आज़ादी का अमृत महोत्सव

G20 भारत 2023 INDIA

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LOCC-RES 2100 CONFERENCE REPORT



HIGH LEVEL POLICY DIALOGUE
LOCALIZING CLIMATE RESILIENCE AGENDA:
VISION 2050 & 2100

IUCN CEM

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CONFERENCE REPORT

High Level Policy Dialogue

Localizing Climate Resilience Agenda: Vision 2050 & 2100

LOCC-RES 2100

2-3 September, 2021

Under CAP-RES (DST-GoI Project)

ORGANIZED BY

NATIONAL INSTITUTE OF DISASTER MANAGEMENT (NIDM)
Ministry of Home Affairs, Government of India
&
DEPARTMENT OF SCIENCE AND TECHNOLOGY (DST)
Government of India
in collaboration with
DEUTSCHE GESELLSCHAFT FÜR INTERNATIONALE ZUSAMMENARBEIT (GIZ) GMBH

Proceedings Conference

Localizing Climate Resilience Agenda: Vision 2050 & 2100 (LOCC-RES 2100)

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The document can be downloaded from https://nidm.gov.in

Dr. Akhilesh Gupta
Secretary SERB & Senior Advisor

Department of Science and Technology
Government of India
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MESSAGE

India, due to its vast areal extent, geographical, socio-economic and political variations, is vulnerable to wide range of disasters. Climate change, degradation of natural resources, changes in land-use and land-cover, along with the anthropogenic causes, aggravate disasters and people's vulnerability to disaster risk. The 6th Assessment report of IPCC also highlights an increase in the impacts of climate change and occurrence of disasters. Increasing frequency of disaster events is going to adversely affect the people and expose them to disaster risk. To grapple this, we need innovative pathways and methods such as low carbon, disruptive technology and ecologically sound development with an aim of reducing the vulnerability and impacts of disasters. In this backdrop, localization of climate resilience agenda is recommended by almost all global initiatives including Paris Climate Agreement and the Sendai Framework for Disaster Risk Reduction.

The high level policy dialogue on localization of climate resilience agenda is an attempt to offer a futuristic vision i.e. 2050 and 2100 on climate change and disasters. It also aims to come up with strategies, skills and technologies to tackle the impacts of disasters.

I heartily applaud Prof. Anil K Gupta and his entire team at NIDM for organizing this high level policy dialogue to address the crucial issue of changing pattern of climate and disasters and initiating dialogues through CAP-RES project, and aiding DST in this regard. This conference has offered viewpoints of national and international delegates from various institutes and departments on the status of climate change and disasters at present as well as in future and come up with a work-plan in this regard.

(Akhilesh Gupta)

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Resilient India - Disaster Free India

ताज हसन, भा.पु.से.
कार्यकारी निदेशक

Taj Hassan, IPS
Executive Director

सत्यमेव जयते

आज़ादी का अमृत महोत्सव

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National Institute of Disaster Management
(गृह मंत्रालय, भारत सरकार)
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FOREWORD

The impacts of climate change are being noticed in all aspects of life. It has intensified the disasters, adversely affecting the lives of people. It has also increased the frequency of disasters. The challenges associated with the climate change and disasters are enormous, and have mixed influence on environmental, social, economic and political aspects of any nation. The recent IPCC report has suggested urgent actions for long term resilience against changing climate, frequently occurring disasters and their impacts. For identifying future challenges and framing strategies to fight them require a well thought out and deliberate plan of action. This also needs more reliance on science based policy research and amalgamation of the same at various levels for taking optimum benefit.

Climate change adaptation and disaster risk reduction is crucial to achieve a sustainable future. Our strategy to handle the issues related to disaster management and disaster risk reduction should utilize innovative Science and Technology interventions, research outcomes and should have a holistic, integrated and inclusive approach.

I firmly believe that this high level policy dialogue on localizing climate resilience agenda will help in framing appropriate strategy and action plan to tackle the disasters world over.

Tajhassan

(Taj Hassan)

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Prof. Anil K Gupta
Project Director, CAP-RES
Professor & Head
Division of Environment,
Climate & Disaster Risk Management

सत्यमेव जयते

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(गृह मंत्रालय, भारत सरकार)
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PREFACE

NIDM and its partners (international and national), with the guidance of the apex authorities of GoI is undertaking many initiatives in the area of climate change adaptation and disaster resilience including capacity building, research, documentation and policy planning. In one such endeavour, it is implementing CAP-RES, a major programme under NAPCC and NMSKCC, steered by the Department of Science and Technology programme under NAPCC and NMSKCC, steered by (DST), GoI.

Disasters are dynamic and their changing trends are also witnessed frequently. A comparison of the past and the present disaster trends, show significant variations and differences; based on these, significant futuristic variations can also be anticipated. A recent peace of research supported by GIZ on trends on geographical extent pre-post and during Hyogo Framework for Action, such kind of understanding is essential to understand the futuristic trends and interventions needed for adaptation & resilience towards DRR. This makes it clear that an anticipatory and pro-active approach is necessary for disaster risk reduction and futuristic disaster management scenarios. The second approach is 'Sustainability inclusive DRR' which also relates with intergenerational equity. The recent 6th assessment report of IPCC has not only warranted urgent action for long term resilience in human development but also forewarn about the complexity of futuristic risks. Identifying the far reached- i.e. 2050 and 2100-climate challenges and further sketching strategies to combat them requires greater science-policy-research interface at all levels. It calls for a futuristic adaptive policy focusing specifically on strengthening the existing S&T and Policy frameworks. Thus, guidelines and plans pertaining to disaster management at all levels and across sectors are expected to utilize and integrate relevant S&T interventions, research strategies and innovations and develop a holistic, integrated, and inclusive model through S&T interventions and innovations from across a range of disciplines.

'LOCC-RES 2100 i.e Localizing Climate Resilience Agenda: 2050 & 2100 Visions' is a step towards understanding the futuristic climate issues and challenges. The discussions and deliberation during this high level policy dialogue tries to offer key entry points for S&T for the post 2050 DRR and climate resilience adaptation agenda.

(Anil K Gupta)

ACKNOWLEDGEMENT

The conference report on 'Localizing Climate Resilience Agenda: Vision 2050 and 2100" (LOCC-RES 2100),' organized by NIDM under the Project Climate Adaptive Planning for Resilience and Sustainable Development in Multi-Hazard Environment (CAP-RES) supported by Department of Science & Technology (DST), Government of India. A special note of thanks to Dr. Akhilesh Gupta, DST, GoI for entrusting NIDM with the opportunity to take up and work on CAP-RES. The project team is thankful to Major General Manoj Kumar Bindal, Former Executive Director NIDM for his constant support and encouragement to organize this conference and also ensuring the smooth functioning of the project. The team also extends thanks to Dr. Nisha Mendiratta, Advisor & Head, Climate Change Programme for her support and guidance to the team members.

The team is also thankful to all the collaborators including GIZ Germany India office and IUCN CEM. Special thanks to Dr. Julie Riviere, Country Director, GIZ and Natural Resources Management Team, GIZ including Mr. Rajeev Ahal (Director, NRM and Agroecology, GIZ India) and Mr. Vaibhav Sharma (Technical Expert, WASCA) for their constant support in successful implementation of the conference. Their cooperation and support has always been a great resource and motivation for our team. The conference team, is highly grateful to Ms. Christiane Hieronymus, Head of Economic Cooperation & Development, Embassy of Federal Republic of Germany, Shri Kamal Kishore, Member, NDMA, GoI and Prof. Ashutosh Sharma, Former Secretary, DST, GoI to investing their time and contributing during the deliberations for the conference. The team is indeed pleased to express gratitude and sense of respect for all the Patrons, Advisory Committee members and esteemed luminaries and dignitaries from India and abroad who supported our endeavours by participating in the high level panel sessions and also extended support in our professional and academic endeavours. Their participation has been very useful and significant in drawing up the key outcomes of this important and strategic policy dialogue.

Thanks are also due to the CAP-RES team including Dr. Sweta Baidya (Research Associate), Ms. Pritha Acharya (Research Associate) and Dr. Uzma Parveen (Research Fellow) who coordinated the conference. The project is also thankful to Dr. Kopal Verma Saini, (Junior Consultant) and Ms. Swati Singh (Consultant, NEFC-DMP) for coordinating and providing backend technical support to the conference.

The project team also extend thanks to to Mr Surendra Thakur, (Consultant & I/C, Admin & HR) and to Shri S.K. Tiwari (Librarian, NIDM) and the entire publication cell of NIDM including Ms. Karanpreet Kaur Sodhi, Jr Consultant for for helping in printing and publication of this report. Further, the team also expresses gratitude to admin and accounts team and one and all who helped in this conference through their support.



Prof. Anil K Gupta
Project Director, CAP-RES

ABOUT THE ORGANISERS

National Institute of Disaster Management (NIDM)

National Institute of Disaster Management is a statutory organization under the Ministry of Home Affairs, Government of India, mandated under the Disaster Management Act 2005 to be the apex institution with a vision to play the role of a premier institute in India and the region for capacity building, training, research, documentation and policy advocacy on all areas of disaster management in India.

The Environment, Climate & Disaster Risk Management (ECDRM) division at NIDM has been designated as a Centre of Excellence on Climate Resilience (CECR) by the Ministry of Health and Family Welfare under the National Action Plan for Climate Change and Human Health (NAPCCHH). CECR is implementing many research projects for various ministries namely: (i) Climate Adaptive Planning for Resilience and Sustainable Development in Multi-hazard Environment (CAP-RES) funded by DST-GoI; (ii) Health Resilience and Capacity Building (HER-CAP) supported by WHO India; (iii) Crisis Management Plan to deal with Contamination of Water Bodies (CMP-WB) supported by the MoEFCC through Central Pollution Control Board; (iv) Disaster Management Plan for Ministry of Aayush and; (v) Disaster Management Plan for the Ministry of Environment, Forest and Climate Change (NEFCDMP) for MoEFCC. Among others the centre has been credited for preparing the comprehensive National Agriculture Disaster Management Plan (NADMP) for Ministry of Agriculture and Farmers Welfare, Disaster Management Plan for the Ministry of Chemical & Fertilizers (NCPC-DMP) for Ministry of Chemical and Petro-chemicals.

For more details visit: https://nidm.gov.in

Department of Science and Technology (DST)

Department of Science & Technology (DST) was established in May 1971, with the objective of promoting new areas of Science & Technology and to play the role of a nodal department for organising, coordinating and promoting S&T activities in the country. DST has a dedicated division on Climate Change and is implementing two out of eight national missions on Climate Change including National Mission for Sustainable Himalayan Ecosystem (NMSHE) and National Mission on Strategic Knowledge for Climate Change (NMSKCC).

For more details visit: https://dst.gov.in

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ-GmbH)

GIZ India on behalf of Federal Government of Germany and various other partners has been providing support both, at the national level and at the sub-national level in almost all the key aspects of addressing climate change such as SAPCC development and implementation support; creating enabling conditions for accessing climate finance; capacity development, supporting policy dialogues and multi-stakeholder engagement.

For more details visit: https://www.giz.de/en/html/index.html

IUCN- Commission on Ecosystem Management (CEM South Asia)

The Commission on Ecosystem Management (CEM) is one of the 6 commissions of IUCN. The South Asian regional network of the IUCN Commission on Ecosystem Management (CEM-SA) is a regional platform of global significance comprised of experts, professionals and emerging leaders (youth) for contributing and sharing knowledge that is helping for up gradation and development of existing knowledge related to the concerns, challenges and prospects of ecosystem management and trans-boundary conservation efforts in the region.

For more details visit: https://www.iucn.org/commissions/commission-ecosystem-management

Objectives of CAP-RES

Through the conference, CAP-RES tried to achieve the following:

- To deliberate upon the concepts, case studies, pilots and lessons across the thematic areas.
- To review and recognize the status– strengths, gaps and opportunities for research and science-policy-practice interface.
- To develop networks of institutions/researchers and experts across key themes for knowledge development and capacity promotion.
- To enable and strengthen cooperation with key international and national institutions for co- benefits with CAP-RES.

Organizing Team

Programme Patrons



Dr. Akhilesh Gupta,
Secretary SERB and Senior Advisor, DST - GoI



Maj. Gen. Manoj Kumar Bindal,
Former Executive Director,
NIDM, MHA, GoI

Programme Convener



Prof. Anil Kumar Gupta,
Head-ECDRM Division and Project
Director CAP-RES, NIDM

Core Team



Dr. Sweta Baidya Das
Consultant, NIDM



Ms. Pritha Acharya
Research Associate, NIDM



Dr. Kopal Verma Saini
Junior Consultant, NIDM



Dr. Uzma Parveen
Research Fellow, NIDM



Dr. Swati Singh
Consultant, UNDP, NIDM



Mr. Vaibhav Sharma
Technical Expert, NRM, GIZ

Background

India is prone to multiple disasters, due to its wide range of environmental, geological and developmental variations. Environmental changes, viz. Climate change, land-use changes, natural resource degradation, along with the anthropogenic settings, aggravate disasters and people's vulnerability to the disaster's impacts. The Living Planet Index (LPI) highlights that anthropogenic activities are the primary factor which has pushed our planetary boundaries beyond limits. This calls for the approaches and pathways of low carbon and ecologically sound developmental strategies that help adapt to the impacts of climate change with the aim of reducing the vulnerability and the risk of disasters; an approach that aligns with co-benefits, synergies, cooperation, and interdisciplinary actions. The Sustainable Development Goals (SDGs) have established this approach with the set of 17 goals as a blueprint for achieving a sustainable and better future for all. Localization of climate resilience agenda has been advised by almost all the global development agendas-including the Paris Climate Agreement and the Sendai Framework for Disaster Risk Reduction (SFDRR), however, they are focused to achieve these targets by 2030. As climate change is manifesting itself in various forms; the challenge it may bring henceforth may have uncommon yet heterogeneous social, environmental, and economical altercations.



