ANNUAL REPORT

2022 – 2023

SAARC

Disaster Management Centre (IU)

Gujarat Institute of Disaster Management Campus
Raisan, Gandhinagar, Gujarat

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CONTENTS

1. Background

The SAARC region, by virtue of its unique geographical setting, climate and socioeconomic vulnerabilities, is amongst the world's multi-hazard hotspots. The region bears the brunt of large-scale catastrophic disasters. Major population centers such as Kathmandu, Karachi, Kabul, New Delhi, Dhaka lie on key seismic fault lines or along coastal areas constantly buffeted by cyclones, floods, and storm surges. The latter extreme weather events increase in number and intensity due to the effects of climate change. Unplanned human settlements, unsafe building practices, and high population densities have further compounded the exposure and vulnerability of people and economies. As a result, earthquakes, cyclones, floods, tsunamis, droughts, and other hazards of every type and magnitude continue to consume lives, property, and livelihoods across the region. SAARC Disaster Management Centre (SDMC-IU) has been set up at Gujarat Institute of Disaster Management (GIDM) Campus, Gandhinagar, Gujarat, India in November 2016, with a vision to be a Centre of Excellence to provide policy advice, technical support on system development, capacity building services and training for holistic management of disaster risk in the SAARC region. The centre facilitates exchange of information and expertise for effective and efficient management of disaster risk. Eight Member States, i.e. Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka are served by the SDMC (IU).

2. Scope of Work

SDMC(IU) is working to give a fillip to regional cooperation for holistic management of disaster risk in the SAARC region. It serves the Member States by providing policy advice, technical support on system development, capacity building services and training. The Centre facilitates exchange of information and expertise for effective and efficient management of disaster risk. Asneeded, the Centre undertakes projects and programmes to serve the needs of the Member States.It seeks to expand from a 'knowledge sharing' organisation to an 'action-response' organisation and develop Standard Operating Procedures, tools, guidelines and methodologies for different types and phases of disasters.

It is vital for SDMC (IU) to frame cooperation as technical responsibility for regional Disaster Management and Disaster Risk Reduction (DRR) making material contribution to the lives of vulnerable population and those exposed by the natural disasters. The centre is entrusted with the responsibility to support Member States in their DRR initiatives through application of Science & Technology, knowledge from multiple disciplines, exchange of good practices, capacity development, collaborative research and networking in line with the global priorities and goals and other relevant frameworks adopted by Member States.

In addition, the SDMC (IU) has been re-established with an expanded role by merging four erstwhile SAARC Centres namely (1) SAARC Disaster Management Centre (SDMC– New Delhi, India); (2) SAARC Meteorological Research Centre (SMRC - Dhaka, Bangladesh); (3) SAARC Forestry Centre (SFC - Thimphu, Bhutan); (4) SAARC Coastal Zone Management Centre (SCZMC - Male, Maldives). Disaster Risk Reduction relevant functions of these centres are also a part of the scope of work.

3. Vision

To be a Centre of Excellence for regional cooperation and specialised service delivery to Member States for Disaster Risk Reduction (DRR), Response, Recovery and Sustainable Development.

4. Mission

To support Member States in their DRR initiatives through application of Science & Technology, knowledge from multiple disciplines, exchange of good practices, capacity development, collaborative research and networking in line with the global priorities and goals and other relevantframeworks adopted by Member States.

5. Functions of SDMC (IU)

1. Provide assistance in formulation of Policies, Strategies and Sustainable Development Frameworks in relation to disaster Management and Disaster Risk Reduction
2. Undertake/ promote research for better understanding of the various meteorological phenomena of particular interest to the SAARC Region, with a view to enhance the capability of National Meteorological Services (NMSs) of the Member States, particularly in the field of early warning to provide support for preparedness and management of naturalhazards involving relevant knowledge and operational institutions in India.
3. Collect, compile, document and disseminate data, information, case studies, indigenous knowledge and good practices relating to disaster risk reduction, and sustainable development.
4. Compile and collate information for the region required for weather forecasting and monitoring special weather phenomena.
5. Strengthen regional response mechanisms to reduce loss of lives, injuries and to provide timely humanitarian assistance to people affected by disasters.
6. To identify organisations in the region dealing with relevant key focus areas, facilitate interaction, promote coordination and cooperation amongst institutions (ministries, authorities, inter-governmental organisations, international organisations, non-governmental organisations, funding agencies, etc.) and other stakeholders involved through networking for the exchange of experiences, information, data, expertise, knowledge and technology transfer in the key focus areas of SDMC.
7. Organise training workshops, conferences, seminars, lectures for various stakeholders on key priority/focus areas of the Member States and on various aspects of disaster management.
8. Develop educational materials and conduct academic and professional courses on key priority/focus areas.
9. Develop training modules on various aspects of key priority/focus areas and conduct programmes for Training of Trainers including simulation exercises.
10. Coordinate SAADMEx with the Member States.
11. Analyse information, undertake research and disseminate research findings on key priority/focus areas among the Member States.
12. Undertake preparation of databases, publication of journals, research papers and books,and establish and maintain online resource centre in furtherance of the aforesaid objectives.

