a road map to climate adaptation and biodiversity conservation, with special reference to Kerala.	
<p>Chair: Dr G N Hariharan Executive Director MSSRF, Chennai</p> <p>[12 minutes to each speaker]</p> <p>Session Coordinators: Dr S Velvizhi Prajeesh P</p> <p>Rapporteurs: Dr Merlin Lopus, Mr Goutham</p>	<p>Messages:</p> <ol style="list-style-type: none"> Mr Marten van den Berg Deputy Chef de Poste is Anneke Adema Netherlands Ambassador in India Mr Satoshi Suzuki Ambassador of Japan-India Embassy of Japan in India Shri T Siddique Member of Legislative Assembly Kalpetta, Kerala <p>Speakers:</p> <ol style="list-style-type: none"> Dr Surendran U Senior Scientist, CWRDM Calicut (Topic: <i>Assessment of Drought and its Management towards a Climate Resilient Agriculture</i>) Dr S Faizi Ecologist, Biodiversity Advisor, West Bengal Forest Dept/JICA Chair: IUCN/CEESP Task Force on the Post-2020 GBF (Topic: <i>Issues in the Post 2020 Global Biodiversity Framework</i>) Prof R Ramakumar Member of State Planning Board, Government of Kerala & Professor, School of Development Studies Tata Institute of Social Sciences (Topic: <i>Climate Change and Planning: The Way Forward</i>)
Vote of thanks	Dr Shakeela V Director, Community Agrobiodiversity Centre, M S Swaminathan Research Foundation (MSSRF)

	Wayanad, Kerala
National anthem	