The recent 6th assessment report of IPCC has not only warranted urgent action for long term resilience in human development but also forewarn about the complexity of futuristic risks. Identifying the far reached- i.e. 2050 and 2100- climate challenges and further sketching strategies to combat them requires greater science-policy-research interface at all levels. It calls for a futuristic adaptive policy focusing specifically on strengthening the existing S&T and Policy frameworks. Thus, guidelines and plans pertaining to disaster management at all levels and across sectors are expected to utilize and integrate relevant S&T interventions, research strategies and innovations and develop a holistic, integrated, and inclusive model through S&T interventions and innovations from across a range of disciplines.

Sessions	Objectives	Outcome
Science Policy Innovation for Climate Resilience WASCA Special Session Disaster Resilient Development Future Strategy Recommendation	• Identifying the futuristic climate scenario and challenges. • Long term vision for Science, Technology and Policy integration and localization. • Understanding financial mechanisms and governing tools for climate resilience with special emphasis to the futuristic climate and disaster challenges. • Envisioning the impact of disruptive technology for effective models ensuring long term climate resilience trends.	The deliberations during the conference and subsequent script contribution would be considered for developing a knowledge volume which will serve as a strategic document (to be published in International press, like Springer Nature Series DRGG) to highlight the science policy innovation practices and disaster resilient development strategies. The document will also help in developing a framework for promoting the futuristic risk scenarios and adaptation base for post 2050 and 2100 vision.

Participation	The programme had representation from India and abroad and was attended by more than 200 participants. Vice Chancellors, directors, departmental heads and professors from esteemed academic universities, colleges and institutes also attended and gave their valuable contributions in different sessions of the conference. Teachers, research scholars, students, officers, practitioners, environmentalists and conservationists from all over India attended the conference and gained substantial knowledge inputs. The list of the key organizations who attended and participated in the event is attached in the report as Annexure III.

Localizing Climate Resilience Agenda: Vision 2050 & 2100

SESSION WISE REPORT



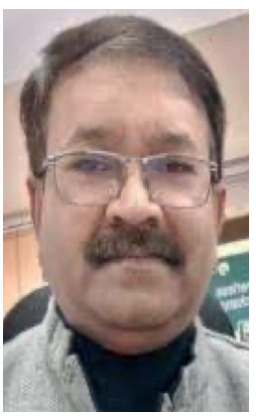


LOCC-RES 2100

HIGH LEVEL POLICY DIALOGUE

SESSION 101

INAUGURAL SESSION


HIGH LEVEL POLICY DIALOGUE

SESSION 101: INAUGURAL SESSION

Day-1: 2nd September 2021, 3:00-4:30 PM

Welcome Address:
Major General Manoj Kumar Bindal, Former Executive Director, NIDM

Inaugural Guest:
Dr. Akhilesh Gupta, Secretary, SERB
and Senior Adviser

Prof. V K Sharma, Vice-Chairman, Sikkim State Disaster Management Authority

Ms. Christiane Hieronymus, Head of Economic Cooperation & Development, Embassy of Federal Republic of Germany

Inaugural Address:
Shri Kamal Kishore, Member Secretary, NDMA, GoI

Conference Convener:
Prof. Anil K Gupta, Project Director- CAP-RES & Head, ECDRM Division, NIDM

Coordinator:
Dr. Sweta Baidya, Research Associate, CAP-RES Project, NIDM

PROF ANIL K GUPTA

PROFESSOR & HEAD, ECDRM DIVISION, PD, CAP-RES, NIDM



CONFERENCE CONVENER

Prof. Gupta has more than 25 years of experience in the field of disaster management, environment and climate resilience. He has been credited for preparation of National and Sectoral Disaster management Plans, Human Resource Capacity Development Plans, National Action Plan for Disaster Management.

Prof. Gupta welcomed the dignitaries and participants. He mentioned that this very important 2-days high level policy dialogue was organized looking at the futuristic issues and Disaster Risk Reduction (DRR) with the background of the implications of climate change that are likely to intensify with the days and time to come. NIDM along with its international and national partners and with the guidance of the apex authorities of Government of India, have been taking various initiative in the area of capacity building, research documentation and policy planning on Disaster Resilience and Climate Change Adaptation. Presently, the institute is implementing a major programme under the National Action Plan on Climate Change under the National Knowledge Mission on Climate Change, which is being steered by the Department of Science and Technology, Government of India. Under this, there is the component of Climate Adaptive Planning for Resilience and Sustainability. He also mentioned about the other projects with the support of national and international agencies including WHO and Ministry of Health, WFP, UNICEF, etc.

On this happy note, he introduced and welcomed all the luminaries and other partners to the programme. He further mentioned that it is well accepted that the disasters are dynamic and there is a changing trend of disasters. The comparison of past and present disaster shows significant variation which indicates the future trends. The recent research in collaboration with GIZ has shown the trends on geographical extent in India pre- and post-Hyogo Framework of Action period to understand the required interventions and futuristic issues for adaptation, resilience and DRR. Sustainability inclusive DRR is the phrase of the day where sustainability relates to inter-generational equity. Therefore, it is important to anticipate the disaster risk issues and challenges for future generation. This marks the importance of the conference on 'High Level Policy Dialogue on Localizing Climate Resilience Agenda Vision 2050 & 2100'.

KEY TAKEAWAYS

The comparison of past and present disaster accounts show significant variation which indicates the future trends.

Sustainability Inclusive DRR is the phrase of the day where sustainability relates to inter-generational equity.

It is important to anticipate the disaster risk issues and challenges for future generation.

MAJOR GENERAL MANOJ KUMAR BINDAL

FORMER EXECUTIVE DIRECTOR, NIDM



WELCOME ADDRESS

Maj Gen. Bindal has commanded Air Defence Regiment & Air Defence Brigade in Kashmir region during couter insurgency operations. He was a staff member of Mountain Brigade deployed in counter insurgency ops and in High Altitude area, an Armored Division deployed in the plains, a Desert Corps & in a Corps HQ in High Altitude areas. He was the Deputy Director General in Directorate of Army Air Defence.

He expressed that it is a privilege to talk on such important issue. He sincerely thanked the department of Science and Technology, Dr. Akhilesh Gupta and GIZ which was represented by Dr. Christiane for supporting this project and taking it forward. The best outcome of the project is the present high level policy dialogue. He welcomed Prof. V K Sharma, Shri Kamal Kishore to the programme. He thanked all the distinguished panellists of the two day conference. While explaining the importance of the conference, he said that the way climate is deteriorating and the IPCC report has given "code red" shows that we have already reached the danger mark, therefore, there is a need to talk on this issue more and more and take concrete steps. Towards that step, this particular policy dialogue will help in formulating crucial action plan. We are aware that disaster management is witnessing its turning point in the backdrop of the SFDRR, especially post-Hyogo period (2015-2030). There has been a paradigm shift in disaster management from response and relief to prevention and mitigation which calls for a holistic approach for disaster resilience at different levels.

In a disaster prone country like India, it is important that we make sure that people have rapid access to information that encourages preventive measures and enables quick response to protect lives and livelihoods. Completely avoiding the natural disaster is not possible, but minimizing the sufferings by creating proper awareness through early warning system can enhance the efficiency of disaster risk management process itself. Use of science innovation and technology may emerge as a key to plan sustainable and disaster resilient infrastructure and systems in present and future. It plays a crucial role with satellite based geographical information system and computer simulation proving for disaster mapping, risk assessment as well as disaster response and preparedness at all stages of disaster management. Effective actions when combined with forecasting and prompt warning can definitely can save from large scale damages and destruction occurring through natural disasters particularly Hydro-meteorological disasters.

KEY TAKEAWAYS

It is important that we make sure that people have rapid access to information that encourages preventive measures and enables quick response to protect lives and livelihoods.

Use of science innovation and technology may emerge as a key to plan sustainable and disaster resilient infrastructure and systems in present and future.

Cyclone Phylin in Odisha is one of the successful examples of timely forecasting by GoI that saved millions of lives. Internet based tools are also gaining popularity in disaster management with various advanced and user friendly apps. This changing trend and more awareness towards DRR has opened up a large scientific and technological resources and skills to reduce disaster risk. However as of now, the focus of harnessing technology has been limited to space technology alone with the role of modelling, simulation, geo-technology, eco-technology, eco-engineering, medical technology, plastic engineering, food and agro-technology environment, water and health sciences which have been harnessed slightly lesser. The NAPCC under its eight missions, gives importance on technological advances and application and the framework of multiple science technologies which may be roped in for the DRM. S&T application in DRM needs to be promoted at all levels and all stages of the disaster management on the principle set by the SFDRR. For this expertise from several disciplines are needed. Traditional knowledge and wisdom and indigenous innovation are equally important as they may provide many cost effective solutions. Successful science policy interface is needed for climate change mitigation, this can translate the climate change scenarios to an adaptation policies.

KEY TAKEAWAYS

Traditional knowledge and wisdom and indigenous innovation is also equally important as it may provide many cost effective solutions.

In regional scale, the interacting drivers and stresses need to be understood to simultaneously address more than one issue at a time.

In regional scale, the interacting drivers and stresses need to be understood to simultaneously address more than one issue at a time. Multilevel governance needs to be implemented for taking the adaptation agenda foreword. Science influences action and choices in individual and institutional level. Sustainable development faces a range of challenges. Since the resource is limited, selective targets need to be quantitative and clear indicators and target values. Therefore, with this existing gigantic challenges the policy dialogue is curated to discuss the pertinent issues. He wished all the participants a very good learning.

DR AKHILESH GUPTA

SECRETARY, SERB & SENIOR ADVISOR, DST - GOI



INAUGURAL GUEST

Dr Akhilesh Gupta is Senior Advisor DST, GoI and also heading the PCPM division of DST coordinating two National Missions on Climate Change under National Action Plan on Climate Change. He has published over 185 research papers. Dr. Gupta was a member of the National Coordination Team which drafted India's National Action Plan on Climate Change in 2008.

He mentioned that the policy dialogue was held at a crucial and important juncture. He mentioned about the recent strategic events focusing on policies viz. published report of IPCC working group I and the 26th Conference of Parties scheduled to happen in Glasgow. India is a rapidly developing country while dealing with the global economic challenges. The projection by the working group report rings an alarm and this is the starkest warning that has ever come from IPCC about the depending climate emergency and some of the changes which are already set in motion trending towards irreversible situation.

The temperature change so far is 1.5℃ and the next two decades are going to be crucial. The projection says that the temperature is going to rise beyond the critical limit. The 2 ℃ temperature rising which were projecting by the end of the century, might come much earlier impacting the agriculture and health sector. The impact of climate change is going to be much more in terms of extreme rainfall, urban flood, heat wave, sea level rise etc. for India due to its population pressure and poverty. DST has done a good job in upscaling the climate research as part of the initiative of the two National Missions. In climate change research, India's position has gone up from15th to 9th position in last decades. All India Vulnerability Assessment is one such important initiative taken by DST to understand which state needs upscaling in terms of Disaster risk reduction and adaptive intervention. In India, 620 districts are vulnerable to climate change, among these 100 districts come under highly vulnerable categories. Out of these 100 districts, nearly 70% are from 5 states, namely Assam, Bihar, Jharkhand, Uttar Pradesh and Odisha. Important thing is that all these states are in the eastern side of the country. This highlights the place where adaptation strategies should be implemented. We are the fourth largest wind energy producer in the world.

KEY TAKEAWAYS

India is yet highly vulnerable due to lower adaptive capability especially in the eastern side.

The biggest challenge India is going to face in the coming time is to understand the ways of improving the adaptive capability to increase the Human Development Index at specially addressing poverty and high population density.

India must develop a Climate Risk Atlas and Climate Change Risk Index.

As per the Nationally Determined Contribution, we had the target of producing 20 gigawatt renewable energy which was achieved in 2018 itself and now a new target of 175 gigawatt is set and by 2030, 450 gigawatt. Though India has done well in generating renewable energy but it is yet highly vulnerable due to lower adaptive capability especially in the eastern side. The biggest challenge India is going to face in the coming time is to understand the ways of improving the adaptive capability to increase Human Development Index at specially addressing poverty and high population density but for this we do not have adequate resources. India must develop a Climate Risk Atlas and Climate Change Risk Index which DST is going to take up very shortly. Finally he mentioned that the vision for 2030 or 2100 should be much bigger than the present action.

PROF V K SHARMA

VICE-CHAIRMAN, SIKKIM SDMA



INAUGURAL GUEST

Prof. V K Sharma is Senior Professor at Indian Institute of Public Administration, and Vice Chairman, Sikkim State Disaster Management Authority, Govt. of Sikkim. He is member of Science, Technology and Innovation Policy of Govt. of India STIP-2020 (TG-Capacity Building). He has held several positions including Chief of Party, Program for Enhancement of Emergency Response (PEER).

Prof. Sharma complemented for organizing the policy workshop. He mentioned that the Working Group report by the IPCC is very alarming. While citing the example of forest fire in Australia and California he told that all over the world the impact of climate change is visible. India is having plans for each State and the 25 centres created by DST is very important. Earlier in Sikkim there were two plans, one for Climate Change Adaptation and Disaster Risk Reduction which is now going to be merged to have one plan. Localized planning at municipal level are important as many of our cities does not have capacity to withstand even a little more rainfall. In Smart City Planning also, we should emphasize on the impact of climate change. We should have different approach for Himalayan cities, coastal cities, etc. and prepare a localized plan to meet this challenge. Panchayat level plans should be prepared in which all aspects like climate change, biodiversity etc. should be merged. In Coastal areas, the NGOs have done marvellous jobs. We have not provided all-inclusive complete knowledge to people which is needed and without this the climate change adaptation will be incomplete.

Planning at city and Panchayat levels are missing. The advanced agricultural research is not reaching up to the farmers. All the states should come together and discuss about the problems and possible adaptation strategies. Green Hydrogen is one of the potential energy resource, which require more research. Aspirational districts and smart cities are doing well in terms of adaptation. He finally mentioned that there is a dire need for sensitizing people for achieving adaptation goals.

KEY TAKEAWAYS

Localized planning at municipal level are important.

In Smart City Planning also we should emphasise on the impact of climate change.

Need to provide all-inclusive complete knowledge to people for climate change adaptation.

MS CHRISTIANE HIERONYMUS

HEAD, ECONOMIC COOPERATION & DEVELOPMENT, EMBASSY OF FEDERAL REPUBLIC OF GERMANY



INAUGURAL GUEST

Prof.. Ms. Christiane Hieronymus is Head of Economic Cooperation & Development, Embassy of Federal Republic of Germany.

Ms. Christiane mentioned that the Indo-German Cooperation is 63 years old and for Germany, India is the biggest partner worldwide. Germany has a commitment of 1 billion euro yearly towards India. This cooperation is important for all the global challenges that Germany are facing like climate change, sustainable agriculture, renewable green energy, green urban mobility, green development etc. She told that it is the time to act locally and that is why this policy dialogue is important. She expressed her happiness on the coalition on Disaster Response Initiative. She further mentioned that the workshop has come at the right time as IPCC had already raised the "Code Red" for Climate Action and the assessment has pushed the button "Act Now". For this, we need everybody everywhere along with good policies and action plans to protect the climate but also need to implement them. There is a need to localize the climate action plan from National level to Panchayat level which Indo-German cooperation is already doing. German cooperation with Ministry of Environment is preparing State Action Plan on Climate Change for 18 states and in revision for 7 states. In cooperation with State Government of Himachal Pradesh and Uttar Pradesh, SAPCCs are being taken to the Panchayat levels. Good policies can be translated into action. According to India's Composite Water Management Index of 2018, 600 million people in the country are facing water scarcity. Water is one of the key resource that is affected by Climate Change. The inter linkages of water food energy and other essential resources make the issue further critical. The water resource management is a prime concern. German cooperation is trying to work on already existing projects MGNREGA etc. To solve the issues. She further explained the key focus area of the WASCA project.

KEY TAKEAWAYS

There is a need to localize the climate action plan from National level to Panchayat level.

Water is one of the key resource that is affected by Climate Change, therefore, water resource management is a prime concern.

The inter linkages of water food energy and other essential resources make the issue further critical.

SHRI KAMAL KISHORE

MEMBER SECRETARY, NDMA, GOI



INAUGURAL ADDRESS

Shri Kamal Kishore is the Member Secretary of National Disaster Management Authority. He has worked on disaster risk reduction and recovery issues for over 22 years. Prior to joining the National Disaster Management Authority, he worked with UNDP for nearly 13 years. At UNDP headquarters he led global advocacy campaigns to address disaster risk reduction concerns in the UN's Sustainable Development Goals and the post-2015 development agenda.

Shri Kamal Kishore mentioned that though this year the rainfall is below normal, but even then our cities have faced unprecedented consequences. The overall rainfall over the Indian Subcontinent may not increase but the number of rainy days may reduce i.e., more rainfall may happen during a short time. The annual rainfall over Bombay and Singapore is same, 2100 mm, but the monthly distribution of Singapore is neat. Whereas in Bombay, the rainfall is concentrated in and around the month of July. The normal Indian rainfall also have intra-annual variability. If the impact of climate change is put on top of that the situation becomes much more complicated. So we are not only managing risk but also managing uncertainty. The future is such that the past can no longer be a good guide. Need to pursue three strategies across the country viz. normal no regrets vulnerability reduction actions with greater vigour.

Need to work on managing the storm water drainage in New Delhi and many other cities. Second step is to diversify our risks to be prepared for multiple scenarios. Number three is to make a system to iterate our risk assessment in every few year to make our self-resilient not only for current risk but also for future risk.

KEY TAKEAWAYS

Need to implement normal no regrets vulnerability reduction actions with greater vigour.

Need to diversify our risks to be prepared for multiple scenarios.

We have to make a system to iterate our risk assessment in every few year to make our self-resilient not only for current risk but also for future risk.

KEY TAKEAWAYS OF THE SESSIONS

- The comparison of past and present disaster accounts show significant variation which indicates the future trends.
- Sustainability Inclusive DRR needs to be focused where sustainability relates to inter-generational equity.
- It is important to anticipate disaster risk issues and challenges for future generation.
- It is important that we make sure that people have rapid access to information that encourages preventive measures and enables quick response to protect lives and livelihoods.
- Use of science innovation and technology may emerge as a key to planning sustainable and disaster resilient infrastructure and systems in present and future.
- Traditional knowledge and wisdom and indigenous innovation is also equally important as it may provide many cost effective solutions.
- In regional scale the interacting drivers and stresses need to be understood to simultaneously address more than one issue at a time.
- India is yet highly vulnerable due to lower adaptive capability especially in the eastern side.
- The biggest challenge India is going to face in the coming time is to understand the ways of improving the adaptive capability to increase the Human Development Index at specially addressing poverty and high population density.
- India must develop a Climate Risk Atlas and Climate Change Risk Index.
- Localized planning at municipal level are important.
- In Smart City Planning also we should emphasize on the impact of climate change.
- Need to provide all-inclusive complete knowledge to people for climate change adaptation.
- There is a need to localize the climate action plan from National level to Panchayat level.
- Water is one of the key resource that is affected by Climate Change, therefore, the water resource management is a prime concern.
- The inter linkages of water food energy and other essential resources make the issue further critical.
- Need to implement normal no regrets vulnerability reduction actions with greater vigour.
- Need to diversify our risks to be prepared for multiple scenarios.
- We have to make a system to iterate our risk assessment in every few year to make our self-resilient not only for current risk but also for future risks.

Localizing Climate Resilience Agenda: Vision 2050 & 2100

SESSION WISE REPORT



LOCC-RES 2100

HIGH LEVEL POLICY DIALOGUE

SESSION 102

SCIENCE POLICY INNOVATION FOR CLIMATE RESILIENCE



HIGH LEVEL POLICY DIALOGUE

SESSION 102:
Science Policy Innovation for Climate Resilience

Day-1 : 2nd September 2021, 4:30 – 6:00 PM

Session Chairperson:
Prof. Anil K Gupta, Professor Emeritus, Visiting Faculty IIMA,Founder Honey Bee Network

Distinguished Panellists:
Dr. Neeraj Sinha, Senior Advisor, NITI AAYOG, GoI

Prof. Tej Pratap, Former Vice Chancellor, G.B. Pant University, Pantnagar

Dr. Sanjay Srivastava, Chief of DRR, UN-ESCAP, Bangkok

Mr. Madhav Pai, Executive Director, WRI India

Prof. Dieter Mutz, Lecturer, University of Applied Sciences and Arts

Dr. Ashish Chaturvedi, Director, Climate Change,
GIZ Germany, India Office

Dr. M. Mohapatra, Director General of Meteorology, IMD, GoI

Conference Convener:
Prof. Anil K Gupta, Project Director- CAP-RES & Head,
ECDRM Division, NIDM

Coordinator:
Dr. Uzma Parveen, Senior Research Fellow, CAP-RES, NIDM

PROF ANIL K GUPTA

PROFESSOR EMERITUS, VISITING FACULTY IIMA & FOUNDER, HONEY BEE NETWORK



CHAIRPERSON

Prof. Gupta is a visiting faculty at IIMA and founder of 'The Honey Bee Network'. He has authored 'Grassroots Innovation: Mind on the margin are not marginal minds' which received the best Business Book Award at Tata Lit Live festival, 2016.

Prof. Gupta, Session's Chair, started the high level policy session by talking about the risks and uncertainties involved in climate change and disasters. Taking the example of Uttarakhand floods, he stated that there is ambiguity regarding the time of disaster, however, the place of disaster is known. Hence, the policy makers should focus on what is known rather than what is unknown. Prof. Gupta also highlighted the significance of incorporating traditional wisdom in policies related to climate change and disasters. He also quoted the example of Jarawa tribes.

The traditional wisdom of Jarawa tribes helped them during Tsunami. He further added that preparedness and use of technology in form of improved early warning system is vital as at present the number of deaths due to cyclones has reduced in Odisha. In recent Cyclonic events nearly one million people were moved to safer places. Prof. Gupta suggested that for a better adaptation strategy, science and culture should be married. Mentioning the example of Japan, he spoke that capacity building is key as climatic events become disaster only if these surpass our capacity. He also added that sustainability depends on four pillars of Science, Technology, Institutions and Culture hence, all should be integrated and given equal significance. Prof. Gupta shared a very valid point stating the example of 'The Gospel of Dirty Hand' by KM Munshi (1952) that the nutrient cycle, hydrological cycle, and village institutions should be connected to bring solutions to societies' problem. He concluded his dialogue by proposing few points for effectively fighting climate change and disasters which are: (i) longitudinal data collection by establishing long term monitoring systems, well distributed over the space, (ii) science based strategy, (iii) engagement of young volunteers to collect data and creating awareness among masses, (iv) implementation of guidelines and capacity building programs.

KEY TAKEAWAYS

Need to integrate science, technology, institutions and culture to solve society's problem.

Need to change the mind-set of people.

Establishing well distributed longitudinal data collection centres and long term monitoring system.

Creation of young volunteers to collect data and bring awareness among masses.

Proper implementation of guidelines and capacity building programmes.

PROF TEJ PARTAP

FORMER VICE CHANCELLOR, G.B. PANT UNIVERSITY, PANTNAGAR



DISTINGUISHED PANELLIST

He is the 98th President of the Association of Indian Universities. Currently Vice Chancellor of Govind Ballabh Pant University. He was instrumental in preparing the Vision and Mission 2020 of Organic Agriculture in India.

Prof. Tej Partap spoke about the need to incorporate micro viewpoint in policy making for localizing adaptation policies. Because of the diverse nature of mountains, macro level planning related to climate change and disasters may not work in hilly and mountainous region. He further added that the climate change and DRR policies are primarily based on macro viewpoint, hence, it is the time to deviate from macro level planning to micro level planning as the former may not be able to address the local issues. He also highlighted that rainfall varies greatly across the Himalayan region.

In some areas changing trend of rainfall and temperature can be beneficial for crop production as in Lahaul-Spity and Ladakh whereas at some places it may hamper the production. He also added that these climatic changes are affecting the social, economic, and cultural life of the people and a single policy framed at macro level will not be suitable for the entire Himalayas. Therefore, micro level changes should be incorporated in policies. He further spoke about the significance of gathering indicators of climate change and resilience for planning purposes.

KEY TAKEAWAYS

Need to shift from macro to micro level planning.

Changing climate can be beneficial for some locations and sectors.

Significance of gathering indicators of climate change and resilience.

Need to incorporate micro level changes in policy making.

DR NEERAJ SINHA

SENIOR ADVISOR, NITI AAYOG, GOI



DISTINGUISHED PANELLIST

He joined, on deputation, the NITI Aayog as Adviser (S&T), GoI. He has contributed to the preparation of National Action Plan on Climate Change; He was awarded the medal of the Materials Research Society of India in Feb, 2018.

Dr. Neeraj Sinha started the dialogue by mentioning his long association with climate change programme. He talked about the significance of involving Science and Technology in programs related to climate change and DRR. For instance, the use of drones to disperse locust and spreading fertilizer and pesticides in Rajasthan, to monitor covid-19 situation in Delhi, etc. He also specified that the use of technology like artificial intelligence (AI), robots, and drones need to increase in policies related to climate change and DRR. He further added that all efforts related to adapting and mitigating disasters and climate change should be data driven hence installing longitudinal data collection system is indispensable.

KEY TAKEAWAYS

Involvement of science & technology in programs related to climate change and DRR.

Establishment of longitudinal data collection system.

All the efforts to fight climate change should be data driven.

Need to regularly update the know.

PROF SANJAY SRIVASTAVA

CHIEF OF DRR, UN-ESCAP, BANGKOK



DISTINGUISHED PANELLIST

He is the 98th President of the Association of Indian Universities. Currently Vice Chancellor of Govind Ballabh Pant University. He was instrumental in preparing the Vision and Mission 2020 of Organic Agriculture in India.

Dr. Sanjay Srivastava spoke about the challenges in climate adaptation policies. Taking the example of 'Global Assessment Report' of 'UN Climate Adaptation Summit', he specified that almost 50% of climate finance should go to adaptation and resilience building. He stated that the recent 'Asia Pacific Disaster Report' shows an annualized average loss of 93 billion in India, which is almost 3.3% of the country's GDP. He further added that as per the recent IPCC report, the GDP losses may go 4.75% if the temperature rises to 4.5 ℃. Therefore, if a country has to grow, it should not lose this amount of money to deal with climatic risks and vulnerability.

He added that the coast of adaptation in India is somewhere near 39 to 40 billion, hence, there is a need to look for innovative techniques to localize climate resilience. For instance, the climate change and disaster programs can be linked with MGNREGA through which wages and buildings can be climate proofed. Disasters like floods, droughts, heat-waves, and cold-waves, cause huge destruction to rural assets and rural economy and to fight this, wage proofing, construction of resilient infrastructure, improved long term and short term warning/forecasting, as well as improved access to forecasting and warning is essential.

KEY TAKEAWAYS

Climate proofing wages and infrastructure.

Technological innovation backed investment and resilient infrastructure.

Access to high quality warning and forecasting by masses.

Proper planning of asset before building.

DR MADHAV PAI

EXECUTIVE DIRECTOR, WRI INDIA



DISTINGUISHED PANELLIST

He is the Executive Director of WRI India Ross Center. Dr. He has led, designed, and implemented urban programs and projects, across continents. He has mentored senior researchers at WRI India, in building sustainable, low carbon and resilient prototypes for Indian cities.

Dr. Pai presented on the 'Urban floods and water management' and 'Urban green cover and biodiversity'. He spoke about the need of community action plan and importance of translating data and information among all stakeholders. He added that it is important to engage all the stakeholder, mainstreaming NBS, incorporating equality and inclusion, and mainstreaming of community resilience building. He further stated that India is about to spend about 500 billion dollar on urban infrastructure in the next 10-15 years. Nearly 40 million plus cities in India experienced increase in urban development. At the same time, these cities are facing the issue of water shortage for instance in Chennai experienced 15% decline in surface water and Bangalore have lost 44% high or very high recharge zones to developmental activities. In Chennai lakes like Puzhal has shrinked.

This situation demands interventions like 'Hussain Sagar Living Water Project (HSLWP)' where the floating solid water barrier has removed 60-65 tonnes of waste in its first six month of operation. He also mentioned the example of Mumbai which is experiencing varying degrees of heat stress depending upon housing density, green cover, building material, etc. For example, Dharavi is 5 ℃ hotter than neighbouring Matunga. Therefore, there is a need to look for localized solutions like roof top gardens, urban green, etc. He further added that it is crucial to focus on community and individual resilience capacity, mapping vulnerability caused by exposure, and other coping mechanism for individual resilience. He also spoke that in future to fight climate change and disasters, green infrastructure and bio-remedial solutions are desirable.

KEY TAKEAWAYS

Need for mapping vulnerability caused by exposure and sensitivity.

Focus on community's collective resilience capacity. Looking for localized solution.

Need to prepare city disaster management plan.

Need to incorporate all the stakeholders.

PROF DIETER MUTZ

LECTURER, UNIVERSITY OF APPLIED SCIENCES AND ARTS



DISTINGUISHED PANELLIST

The professional background of Dieter Mutz is sanitary engineering. He has more than 30 years of work experience with bi- and multilateral development organisations with assignments in Latin America, the Middle East, and South Asian regions. He has many years of working experiences in India.

Prof. Mutz talked about the unique disasters occurring around the world like flood in Western Germany and fire in Athens. He shared his recent experience of flood in Germany. Very heavy rainfall occurred for two days (14-15 July, 2021) in western Germany causing huge flood, killing nearly 200 people and also damaging infrastructure like houses, roads, communication, railways, etc. The overall range of loss is 35 to 40 billion Euro. In addition, rebuilding also needs similar amount of investment. He added that, in Germany such incidents never happened before, hence, nobody was prepared for such disaster. Though the policies and guidelines exist, local authority and people were not aware about early warning and evacuation process. He also spoke that the construction of houses, industries, etc. in flood plain areas has made the situation worse. Therefore, it has become very important to talk about mitigation and not only about adaptation strategies. He further added that the policies are complicated and not understood by masses, hence there is a need to simplify and translation the policies and guidelines at local level.

KEY TAKEAWAYS

Preparedness and capacity building at all the level is crucial.

Need to transfer policies and guidelines from top to bottom.

Both developed and developing countries should take the responsibility.

Important to integrate mitigation and not only adaptation in policies.

DR ASHISH CHATURVEDI

HEAD, ENVIRONMENT, ENERGY AND RESILIENCE, UNDP, INDIA



DISTINGUISHED PANELLIST

Dr. Ashish specializes in climate change mitigation and adaptation, waste management, sustainable consumption and production, and environmental policy. His current focus is on policy and knowledge management aspects of climate change. As a Senior Advisor with the Deutsche Gesellschaftfür Internationale Zusammenarbeit GmbH (GIZ), he advised the Indian Ministries and Departments. He is currently heading the Environment Energy and Resilience, UNDP, India.

Dr. Chaturvedi started his dialogue by discussing uncertainties related to climate change and disaster. He spoke that there are way more uncertainties than one can imagine and deal with. Therefore, it is important to acknowledge our own limitations as climate change is very uncertain. The world is experiencing unique climatic events and disasters such as heat wave in North America. He stated that these uncertainties are getting larger over the time, hence, it is crucial to democratize the knowledge and not centralize it. He added that transfer of knowledge from central and state level to city, municipality and panchayat level is crucial to make people aware about the kind of challenges the world is dealing with. Along with this, sharing of knowledge across ministries is also very important. He further added that in such scenario, it is important to build knowledge network and especially at village level and to achieve great transfer of knowledge, knowledge centres can be built at schools to spread scientific knowledge among young minds.

KEY TAKEAWAYS

Democratisation of knowledge by building knowledge sharing centres at local level.

Need to bridge the gap across national, state, and local level.

Addressing our limitations is important as the world is experiencing unique climatic events.

DR M MOHAPATRA

DIRECTOR GENERAL OF METEOROLOGY, IMD, GOI



DISTINGUISHED PANELLIST

He is currently the Director General of IMD and Permanent Representative of India with WMO with effect from 10th June, 2019. He made significant improvements in early warning services of IMD. He has brought laurels to the country from United Nations, World Meteorological Organisation for effective early warning, timely and accurate warnings for cyclones, He is popularly known as "The Cyclone Man of India".

Dr. Mohapatra began by discussing about the significance of minimizing the risk of disasters. He stated that the country has experienced a warming of 0.66℃ and along with this, the frequency of extreme weather events, cyclones and mainly intense cyclones has increased as well as the lightening events. He talked about the increasing duration of extreme weather events along with frequency which can be attributed to climate change. He added that in future as well the temperature is expected to rise that will affect the monsoon rainfall. Talking about the year 2050-2100, Dr. Mohapatra specified that the predictability of hazard is very difficult for such a long time. Nevertheless, the country has worked well in early warning system and this needs to be further strengthened. He further said that the increased frequency of disaster will affect national infrastructure, however, the extent of future loss is not known and hence, there is a need to introduce automated process to gather data to avoid any delay in data collection, data assessment and forecasting.

He also added that the frequency of floods and droughts will increase in urban areas and cases of cloudburst will increase in hilly areas. He further indicated that while we are talking about future scenarios, population and technological development should also be incorporated and based on projected risk, all the stakeholders including farmers, fisherman, policymakers, disaster management authority, etc. has to be addressed. He concluded that there is a need to monitor, collect, and validate database not only for scientific papers and policy preparation but also for common masses.

KEY TAKEAWAYS

Need to further strengthen early warning system.

Need to incorporate technological development and demography while planning for future climate change and disasters.

Unplanned urban development has aggravated the climate change impact.

CLOSING REMARKS

Prof Anil K Gupta

Prof. Gupta concluded the session by thanking the chairperson and all the panellists. Summing up the important discussions of the session, he talked about the extensive research that went into formulating the STIP Policy and main concerns raised during the sessions were already been deliberated upon in the policy. Adding to this, he said that the policy primarily focuses on two aspects: i) developing a new nurturing arm for new knowledge creation in all areas of science and big domain, establishment of state of art infrastructure, trained, eco-centric & collaborative and partnership based approached; ii)application arm which promotes the valorisation of the scientific knowledge for innovation and commercialization of technologies that contributes to the knowledge economy, job creation and welfare of the common citizenry. Availability of appropriate data sets should be at the centre. He emphasized on the need to create a digital data stack on disasters as it has very grave impacts on the life of people and economy as a whole. With this he concluded the session.

KEY TAKEAWAYS OF THE SESSIONS

- Need to integrate science, technology, institutions and culture to solve society's problem.
- Establishing well distributed longitudinal data collection centres and long term monitoring system.
- Creation of young volunteers to collect data and bring awareness among masses.
- Proper implementation of guidelines and capacity building programmes.
- Technology and society are the important determinants of our vulnerability and our ability to cope and respond to various disasters.
- There is a need to anticipate the future risks and future scenarios on a long term basis.
- Need to shift from macro to micro level planning.
- Changing climate can be beneficial for some locations and sectors.
- Significance of gathering indicators of climate change and resilience.
- Need to incorporate micro level changes in policy making.
- Involvement of science & technology in programs related to climate change and DRR.
- Establishment of longitudinal data collection system.
- All the efforts to fight climate change should be data driven.
- Need to regularly update the knowledge.
- Preparedness and capacity building at all the level is crucial.
- Need to transfer policies and guidelines from top to bottom.
- Important to integrate mitigation and not only adaptation in policies.
- Democratization of knowledge by building knowledge sharing centres at local level.
- Need to bridge the gap across national, state, and local level.
- Addressing our limitations is important as the world is experiencing unique climatic events.
- Need to incorporate technological development and demography while planning for future Unplanned urban development has aggravated the climate change impact

Localizing Climate Resilience Agenda: Vision 2050 & 2100

SESSION WISE REPORT



LOCC-RES 2100

HIGH LEVEL POLICY DIALOGUE

SESSION 103

WASCA SPECIAL SESSION



HIGH LEVEL POLICY DIALOGUE

SESSION 103:
Water Security and Climate Adaptation in Rural India (WASCA) Special Session

Day-2 : 3rd September 2021, 3:00 – 4:30 PM

Session Chairperson:
Dr. Julie Reviere, Country Director, GIZ, India

Distinguished Panellists:
Ms. Sufiah F. Wali, IAS, Commissioner, Madhya Pradesh, Employment Guarantee Council

Mr. Prathap M, (IAS), Additional Collector, Tiruvannamalai, Tamil Nadu

Mr. K J Praveenkumar, IAS, Additional Collector, DRDA, Ramanathpuram, Tamil Nadu

Mr. Shilp Verma, Senior Researcher, Water-energy-food policies, IWMI

Mr. Rajeev Ahal, Director, NRM, GIZ

Conference Convener:
Prof. Anil K Gupta, Project Director- CAP-RES & Head, ECDRM Division, NIDM

Coordinator:
Dr. Swati Singh, Consultant, (Environment and Disaster Management), NADMP, NIDM

Moderator:
Mr. Vaibhav Sharma, Technical Expert NRM, GIZ

DR JULIE REVIER

DIRECTOR, CLIMATE CHANGE, GIZ GERMANY, INDIA OFFICE



SESSION CHAIRPERSON

Dr Julie is the Country Director of GIZ India Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, India. Dr Julie holds an overall experience of good 40 years, of which 24 years have been associated with German Development Cooperation in various capacities.

Dr. Julie highlighted the report of IPCC 6th Assessment related to extreme weather events. She discussed the importance of programs related to water and sanitation for developing climate resilience and adaptation measures. Indo-German collaboration has a history of almost six decades and this association will continue to strengthen in coming years as well. Intervention through WASCA projects is one such way forward to strengthen the collaboration.

KEY TAKEAWAYS

IPCC 6th report has raised a code red for climate change.
There is need of convergence planning for better water resource management.
We will jointly make a difference.

MR RAJEEV AHAL

DIRECTOR, NRM AND AGROECOLOGY, GIZ INDIA



DISTINGUISHED PANELLISTS

Mr. Rajeev works at GIZ India as Director, Natural Resource Management and Agroecology in the Environment and Natural Resource Cluster. He leads projects on 'Water Security and Climate Adaptation in Rural India', 'Sustainable Soil Management'. Other projects on rural development, social protection, sustainable farming systems, market led development approaches (including PPPs), Artificial Intelligence, value chain development, green financing and Farmer Producer Organisations etc.

Mr. Rajeev shared the work of GIZ on WASCA project and highlighted that water and sanitization are central to human development. One of the major emphasis of GIZ-indo collaboration is use of technical know-how in natural resources management where GIS plays an important role in planning. Collaborative efforts, mainstreaming and integrated approach is the demand of time to bring change at ground level.

KEY TAKEAWAYS

"Water is to adaptation what energy is to mitigation".
Use of digital potential to bring changes at local level.
Convergence mechanisms to bring in efficiency of projects.
Shifting from groundwater to surface water use.
One thing does not change everything and need to bring integration.

DR SWATI SINGH

ADAPTATION ANALYST, UNDP, INDIA



DISTINGUISHED PANELLIST

She is a professional consultant with the National Institute of Disaster Management of India for sectoral disaster management and crisis plan projects. Her Ph.D treatise focused on water food energy nexus. She is also an alumnus of Young Researchers' School of UNU-Institute of Advanced Studies Japan.

A brief outcome of the research study on "mapping climatic and biological disasters in India" was presented by Dr. Swati. The presentation highlighted the spatial and temporal distribution of disasters across three international policy regimes, namely, Yukohama Strategy for Disaster Management, Hyogo Framework for Action and Sendai Framework for Disaster Risk Reduction. Highlights were made on climate change projections and linkages with extreme disaster events. She also talked about promoting climate resilience through combination of policy and ground actions as well as utilising the opportunities through flagship program like MGNREGA.

KEY TAKEAWAYS

Promoting climate resilience through a combination and policy and ground actions.

Cyclones accounted for 48% of India's overall human life loss due to climate related disasters.

The findings emphasize need to address vulnerabilities to specific climate disasters for various states.

MR M PRATHAP (IAS)

ADDITIONAL COLLECTOR, TIRUVANNAMALAI, TAMIL NADU



DISTINGUISHED PANELLIST

He is a 2017 batch IAS officer and presently serving as Additional Collector of Tiruvannamalai, Tamil Nadu. His previous postings were Assistant Secretary, MoRD and sub-collector, Dharmapuri. He is B.Tech in Chemical Engineering from Anna University, Chennai.

Tiruvannamalai is one of the water scarce districts of Tamil Nadu where groundwater has been overexploited. WASCA project had aimed at three issues namely water security, poverty alleviation and climate resilience. The project has been mainstreamed with various departments like rural, forest, horticulture and water resources. Indo-German collaboration has yielded many benefits on ground and wave a way for expanding such projects to other parts of the state and country.

KEY TAKEAWAYS

95% farmers are marginal in Tiruvannamalal.

High migration rates due to seasonal droughts.

Involving public to identify issues helps to solve the problems better.

Convergence plans play major role in achieving goals.

MS SUFIYAH FARUQUI WALI

COMMISSIONER, MP, EMPLOYMENT GUARANTEE COUNCIL



DISTINGUISHED PANELLIST

Ms. Wali is a 2009 batch IAS officer and has been a dynamic officer of Madhya Pradesh, currently posted Commissioner MGNREGA Bhopal. Under her leadership MGNREGA has witnessed a steep growth in terms of man days generation, 100% GIS based Gram Panchayat planning, innovative activities like Community Nutrition garden etc.

Ms. Wali shared in detail experimental and pilot work done in Madhya Pradesh in MGNREGA with the technical support of GIZ. She spoke about the water conservation and water holding structures that have been promoted across the state. She also discussed about other measures such as field level bunds, channels, community nutrition garden and use of technical platform like GIS. She recommended that it is high time to link MGNREGA with assets and livelihood generation. Climate change orientation of such flagship programs needs to be brought up.

KEY TAKEAWAYS

GIS planning must be promoted for better management of resources.

Scientific approach is needed for water conservation.

Community-based agriculture is preferred over individual structures.

MR K J PRAVEEN KUMAR (IAS)

ADDITIONAL COLLECTOR, RAMANATHAPURAM



DISTINGUISHED PANELLISTS

He is a 2017 batch IAS officer and presently serving as Additional Collector (Development), District Rural Development Agency in Ramanathapuram, Tamil Nadu. He is B.E. in Electronics & Communications.

Mr. Kumar opened his talk with a discussion on lack of irrigational facilities and shortage of water that has impacted the crops and livelihood of the people in the district of Ramanathapuram. Research supported by scientific empirical data has created assets which is long lasting and helpful to local people. Subsequently, water conservation efforts supported by WASCA projects have shown good results on the ground. Also cross learning across states have created awareness and have assisted in capacity building.

KEY TAKEAWAYS

Problems by sea water intrusion are causing groundwater contamination in Ramanathapuram.

The district has no reliable drinking water resource and lacks irrigation facilities.

How we can use technology embedded in MGNREGA to build climate resilient strictures.

MR SHILP VERMA

SENIOR RESEARCHER, WATER-ENERGY-FOOD POLICIES, IWMI



DISTINGUISHED PANELLIST

He has been associated with IWMI since 2001, in different capacities. In his current role, Shilp manages the IWMI-Tata Water Policy Program in India with a mandate of converting science into policy action. His research covers a range of themes relevant for smallholder farming and water security in South Asia and Sub-Saharan Africa.

MGNREGA is a unique program in the world and has huge potential for building climate resilience capacity. It has two fold benefits, one in term of wage and other relates with non-wage benefit which is related to adaptation in changing climatic scenario. Natural resources have been mostly depleted due to faulty policies and subsidies in energy sector are one such example which has deteriorated the groundwater scenario of the country.

Water-energy-food nexus is one of the management tools which needs to be propagated for holistic management of the resources. Schemes such as PM KUSUM are welcome steps which emphasise on the use of solar energy for irrigating fields and benefits mostly small and marginal farmers. Water management measures through WASCA demonstrated convergence and streaming mechanisms and such efforts needs to be up-scaled.

KEY TAKEAWAYS

MGNREGA has huge potential for building climate resilient India. It is the world largest water security programmes covering around 50 million households.

Nearly half of Indian farmers has no access to irrigation facilities.

Highlighted WEF nexus & linkages of incentives & subsidies causing overexploitation of ground water.

Solar pumps for irrigation will change food energy nexus.

SESSION MODERATOR

Mr Vaibhav Sharma

Importance of flagship programs like MGNREGA in building climate resilience at ground level was highlighted through the experiences of Madhya Pradesh, Ramanathapuram district and Tiruvannamalai district in Tamil Nadu. MGNREGA has two benefits: wage and non-wage, where non-wage benefit is sustainable and had more benefits. Climate change orientation of schemes needs to be brought up clearly in these schemes. Use of science and technology plays an important role at ground level implementation. Individual structures should not be promoted as it leads to hyper agriculture activities and mono culture. Capacity building development program is required for success of such schemes. Water-energy-food (WEF) interlinkages play an important role in natural resources management. Water management measures through WASCA projects had demonstrated convergence and streaming mechanisms.

KEY TAKEAWAYS OF THE SESSIONS

- IPCC 6th report has raised a code red for climate change, hence it is high time to work on this line.
- There is a need of convergence planning for better water resource management.
- Use of digital potential is needed to bring changes at local level.
- Convergence mechanisms is required to bring in efficiency of projects.
- There is a need to shift from groundwater to surface water use.
- Promoting climate resilience is required through a combination of policy and ground actions.
- Assessment of the risk of identified climatic and biological disasters using historic and current data and scientific tools.
- Cyclones have accounted for 48% of India's overall human life loss due to climate related disasters.
- Findings of various research emphasize need to address vulnerabilities to specific climate disasters for different states.
- Effective risk reduction happens only when it is backed by appropriate institutional arrangements.
- GIS planning must be promoted for better management of resources.
- Community bases nutritional garden concept by GIZ is helping to increase benefits for farmers and also reducing dependence on water intensive crops.
- Individual structure leads to hyper agriculture and monoculture so community-based structure should be preferred.
- Women suffer the most from the effects of climate changes.
- Use of technology embedded in MGNREGA to build climate resilient strictures.
- Involving public to identify issues helps to solve the problems in a better manner.
- Convergence plans play major role in achieving goals.
- Highlighted WEF nexus and linkages of incentives and subsidies causing overexploitation of ground water.
- Solar pumps for irrigation will change food energy nexus.

Localizing Climate Resilience Agenda: Vision 2050 & 2100

SESSION WISE REPORT



LOCC-RES 2100

HIGH LEVEL POLICY DIALOGUE

SESSION 104

DISASTER RESILIENT DEVELOPMENT



HIGH LEVEL POLICY DIALOGUE

SESSION 104:
Disaster Resilient Development

Day-2 : 3rd September 2021, 4:30 – 6:00 PM

Session Chairperson:
Prof. Sudhir Jain, Director, IIT Gandhinagar, Gujarat

Distinguished Panellists:
Prof. Rajib Shaw, (Keio Univ. Japan), Chair, UN-ISDR – S&T Advisory Group

Dr. Shirish Ravan, Former Head, UN-SPIDER, UNOOSA, Vienna, Austria

Prof. Dilanthi Amaratunga, Head, Global Disaster Resilience Centre

Prof. Santosh Kumar, Professor & Head, Governance & Inclusive DRR, NIDM

Prof. V. K. Sharma, Vice Chairman, Sikkim State Disaster Management Authority

Dr. Sudhir Krishna, Former Secretary, MoUD, Govt. of India

Conference Convener:
Prof. Anil K Gupta, Project Director- CAP-RES & Head, ECDRM Division, NIDM

Coordinator:
Dr. Kopal Verma, Junior Consultant, ECDRM Division, NIDM

PROF SUDHIR JAIN

DIRECTOR, IIT GANDHINAGAR, GUJARAT



CHAIRPERSON

Prof. Jain is an internationally reputed scholar of earthquake engineering & recognized as one of the most dynamic educators in India. He is currently serving is third 5-year term as director of the IIT Gandhinagar. He was an elected fellow of the Indian National Academy of Engineering in 2003, and conferred Padma Shri by the President of India in 2020.

Prof. Jain shared his views on disaster resilient development. According to him, a development cannot be considered as development if it is not resilient against various forces of nature or various hazards and calamities. A complete development is be default resilient in nature. There is a very common notion amongst the people regarding developing the disaster resilient infrastructure that is supposed to be very costly.

In fact, the cost subjected to the wastage being caused due to the poor engineering capacities is much higher in front of which the actual cost of disaster resilient infrastructure is nominal. Educational enterprises of a country are major building blocks of the society. But these won't be fruitful in creating an aware an intelligent society unless a progressive, curious and innovative mindset is inculcated in the learning generation. He quoted that a most basic thing like common sense is missing in our actions as well as our policy formulation process.

KEY TAKEAWAYS

A development should by default mean it encompasses infrastructure's resilience against various disasters.

The cost of building a disaster resilient infrastructure is not much when compared with the losses incurred as a result of poor engineering.

Educational enterprises are needed to instil a sense of innovation and curiosity amongst the newer generations.

PROF RAJIB SHAW

KEIO UNIVERSITY, JAPAN & CHAIR, UN-ISDR – S&T ADVISORY GROUP



DISTINGUISHED PANELLIST

Prof. Rajib Shaw is the professor in Graduate School of Media and Governance of Keio University, Japan. He is co-founder of a Delhi based social entrepreneur startup, Resilience Innovation Knowledge Academy (RIKA), and chair of the board of two Japanese non-government agencies: SEEDS Asia and CWS Japan.

Prof. Rajib Shaw focussed on the two aspects of agriculture and water especially for a country like India. Future developments are highly vulnerable towards the climate risks as there are variations in higher altitude agriculture. The problem of agricultural drought can be addressed by implementing cutting edge agriculture technology where it can be highly resistant, high yielding, low water consuming, etc.

Apart from this monsoon-based agriculture will have a major impact because the monsoon rainfall is becoming uncertain and so possibly need again a strong early warning system and knowledge database information to be made available to the end user i.e., the farmers. Secondly, it has become a very common trend that on dry days in summers the majority of Indian cities are struggling for water. Smart city development programs are focusing more on a technology-based infrastructure but not due importance is being given to the most basic necessities such as food and water.

KEY TAKEAWAYS

Need of implementation of cutting-edge technology to address the problems of agricultural droughts.

The urgency of climate emergency is needed to be realised and is to be inculcated in our future development practices.

The socio-economic pathways have been addressed in the upcoming IPCC which focuses on the critical issues of the sustainability to lead us to make it a climate resilient development pathway.

DR SHIRISH RAVAN

FORMER HEAD, UN-SPIDER, UNOOSA, VIENNA, AUSTRIA



DISTINGUISHED PANELLIST

]Dr. Ravan works for the United Nations Office for Outer Space Affairs in Vienna, Austria. He coordinates activities of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) in Asia and the Pacific. He is also involved in other programmes of the Office that promotes the use of space technologies for sustainable development.

Mr. Shirish Ravan pointed out that we come a long way in terms of infrastructure development but still the issues of inculcation of disaster resilient system in the construction is still lacking. He quoted various examples where in hazard prone areas in mountainous regions are still witnessing heavy construction activities, raising of roads, setting up of newer highways, etc.

A lot of technological advancement is happening and that too at a very fast pace, and yet we are not able to make our approach towards development disaster resilient. Also, this technological advancement is not being translated to the address the basic demands of cities and rural areas. Majority of the technological expertise like machine learning, artificial intelligence, etc. is being exploited by profit making businesses efficiently but nothing is happening in the area of societal benefits and country's development. The application of technology to ease the attainment of sustainable development goals can only prove to be worthy. As per the Sendai Framework, it is now high time when we should move from managing disasters to managing the risks leading to a disaster and eliminate it right at its origin.

KEY TAKEAWAYS

The infrastructure development is still lacking the inclusion of disaster resilient approaches.

The fast-paced technological advancement should be utilised for the benefits of society.

There is a need to streamline our policy formulation with sustainable development goals.

PROF DILANTHI AMARATUNGA

HEAD, GLOBAL DISASTER RESILIENCE CENTRE



DISTINGUISHED PANELLIST

Prof. Amaratunga holds the chair in Disaster Risk Management at the University of Huddersfield, UK. She leads the University's Global Disaster Resilience Centre, responsible for supporting research on disaster management portfolios. She is a member of the Steering Committee of the UNISDR "Making Cities Resilient" Campaign.

Prof. Dilanthi talked about the climate change and sustainable development, highlighted its dual relationship. Climate change is more than just one of the 17 SDGs specified in the 2030 Agenda for Sustainable Development. It is a threat multiplier with the potential to worsen some of humanity's greatest challenges, including health, poverty and hunger.

The identified evidence suggests that it may severely exacerbate the already pronounced challenges of sustainable development. In 2015, the global community adopted the 2030 Agenda for Sustainable Development, the Paris Agreement and the Sendai Framework on Disaster Risk Reduction, all of which have substantial areas of overlap and clear convergence of objectives related to strengthening resilience, fostering sustainable development, and reducing vulnerability to climate change and disasters. Building strategic linkages and coordinating actions of the three fields could increase the effectiveness of different actions and related goals and should be promoted. While many governments recognize the value of coherence, they struggle to understand what closer horizontal and vertical integration and coherent policy processes look like in practice and how they can be achieved.

KEY TAKEAWAYS

Weather patterns are changing, sea levels are rising, and weather events are becoming more extreme. Impacts of climate change can undermine achievement of 16 SDGs, while action to address climate change can reinforce all 17 SDGs but also undermine efforts to achieve 12. Understanding of these relationships should be reinforced through interdisciplinary work between academic disciplines and evidence-synthesis initiatives. ore sound scientific research and evidence-based information is needed to increase this understanding.

PROF SANTOSH KUMAR

PROFESSOR & HEAD (GIDRR), NIDM



DISTINGUISHED PANELLIST

Prof. Santosh was formerly the Director, SAARC Disaster Management Centre; Executive Director I/C National Institute of Disaster Management; Disaster Management Specialist, The World Bank; Professor & Head Disaster Management Centre, HCM RIPA, Jaipur Rajasthan.

Prof. Santosh Kumar highlighted that in our progress from 2030 to 2100, the profile in terms of disaster would go entirely different as the cascading impacts are going to be very high. The uncertainties would be of two kinds viz. astonishment and the surprises.

Because we will not be able to acknowledge and comprehend the kind of disaster that is going to come up and so we will have to keep trying to understand and find out new strategies to overcome this. On the other hand, the structure, behaviour, attitude and functioning of the society is going to be very different as compared to that of today. There is prediction of high levels of inequalities in society giving rise to higher vulnerabilities as well. There will be various sectors of the society which will have differences in terms of affordability, mobility, accessibility and vulnerability. In the long run newer challenges are going to come up as most of the infrastructure by that time will grow old and will require decommissioning and dismantling. The technological advancements are happening at a very fast past but this has both its pros and cons. There are various instances when a minutest of the technical failure has caused disastrous damages.

KEY TAKEAWAYS

Development in true sense should involve a centralized system for disaster risk management.

Our capacity building system, training, education and health sector are needed to be more focussed on futuristic approaches and challenges.

The application of technologies is required to be diverted to the better mapping and planning for flood and drought management.

PROF V K SHARMA

VICE CHAIRMAN, SIKKIM STATE DISASTER MANAGEMENT AUTHORITY



DISTINGUISHED PANELLIST

Prof. Sharma is a senior professor, Disaster Management/Consultant at Indian Institute of Public Administration; Vice Chairman, Sikkim SDMA. He is member of UN ISDR Asia Science, Technology and Academia Advisory Group (2015- 2020). He is currently engaged in research projects on Capacity Building in Climate Change Adaptation and Conservation of Biodiversity sponsored by DST, UNDP and MoEF&CC.

Existing policy plans on national and state levels should include climate change. The planning of disaster management should be an integral part of district level planning.

Also, this needs to penetrate at the level of villages and panchayat. As per the previous disaster development plan according to the first point of our Prime Minister's 10-point agenda that natural disasters and development are linked together they should not be treated as separate. A wholesome development should take into account the disaster risk reduction planning. The implications of climate change for India are going to increase the frequency of droughts, floods, glacial lake outburst flood (GLOF), cyclones, etc. The Himalayan region is a home to around 3000 glacial lakes which are increasing in size at a very fast rate. He quoted the example of Sikkim state where farmers adopted and shifted entirely to organic farming and they could see a transformational impact health, soil and the overall environment. In 2014-15, there was acute water shortage in this state, but with the Jal Dhara Vikas Programme, more than 4000 lakes, streams, rivers, etc. were able to revive and all the villages now have fresh spring water for drinking. Sikkim adopted the Gujarat model where reconstruction was not allowed in disaster-stricken area unless it is disaster resilient construction.

KEY TAKEAWAYS

Need for the penetration of policy planning to panchayat and district levels.

Involvement of local communities, their traditional wisdom and local initiatives brings ownership of people towards the betterment of the society.

Successful models of disaster reduction to build resilience can be replicated.

DR SUDHIR KRISHNA

FORMER SECRETARY, MINISTRY OF URBAN DEVELOPMENT, GOVT. OF INDIA



DISTINGUISHED PANELLIST

Dr. Sudhir Krishna is former IAS officer. He served the Government of India as Secretary (Urban Development), Additional Secretary (Panchayati Raj), Joint Secretary (Fertilisers), Joint Secretary, Finance Commission and Sr. Dy. Director, LBS NAA, and the Government of Karnataka, as Principal Secretary (Public Works, Ports & Inland Water Transport), Metropolitan Commissioner, Bengaluru, Commissioner of Commercial Taxes, Divisional Commissioner, Gulbarga, Deputy Commissioner, Dakshin Kannada etc.

Dr. Sudhir Krishna focussed on four broader aspects of water, waster, solid waste and natural disasters. Flooding and droughts have become really common because of the frequent disruption of natural drainage network.

Water bodies should be protected and revived by mapping out natural drainage network and incorporating master plans and land records. A yet another challenge is that of the solid waste. Approximately 900 million tonnes of solid waste is being generated every year globally and only 10% out of this is being recycled. The reasons behind this can be a weaker participation from the local bodies and fractured public private partnership (PPP) schemes. The problem of solid waste can be addressed by reworking the PPP structure, strengthening the local bodies, launching R&D projects in rural and urban areas and preparing and implementing solid waste management- Net Zero Waste plans at all levels of a society. An associated problem of waste water generation can also not be overlooked. Ultimately, the challenges posed by climate change are highly unpredictable. Disaster proofing as well as recovery plans for all cities and villages are required. There is a need to put extra focus on the SDRF and NDRF teams.

KEY TAKEAWAYS

Key Takeaways

There is a need to map out the natural drainage network and incorporate master plans and land records.

Implementation of disaster management planning at all levels of the society.

There is dire need for reworking the PPP structure, strengthening the local bodies, launching R&D projects in rural and urban areas.

CLOSING REMARKS

Prof Anil K Gupta

Prof. Anil Kumar Gupta concluded the session by thanking all the panellists. Summing up the important discussions of the session, he mentioned that if we keep a yardstick of 2050 and 2100, we would certainly have a medium to low confidence level in certain aspects but its high time we start thinking towards various crucial issues that have emerged from various deliberation. This particular session on disaster resilient development also highlighted a thought process in this direction that we need to start visualise and identify the smaller things. Catastrophic risks are definitely important but at the same time lower order risks are also needed to be taken care of. With these remarks he concluded the session.

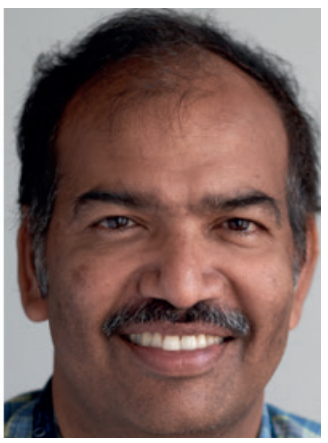
KEY TAKEAWAYS OF THE SESSIONS

- A development should by default mean it encompasses infrastructure's resilience against various disasters.
- The cost of building a disaster resilient infrastructure is not much when compared with the losses incurred as a result of poor engineering.
- Educational enterprises are needed to instil a sense of innovation and curiosity amongst the newer generations.
- Need of implementation of cutting-edge technology to address the problems of agricultural droughts.
- The urgency of climate emergency is needed to be realised and is to be inculcated in our future development practices.
- The socio-economic pathways have been addressed in the upcoming IPCC which focuses on the critical issues of the sustainability to lead us to make it a climate resilient development pathway.
- The infrastructure development is still lacking the inclusion of disaster resilient approaches.
- The fast-paced technological advancement should be utilised for the benefits of society.
- There is a need to streamline our policy formulation with sustainable development goals.
- Climate change is affecting every country on every continent. It is disrupting national economies and affecting lives. Weather patterns are changing, sea levels are rising, and weather events are becoming more extreme.
- Impacts of climate change can undermine achievement of 16 SDGs, while action to address climate change can reinforce all 17 SDGs but also undermine efforts to achieve 12. Understanding of these relationships should be reinforced through interdisciplinary work between academic disciplines and evidence-synthesis initiatives.
- More sound scientific research and evidence-based information is needed to increase this understanding.
- Implementation of disaster management planning at all levels of the society.
- There is dire need for reworking the PPP structure, strengthening the local bodies, launching R&D projects in rural and urban areas.
- There is a need to map out the natural drainage network and incorporate master plans and land records.

Localizing Climate Resilience Agenda: Vision 2050 & 2100

SESSION WISE REPORT





LOCC-RES 2100

HIGH LEVEL POLICY DIALOGUE

SESSION 105

VALEDICTORY SESSION





HIGH LEVEL POLICY DIALOGUE

SESSION 105:
VALEDICTORY SESSION

Day-2 : 3rd September 2021, 6:00 – 7:00 PM

Valedictory Address:
Dr. Krishna S. Vatsa, Member, National Disaster Management Authority (NDMA), GoI

Valedictory Guest:
Maj. Gen. Manoj Kumar Bindal, Former Executive Director, National Institute of Disaster Management (NIDM), MHA, GoI
Dr. Muralee Thummarukuddy, Chief of DRR, UNEP, Geneva
Dr. Akhilesh Gupta, Secretary, SERB and Senior Advisor, , DST-GoI

Chairperson's Address:
Prof. Shailesh Naik, Director, National Institute of Advanced Studies Bengaluru & Former Secretary MoES, GoI

Conference Convener:
Prof. Anil K Gupta, Project Director- CAP-RES & Head, ECDRM Division, NIDM

Coordinator:
Ms. Pritha Acharya, Research Associate, CAP-RES Project, NIDM

PROF ANIL K GUPTA

PROFESSOR & HEAD, ECDRM DIVISION, PD, CAP-RES, NIDM



CONFERENCE CONVENER

Prof. Gupta has more than 25 years of experience in the field of disaster management, environment and climate resilience. He has been credited for preparation of National and Sectoral Disaster management Plans, Human Resource Capacity Development Plans, National Action Plan for Disaster Management.

He welcomed chairperson and valedictory dignitaries. He mentioned that this 2-days high level policy dialogue was organized using the online platform in this new normal jointly by NIDM, GIZ India & DST, Govt. of India. He highlighted about the conference which has been attended by more than 200 delegates across the world. He thanked all the distinguished speakers form all the session. He said that "The idea of this initiative is the change in two key aspects of technology and society. They are the important determinants of our vulnerability and our ability to cope and respond to various disasters". In the coming 10 or 20 years, a major transition will be seen in the areas of disruptive technological transitions and social changes and also keeping the current climatic issues and there is a need to anticipate the future risks and future scenarios on a long term basis.

KEY TAKEAWAYS

Technology and society are the important determinants of our vulnerability and our ability to cope and respond to various disasters.

There is a need to anticipate the future risks and future scenarios on a long term basis.

MAJOR GENERAL MANOJ KUMAR BINDAL

FORMER EXECUTIVE DIRECTOR, NIDM



VALEDICTORY GUEST

Maj Gen. Bindal has commanded Air Defence Regiment & Air Defence Brigade in Kashmir region during couter insurgency operations. He was a staff member of Mountain Brigade deployed in counter insurgency ops and in High Altitude area, an Armored Division deployed in the plains, a Desert Corps & in a Corps HQ in High Altitude areas. He was the Deputy Director General in Directorate of Army Air Defence.

He congratulated the organizers and said that this conference also turned out to very relevant in providing a platform for S& T policy and applications strategies in climate resilience and adaptation regime with a vision of promoting the 2100 agenda for localizing climate resilience. He mentioned about the interesting points that came in two days of the conference and how that will help in providing vital pathways and entry points for futuristic climate resilience adaptation and DRR strategies for National and local developmental programmes and schemes under various sectors and at different levels. " Two points that were very evident are: (i) small scale interventions are equally important as large scale interventions; no amount of work done for combating climate change goes waste, and (ii) research and innovation is the key for sustainable climate change policy" said Maj Gen Bindal. "We have to stay ahead of the problems by foreseeing, forecasting and extrapolating in order to stop deterioration and accelerate environmental regeneration" he added.

He also mentioned about the WASCA sessions and congratulate the states and districts representing the excellent work done by them in the field of water and sanitation. He concluded his speech by congratulating the organizing team and welcomed all panellists to the session.

KEY TAKEAWAYS

Small scale interventions are equally important as large scale interventions; no amount of work done for combating climate change goes waste.

Research and innovation is the key for sustainable climate change policy.

Need to stay ahead of the problems by foreseeing, forecasting and extrapolating in order to stop deterioration and accelerate environmental regeneration.

DR MURALEE THUMMARUKUDDY

DIRECTOR, G20, UNCCD



VALEDICTORY GUEST

He holds a PhD in Environmental Engineering from Indian Institute of Technology, Kanpur. Muralee has over 25 years of experience in Environment and Disaster Management around the world. Between 1995 and 2003, he worked with Shell operated exploration & production companies in Brunei and Oman and dealt with number of industrial emergencies. Since 2003, he has been with the United Nations Environment Programme. As Operations Manager for the Post Conflict and Disaster Management Branch, he coordinated projects ranging from assessment to capacity building and clean up in all over the world. He is the director of coordination office of G20 Global Initiative on Reducing Land Degradation and Enhancing Conservation of Terrestrial Habitats at UNCCD Headquarters.

He gave his viewpoints for three levels of planning which included the global, national and regional level. At national level he quoted the 6th IPCC assessment report and said that it was the code red for humanity as it was devastating. "Climate change is not for the future, climate has changed and it is changing and the last five years have been worst in terms of global warming and extreme events. Thus, there is no room for further complacency at all" he said. He focused on the need by mitigation action and adaptation action at global level. Coming to the national situation he said the conference was very timely event. "We plan for short term goals, but we never plan for 50 or 100 years and that is exactly what is needed, therefore this step taken by NIDM, GIZ and DST is commendable and appropriate. Irrespective of such timely deliberations, at the bottom end, we do not see the urgency- climate change is not seen at local level, not as political level as election agenda" he said.

He further mentioned about Greta Thunberg and other children in Europe who are taking senior politicians to task and taking forward the climate agenda as the previous generations have failed, however, he said that in India such sensitivity is absolutely missing. Taking example of COVID-19 pandemic he said, we do not need international agreement for people and countries to make changes. "When countries and societies are faced with existential crisis, they will agree to severe restrictions and will change their lifestyle but we have to translate the existing climate crisis to them" he said. He concluded by saying "As much as a challenge may exist, the fact that we are beginning and discussing these issues today, it is a very good sign, as climate change will not just be fought at the mitigation level at global level but at an adaptation level at local level, thus is has to be dealt by building and enhancing technical capacity at lowest level".

KEY TAKEAWAYS

The 6th IPCC assessment report and said that it was the code red for humanity, thus there is no room for further complacency at all.

Climate change will not just be fought at the mitigation level at global level but at an adaptation level at local level, thus is has to be dealt by building and enhancing technical capacity at lowest level.

DR AKHILESH GUPTA
SECRETARY, SERB & SENIOR ADVISOR, DST-GOI



VALEDICTORY GUEST

Dr Akhilesh Gupta is Senior Advisor DST, GoI and also heading the PCPM division of DST coordinating two National Missions on Climate Change under National Action Plan on Climate Change. He has published over 185 research papers. Dr. Gupta was a member of the National Coordination Team which drafted India's National Action Plan on Climate Change in 2008.

Dr. Akhilesh Gupta mentioned his viewpoints on how India is faced with two major dichotomy in context of climate change and extreme events. He said, "mitigation vs development and adaptation vs development are the two dichotomy, further poverty and population are the main barriers towards achieving India's development agenda". He further talked about the state action plans for climate change by almost all the states of the country, yet India is the worst sufferer of the impacts of climate change. "Five Indian states have high vulnerability to climate change and 70 districts among the top 100 most vulnerable districts will be in these states" said Dr. Gupta. He concluded his speech by saying, "This shows we need clear plan of action to handle and localized action needs to be administered there with the help of local administrative".

KEY TAKEAWAYS

India is faced with two major dichotomy in context of climate change and extreme events- mitigation vs development and adaptation vs development.

Need for clear plan of action to handle and localized action needs to be administered there with the help of local administrative.

India is the worst sufferer of the impacts of climate change despite having good mitigation efforts.

DR KRISHNA S VATSA

MEMBER, NDMA, GOI



VALEDICTORY ADDRESS

Krishna S. Vatsa has worked in the area of disaster risk reduction and recovery for the last 25 years. Prior to joining as Member, NDMA, he worked as Policy Advisor, Disaster Recovery, Bureau for Policy and Programme Support (BPPS), UNDP in New York and Nairobi during 2015-20. He served as the Regional Disaster Reduction Advisor, South & South- West Asia in New Delhi from 2008 to 2014. He joined UNDP in 2007 as Early Recovery Coordinator in the Philippines. In course of his career, he extensively consulted for several national and international organizations in the area of disaster risk reduction and recovery. Krishna S. Vatsa has a Doctor of Science in Disaster Risk Management from the George Washington University, Washington, DC and published extensively on the subject.

Dr Vatsa talked about the trends and hazards emerging in the country and how well adept we are to deal with it. He talked about the large scale change in hazard-scape across the country and said "Today the southern states are getting affected by floods on a regular basis almost annually due to heavy rainfall and congestion in natural drainage. Rising incidence of cyclones on the western cost and warming of the Arabian Sea will create more cyclonic activities in the coming year.

In the last few years, the extent of coastal erosion and landslides have become prevalent in several states resulting in loss of land in several coastal states in addition to huge number of deaths. Lightening incidents and cloud busts are also on an increase and happening close to the city, the cloudburst have led to serious amount of rainfall. Similarly forest fires have also increased and they are affecting many states and people and the losses associated with them. Salinization has also increased and more and more saline water is found in the hinterland, loss and damage to aquifers". The consequences are in terms of higher number of deaths and economic loses as well as the total damage and loss caused by the hazard also due to the increased exposure to assets and settlements and impacting our infrastructure. Especially the remote parts are worst affected with decaying impacts. "Primary sector activities particularly agriculture and fishing majorly affected and experience. They lose a lot in terms of produce and marketing opportunity at the same time the urban poor are seriously affected due to flooding loss of livelihood subsidence as they are exposed to several kinds of risks" he concluded.

KEY TAKEAWAYS

Preparedness is the key; we need to be prepared at the national, state and local level. Early warning systems needs to be more disaggregated and localized and we need to invest in certain areas. Short term forecasting needs to be improved.

Climate funding has to be broader in order to be translated at ground level mobilization of climate action.

PROF SHAILESH NAIK

DIRECTOR, NIAS, BENGALURU & FORMER SECRETARY MOES, GOI



CHAIRPERSON

Prof.. Shailesh Nayak is the Director, NIAS and Chancellor, TERI ISAS.. He obtained his PhD degree in Geology from the M.S University of Baroda in 1980. He was the Secretary, Ministry of Earth Sciences, and Chair, Earth System Science Organisation (ESSO) during 2008-2015. He had set up the state-of-the-art tsunami warning system for the Indian Ocean and developed marine services during his tenure in the ESSO-Indian National Centre for Ocean Services, Hyderabad. He is Fellow of the Indian Academy of Sciences, the National Academy of Sciences, India, the International Society of Photogrammetry & Remote Sensing and Academician of the International Academy of Astronautics. He was conferred the ISC Vikram Sarabhai Memorial Award-2012. He has published about 150 papers in SCI journals.

Porf. Shailesh Naik gave the chairperson's remarks and said that we have to look at this problem with three different angles. "We have sufficient knowledge in the climate arena (how, why, historical, currently and what is likely to happen), but the social systems which leads to response to this knowledge is lacking" he said. Highlighting the existing social inequity reflected in development he said, "Recent data published shows that the world per capita emission is of 74800 MT CO_2, compared to that India is just 3140 MT per capita. This is because 60% emission is done by just 18% of the population". He further added that "development and emission part should thus go hand in hand. India has credit of 192 tonnes CO_2 equivalent compared to USA which is -340 tonnes".

Quoting the past agreements he said that the Kyoto Protocol and Paris Agreement show developed nations like USA and Europe as insufficient, however India is 2° compatible. "India has taken actions at all levels, although the protests are going in Europe as their social systems are irresponsible. This social and governance system has to change and the problem has to be solved at a global level. India has shifted to renewable energy but transition from fossil fuel to renewable economy is very critical and this is very crucial" he said. He concluded by saying the behavioural changes are utmost important as everyone will be affected by this.

KEY TAKEAWAYS

Social systems which leads to response to this knowledge needs to be strengthened.

Climate actions should be taken based on equity.

India has taken actions at all levels.

KEY TAKEAWAYS OF THE SESSIONS

- Technology and society are the important determinants of our vulnerability and our ability to cope and respond to various disasters.
- There is a need to anticipate the future risks and future scenarios on a long term basis.
- Small scale interventions are equally important as large scale interventions; no amount of work done for combating climate change goes waste.
- Research and innovation is the key for sustainable climate change policy.
- Need to stay ahead of the problems by foreseeing, forecasting and extrapolating in order to stop deterioration and accelerate environmental regeneration.
- The 6th IPCC assessment report and said that it was the code red for humanity, thus there is no room for further complacency at all.
- Climate change will not just be fought at the mitigation level at global level but at an adaptation level at local level, thus is has to be dealt by building and enhancing technical capacity at lowest level.
- India is faced with two major dichotomy in context of climate change and extreme events- mitigation vs development and adaptation vs development.
- Need for clear plan of action to handle and localized action needs to be administered there with the help of local administrative.
- India is the worst sufferer of the impacts of climate change despite having good mitigation efforts.
- Social systems which leads to response to this knowledge needs to be strengthened.
- Climate actions should be taken based on equity.
- Preparedness is the key; we need to be prepared at the national, state and local level.
- Early warning systems needs to be more disaggregated and localized and we need to invest in certain areas. Short term forecasting needs to be improved.
- How we do our assessments of damage and loss is very important, it provides insights to risk reductions and climate change strategies.
- Along with national level strategies we need to have reginal and local plans and greater participation of panchayats and municipalities.
- Climate funding has to be more broader in order to be translated at ground level mobilization of climate action.
- We should have much greater interaction between climate adaptation and disaster risk reduction.

KEY TAKEAWAYS OF THE SESSIONS & WAY FORWARD

- The comparison of past and present disaster show significant variation which indicates the future trends.
- Sustainability inclusive DRR is the phrase of the day where sustainability relates to inter-generational equity.
- It is important to anticipate the disaster risk issues and challenges for future generation.
- It is high time that we make sure that people have rapid access to information that encourages preventive measures and enables quick response to protect lives and livelihoods.
- Use of science innovation and technology may emerge as a key to planning sustainable and disaster resilient infrastructure and systems in present and future.
- Traditional knowledge and wisdom and indigenous innovation are equally important as these may provide many cost effective solutions to address the issue of climate change.
- In regional scale the interacting drivers and stresses needs to be understood to simultaneously address more than one issue at a time.
- India is yet highly vulnerable due to lower adaptive capability especially in the eastern regions.
- The biggest challenge India is going to face in the coming time is to understand the ways of improving the adaptive capability to increase the Human Development Index at specially addressing poverty and high population density.
- India must develop a Climate Risk Atlas and Climate Change Risk Index.
- Localized planning at municipal level are very important.
- In Smart City Planning as well we should emphasize on the impact of climate change.
- Need to provide all-inclusive complete knowledge to people for climate change adaptation.
- There is a need to localize the climate action plan from National level to Panchayat level.
- Water is one of the key resource that is affected by Climate Change, therefore, the water resource management is a prime concern.
- The inter linkages of water food energy and other essential resources make the issue further critical.
- There is a need to implement normal no regrets vulnerability reduction actions with greater vigour.
- It is needed to diversify our risks to be prepared for multiple scenarios.

KEY TAKEAWAYS OF THE SESSIONS & WAY FORWARD

- It is required to integrate science, technology, institutions and culture to solve society's problem.
- Changing the mind-set of people is equally crucial.
- Establishing well distributed longitudinal data collection centres and long term monitoring system is needed.
- There is a need of creation of young volunteers to collect data and bring awareness among masses.
- Proper implementation of guidelines and capacity building programmes.
- Technology and society are the important determinants of our vulnerability and our ability to cope and respond to various disasters.
- There is a need to anticipate the future risks and future scenarios on a long term basis.
- It is required to shift from macro to micro level planning.
- Changing climate can be beneficial for some locations and sectors.
- It is significant to gather indicators of climate change and resilience.
- There is a need to incorporate micro level changes in policy making.
- Involvement of science & technology in programs related to climate change and DRR.
- Establishment of longitudinal data collection system is required.
- All the efforts to fight climate change should be data driven.
- It is also important to regularly update the knowledge.
- Preparedness and capacity building at all the level is crucial.
- There is a need to transfer policies and guidelines from top to bottom.
- Both developed and developing countries should take the responsibility.
- It is important to integrate mitigation and not only adaptation in policies.
- Democratization of knowledge can be done by building knowledge sharing centres at local level.
- There is a need to bridge the gap across national, state, and local level.
- Addressing our limitations is important as the world is experiencing unique climatic events.
- It is required to incorporate technological development and demography while planning for future climate change and disasters.
- Unplanned urban development has aggravated the climate change impact.
- There is need of convergence planning for better water resource management.

KEY TAKEAWAYS OF THE SESSIONS & WAY FORWARD

- Digital potential can be utilised to bring changes at local level.
- There is a need to shift from groundwater to surface water use.
- Promoting climate resilience can be done through a combination and policy and ground actions.
- To assess the risk of identified climatic and biological disasters using historic and current data and scientific tools.
- The findings of studies emphasize need to address vulnerabilities to specific climate disasters for various states.
- Effective risk reduction will happen only when it is backed by appropriate institutional arrangements.
- GIS planning must be promoted for better management of resources.
- Scientific approach is needed for water conservation.
- MGNREGA is helping in creating climate resilient India by building check dams, percolation tanks and other water structures.
- Community bases nutritional garden concept by GIZ is helping to increase benefits for farmers and also reducing dependence on water intensive crops.
- Individual structure leads to hyper agriculture and monoculture so community-based structure should be preferred.
- Technology embedded in MGNREGA can be used to build climate resilient strictures.
- Tanka concept from Jodhpur, Rajasthan should be implemented for drinking water purposes and groundwater recharge also.
- Involvement of public is needed to identify issues and help in resolving the problems better.
- Convergence plans play major role in achieving goals.
- MGNREGA has huge potential for building climate resilient India.
- Highlighted WEF nexus and linkages of incentives and subsidies causing overexploitation of ground water.
- Solar pumps for irrigation is likely to change food energy nexus.
- The cost of building a disaster resilient infrastructure is not much when compared with the losses incurred as a result of poor engineering.

KEY TAKEAWAYS OF THE SESSIONS & WAY FORWARD

- Educational enterprises are needed to instil a sense of innovation and curiosity amongst the newer generations.
- There is a need to implement cutting-edge technology to address the problems of agricultural droughts.
- The urgency of climate emergency is needed to be realised and is to be inculcated in our future development practices.
- The socio-economic pathways have been addressed in the upcoming IPCC which focuses on the critical issues of the sustainability to lead us to make it a climate resilient development pathway.
- The infrastructure development is still lacking the inclusion of disaster resilient approaches.
- The fast-paced technological advancement should be utilised for the benefits of society.
- There is a need to streamline our policy formulation with sustainable development goals.
- Impacts of climate change can undermine achievement of 16 SDGs, while action to address climate change can reinforce all 17 SDGs but also undermine efforts to achieve 12.
- Understanding of these relationships should be reinforced through interdisciplinary work between academic disciplines and evidence-synthesis initiatives.
- More sound scientific research and evidence-based information is needed to increase this understanding.
- Implementation of disaster management planning at all levels of the society.
- There is dire need for reworking the PPP structure, strengthening the local bodies, launching R&D projects in rural and urban areas.
- There is a need to map out the natural drainage network and incorporate master plans and land records.
- Technology and society are the important determinants of our vulnerability and our ability to cope and respond to various disasters.
- There is a need to anticipate the future risks and future scenarios on a long term basis.
- Small scale interventions are equally important as large scale interventions; no amount of work done for combating climate change goes waste.
- Research and innovation is the key for sustainable climate change policy.

KEY TAKEAWAYS OF THE SESSIONS & WAY FORWARD

- Need to stay ahead of the problems by foreseeing, forecasting and extrapolating in order to stop deterioration and accelerate environmental regeneration.
- The 6th Assessment Report of IPCC said that it is the code red for humanity, thus there is no room for further complacency at all.
- Climate change will not just be fought at the mitigation level at global level but at an adaptation level at local level, thus is has to be dealt by building and enhancing technical capacity at lowest level.
- India is faced with two major dichotomy in context of climate change and extreme events- mitigation vs development and adaptation vs development.
- There is a need for clear plan of action to handle and localized action needs to be administered there with the help of local administrative.
- India is the worst sufferer of the impacts of climate change despite having good mitigation efforts.
- Social systems which leads to response to this knowledge needs to be strengthened.
- Climate actions should be taken based on equity and India has taken actions at all levels.
- Preparedness is the key; we need to be prepared at the national, state and local level.
- Early warning systems needs to be more disaggregated and localized and we need to invest in certain areas. Short term forecasting needs to be improved.
- Climate funding has to be more broader in order to be translated at ground level mobilization of climate action.
- We should have greater interaction between climate adaptation and disaster risk reduction.

ANNEXURE

Annexure I: Programme Agenda

Day 1: 2nd September 21
Session 101: Inaugural Session
(3:00 pm – 4:30 pm)

- Welcome Address: Maj. Gen. Manoj Kumar Bindal, Former Executive Director, NIDM
- Context setting: Dr. Akhilesh Gupta, Secretary, SERB and Senior Advisor, DST-GoI

RELEASE OF RESEARCH REPORT ON CLIMATIC AND BIOLOGICAL DISASTERS

- Address: Ms. Christiane Hieronymus, Head of Economic Cooperation & Development, Embassy of Federal Republic of Germany
- Special Address: Shri Kamal Kishore, Member, NDMA, GoI
- Inaugural Address: Prof. Ashutosh Sharma, Secretary, DST, GoI
- Moderator: Prof. Anil K Gupta, HoD, ECDRM NIDM, New Delhi (Convenor)

High Level Panel Session 102: Science Policy Innovation for Climate Resilience
(4:30 pm – 6:00 pm)
Chairperson: Prof. Anil K Gupta, Professor Emeritus IIM Ahmedabad, CSIR Bhatnagar Fellow.

- Dr. Neeraj Sinha, Senior Advisor, NITI AAYOG, GoI
- Prof. Tej Pratap Singh, Vice Chancellor, G. B. Pant University of Agriculture & Technology, Pantnagar
- Dr. Sanjay Srivastava, Chief of DRR, UN-ESCAP, Bangkok
- Mr. Madhav Pai, Executive Director, WRI India & Cities Director
- Prof. Dieter Mutz, Lecturer, University of Applied Science & Arts North Western Switzerland & Team Leader EU- India Resource Efficiency Project
- Dr. Ashish Chaturvedi, Director, Climate Change, GIZ Germany, India Office.
- Dr. M. Mohapatra, Director General of Metrology, IMD, GoI

Day 2: 3rd September 21
High Level Panel Session 103: WASCA Special Session
(3:00 pm – 4:30 pm)

- Opening Remarks: Dr. Julie Riviere, Country Director, GIZ
- Key Presentation: Mr. Rajeev Ahal, Director, NRM and Agroecology, GIZ India
- Short presentation on study Mapping of Climatic and Biological Disasters (Swati Singh
- State officials from Tamil Nadu and Madhya Pradesh
- Mr. Shilp Verma (Senior Researcher, Water-Energy-Food Policies), IWMI

High Level Panel Session 104: Disaster Resilient Development
(4:30 pm - 6:00 pm)
Chairperson: Prof. Sudhir Jain, Director IIT, Gandhinagar, Gujarat

- Prof. Rajib Shaw, (Keio Univ. Japan), Chair, UN-ISDR – S&T Advisory Group
- Dr. Shirish Ravan, Head, UN-SPIDER, UNOOSA, Vienna, Austria
- Prof. Dilanthi Amaratnga, Head, Global Disaster Resilience Centre and Professor DRR & Management University of Huddersfield, UK
- Prof. Santosh Kumar, Professor & Head, GIDRR, NIDM, New Delhi
- Prof. V. K. Sharma, Vice Chairman, Sikkim SDMA & Senior Professor, IIPA
- Dr. Sudhir Krishna, Former Secretary, MoUD, GoI

High Level Panel Session 105: Future Strategy Recommendation
(6.00-7.00 pm)

- Convenor's report on the proceedings and key outcomes of the event
- Address: Maj. Gen. Manoj Kumar Bindal, Former Executive Director, NIDM
- Address: Dr. Muralee Thummarukuddy, Chief of DRR, UNEP, Geneva
- Address: Dr. Akhilesh Gupta, Senior Adviser & Secretary, Science & Engineering Research Board (SERB)
- Chairperson's Address: Prof. Shailesh Naik, Director, NIAS, Bengaluru & Former Secretary-MoES
- Valedictory Address: Dr. Krishna S. Vatsa, Member, NDMA, GoI
- Moderator: Prof. Anil K Gupta, NIDM, ECDRM NIDM, New Delhi

ANNEXURE

Annexure II: Programme Brochure

TARGET GROUP

The conference will be attended by experts and officials from the Central and State Government and International agencies including UN, NGOs, implementing agencies, academia and research institutes, and professionals in the field of climate and disaster resilience and sustainable development.

EXPECTED OUTCOME

The deliberations during the conference and subsequent script contribution would be considered for developing a knowledge volume which will serve as a strategic document (to be published in International press, like Springer Nature Series DRGG) to highlight the science policy innovation practices and disaster resilient development strategies. The document will also help in developing a framework for promoting the futuristic risk scenarios and adaptation base for post 2050 and 2100 vision.

REGISTRATION

All the interested participants are requested to register on the training portal of NIDM

training.nidm.gov.in

DATE AND VENUE

2nd—3rd SEPTEMBER 2021
3:00 PM—6:00 PM
Platform: Cisco Webex

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Shri Sanjeeva Kumar, IAS, Member Secretary, NDMA
Dr. Akhilesh Gupta, Senior Advisor & Head-SPLICE & Climate Change Programme, DST, GoI
Maj. Gen. Manoj Kumar Bindal, Executive Director, NIDM

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Ms. Kopal Verma
Dr. Sweta Baidya Das
Dr. Uzma Parveen
Ms. Swati Singh
Mr. Vaibhav Sharma

High Level Policy Dialogue on LOCALIZATION OF CLIMATE RESILIENCE AGENDA: VISION 2050 AND 2100

LOCC-RES 2100

September 2 - 3, 2021
3PM onwards



Organized by
National Institute of Disaster Management
Ministry of Home Affairs, Government of India
New Delhi
&
Department of Science and Technology
Government of India. New Delhi

In collaboration with
Deutsche Gesellschaft für Internationale Zusammenarbeit, GmbH (GIZ)

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High Level Policy Dialogue on LOCALIZATION OF CLIMATE RESILIENCE AGENDA: VISION 2050 AND 2100

2nd-3rd September 2021
@Cisco Webex

BACKGROUND

India is prone to multiple disasters. due to its wide range of environmental, geological and developmental variations. Environmental changes, viz. Climate change, land-use changes, natural resource degradation, along with the anthropogenic settings, aggravate disasters and people's vulnerability to the disaster's impacts. The Living Planet Index (LPI) highlights that anthropogenic activities are the primary factor which has pushed our planetary boundaries beyond limits. This calls for the approaches and pathways of low carbon and ecologically sound developmental strategies that help adapt to the impacts of climate change with the aim of reducing the vulnerability and the risk of disasters; an approach that aligns with co-benefits, synergies, cooperation and interdisciplinary actions. The Sustainable Development Goals (SDGs) have established this approach with the set of 17 goals as a blueprint for achieving a sustainable and better future for all. Localization of climate resilience agenda has been advised by almost all the global development agendas including the Paris Climate Agreement and the Sendai Framework for Disaster Risk Reduction (SFDRR), however, they are focused to achieve these targets by 2030.

As climate change is manifesting itself in various forms; the challenge it may bring henceforth may have uncommon yet heterogeneous social, environmental and economical altercations. Identifying the far reached-i.e 2050 and 2100-climate challenges and further sketching strategies to combat them requires greater science-policy-research interface at all levels. It calls for a futuristic adaptive policy focusing specifically on strengthening the existing S&T and policy frameworks. Thus guidelines and plans pertaining to disaster management at all levels and across sectors are expected to utilize and integrate relevant S&T interventions, research strategies and innovations and develop an holistic, integrated and inclusive model through S&T interventions and innovations from across a range of disciplines.

NATIONAL INSTITUTE OF DISASTER MANAGEMENT

The National Institute of Disaster Management (NIDM) is a premier institute of Government of India, under Ministry of Home Affairs, mandated under the Disaster Management Act 2005, for capacity building, training, education, research, policy assistance, documentation, publications, awareness and networking on all aspects of disaster resilience, with activities in and outside the country.

NIDM's Division of Environment, Climate & Disaster Risk Management (ECDRM) has been recognized as Centre for Excellence on Climate Resilience (CECR) under the National Climate Change Mission on Health. ECDRM division is implementing five major research projects including:

- **Climate Adaptive Planning for Resilience and Sustainability Development in Multi-Hazard Environment (CAP-RES):** funded by DST-GoI. The project themes include Green growth, Carbon Neutrality, Resilient Agriculture, Resilient Health, Policy Instruments, through S&T and planning strategies.
- **National Agriculture Disaster Management Plan (NADMP):** focuses on preparing a comprehensive Disaster Management Plan for MoA&FW-GoI that can address the future vulnerabilities and risk of agricultural systems towards disasters in India.
- **Health Adaptation and Resilience: Advancing Strategic Knowledge and Capacities:** supported by World Health Organization (WHO) India. The project aims at improving climate change adaptation strategies of healthcare system by addressing knowledge, planning and capacity gaps in healthcare system resilience in India.
- **Crisis Management Plan to deal with Contamination of Water Bodies (CMP-WB):** Supported by the Ministry of Environment, Forests and Climate Change, through Central Pollution Control Board.
- Preparation of **Disaster Management Plan for the Ministry of Environment, Forest and Climate Change (MoEFCC)**
- Preparation of **Disaster Management Plan for the Ministry of Chemical & Fertilizers (MoC&F)**

AIM & OBJECTIVES

This Conference aims at all-inclusive viewpoints and framework development through discussion & dialogue on experiences and lessons learned from the past decades for developing a futuristic climate localization agenda. The deliberations during the conference will also seek to identify the opportunities to utilize a range of S&T innovations among several disciplines for 2050 and 2100 vision. Some specific objectives are as follows:

1. Identifying the futuristic climate scenario and challenges.
2. Long term vision for Science, Technology and Policy integration and localization.
3. Understanding financial mechanisms and governing tools for climate resilience with special emphasis to the futuristic climate and disaster challenges.
4. Envisioning the impact of disruptive technology for effective models ensuring long

HIGH LEVEL PANEL SESSIONS

- Science Policy Innovation for Climate Resilience
- WASCA Special Session
- Disaster Resilient Development
- Future Strategy Recommendation

ANNEXURE

Annexure III: LIST OF PARTICIPANTS

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ANNEXURE

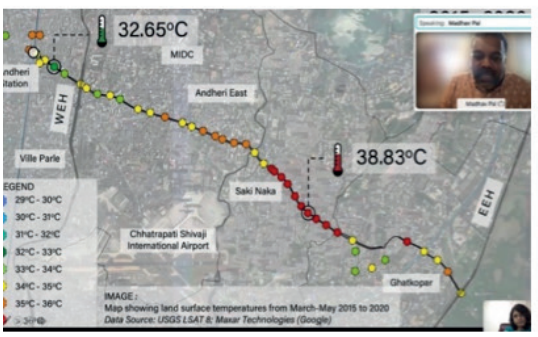
Annexure IV: Glimpses of the Conference

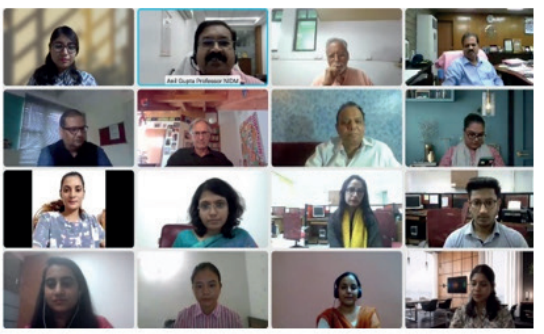










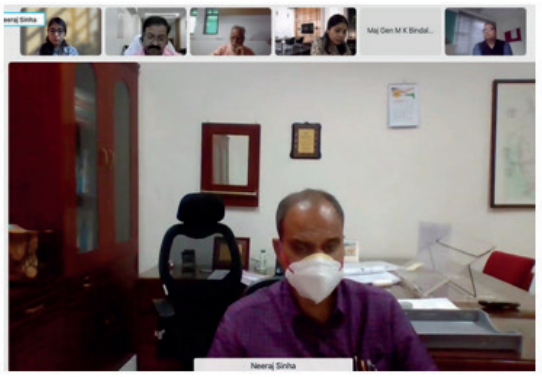


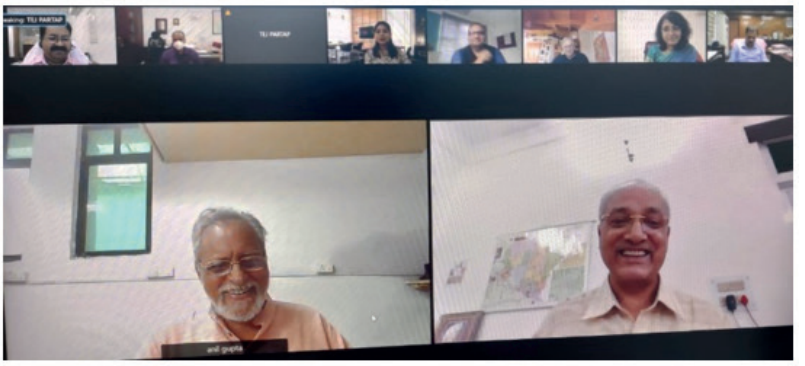


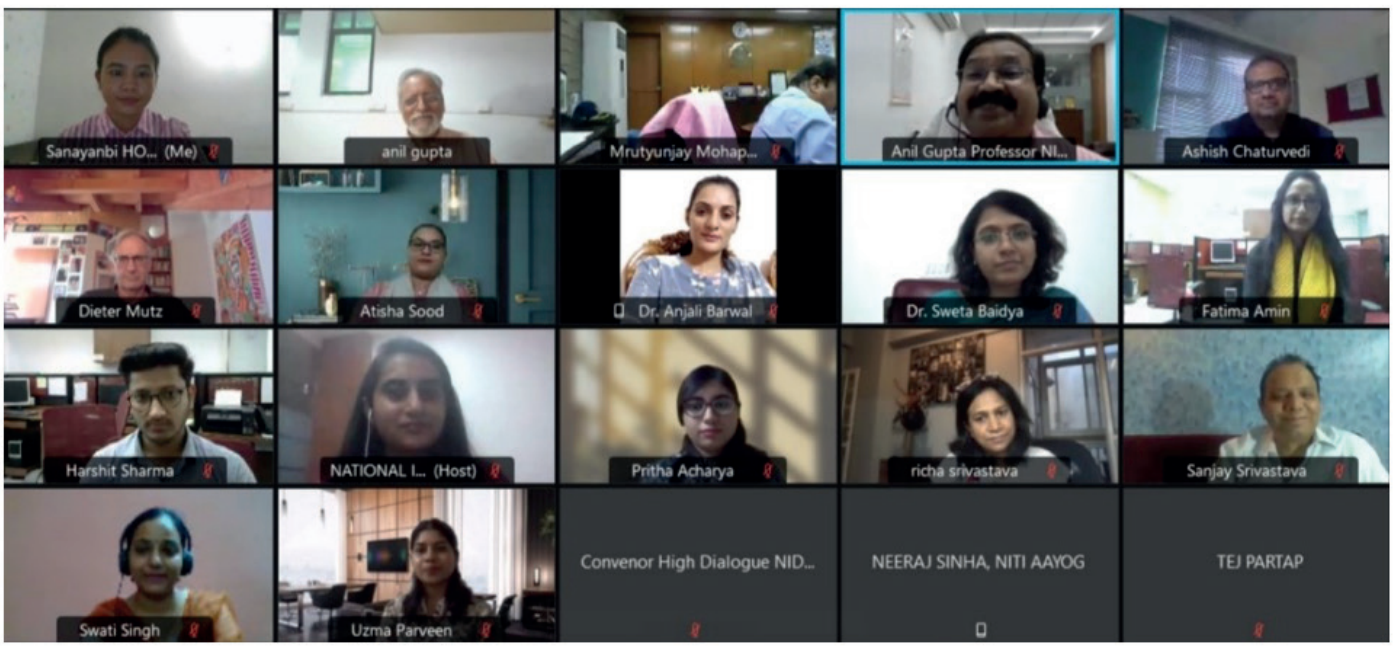


ANNEXURE

Annexure IV: Glimpses of the Conference







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