13. Collaborate with other global, regional and national centres of excellence to achievesynergies in programmes and activities.
14. Conduct studies on assessment and management of disaster risks posing a threat toinclusive and sustainable development in South Asia.
15. Undertake research, projects, programmes contributing towardsmitigating the impact of trans-boundary disasters.
16. Facilitate from within and outside the region supply of emergency needs in times ofdisaster, in line with SAARC disaster response mechanisms.
17. Facilitate exchange of experiences and technical support among Member States on National Action Plans for Disaster Risk Reduction.

6. Activities in the Financial Year 2022-2023

6.1. Preparation of Activity Plan

SDMC (IU) had prepared its annual Activity Plan for FY 2022-2023 based on the discussion in 6th Inter-Ministerial Meeting and shared with MEA, GoI. Based on the administrative and financial approval received by MEA on July 18, 2022, following capacity building programs/ webinars were conducted.

6.2. Capacity Building Programs organized

#	Name of Webinar	No of Participants	Participants from Member States	Date
1.	Regional Workshop on Assessing Drought Risks using Earth Observation Data & Launch of SouthAsia Drought Management System (SADMS)	22	Seven Member States (Except Afghanistan)	31st August to 2nd September 2022
2.	Regional Workshop on Urban Resilience and Making CitiesResilient	26	Seven Member States (Except Afghanistan)	5th to 8th December 2022
3.	Approaches to Socio-EconomicRecovery from COVID-19	19	Five Member States (Except Afghanistan, Bhutan &Pakistan)	1st to 4th March 2023

Experts

- **24 Experts** (12 from SAARC Member States and 12 from International Organisation) have shared their experiences during these capacity developmentprograms

Participants

- **67 Participants** have been oriented through the Capacity Building Programs

6.3. Other Programs / Activities

#	Activity	Action Taken
1	Updation of SAARCDM Framework	○ A draft of SAARC Framework on Comprehensive Disaster Risk Management was developed and shared withUNDRR ROAP for their comments/ inputs. ○ The framework has been revised, incorporating commentsreceived from UNDRR ROAP. ○ MEA has been requested to share it with SAARC Member States through SAARC Secretariat for consensus on the same.
2	Fostering Dialogue forAccelerated Action in the SAARC Region	○ During APMCDRR 2022, a consultation session on 'Fostering Dialogue for Accelerated Action in the SAARC Region' was hosted and conducted as a side-line event in a hybrid mode to brief the representatives from the Member States on the re-envisioned thematic pillars and the associated perspective Plan of Action for the SAARC region and detail out the areas of engagements. ○ The session was attended by officials and representatives of National Disaster Management Organisations (NDMOs) from the SAARC Member States. ○ The consultation session was successful to establish consensus on the overall perspective plan of Action for theSAARC region.
3	38th SAARC Charter Day	o A special session on Urban Resilience and Sustainability was organised on 8th December 2022, which was attendedby 26 delegates from the Member States.
4	Publications	o Bi-annual Newsletter has been published by SDMC (IU) in October 2022 and March 2023.

#	Activity	Action Taken
		○ Annual Report for FY 2021 -22 was prepared and shared with MEA and uploaded on SDMC (IU) portal in April 2022.
5	Contextualisation of Risk & Resilience Portal	○ UNESCAP in consultation with SDMC (IU) has prepareda prototype of the Risk & Resilience Portal for the South Asian region which is undergoing testing and validation. ○ Upon satisfaction and necessary approval, the same wouldbe launched in a regional workshop in 2023 in collaboration with UNESCAP.
6	Promoting SETI for understanding and assessing hydro-meteorological hazards	○ With support from IWMI and UN-SPIDER, South Asia Drought Monitoring System (SADMS) was launched during the regional workshop on Assessing Drought Risks using Earth Observation Data & Launch of South Asia Drought Management System (SADMS).
7	Promoting Disaster Resilient Infrastructure	○ In process of conceptualising a regional workshop ondisaster resilient infrastructure in 2023 with CDRI and other relevant partners.
8	Developing Urban Resilience	○ SDMC (IU) has joined the MCR2030 as a Supporting Entity and has encouraged participants to ask their cities to join MCR2030. ○ With support from GIDM, SDMC (IU) intends to showcase the journey of GIFT City in MCR2030 and supporting member states in implementing activities under MCR 2030.
9	Stimulating Green, Resilient and Sustainable Recovery	○ SDMC (IU) has scheduled a workshop with UNDP fromthe 1st to the 4th of March, 2023. A guidance note will be prepared based on the workshop which will be further be shared with member states for their inputs/ comments.

10	○ Web Portal ○ Dedicated web-portal on COVID-19 for SAARC Region	○ SDMC (IU) updates its portal with all the necessary information/ data on regular basis. ○ Country Page for each country has been developed. User Manual for the same has been prepared and shared with allMember States for updation of the country page. ○ SDMC (IU) set up a dedicated web-portal (http://www.covid19-sdmc.org) on COVID-19 for shared use of SAARC countries. The portal was created with an aim to provide a platform, wherein through active participation, all member countries can disseminate reliable information and updates on the evolving situation relating to COVID-19 in the region, and good practices being followed in member countries. Since the creation ofthe website, situation report of the region is regularly updated on the portal using data from authentic sources like government/ Ministry websites of member countries and WHO.

7. Financial Status (Amount in INR)

Total Funds available in FY 2022-23	Fund released in FY 2022-23	Expenditure incurred in FY 2022-23
58,35,041.14	74,32,459.00	91,80,257.00

ANNEXURES

Annexure 1

Regional Workshop on

Assessing Drought Risks using Earth Observation Data&

Launch of South Asia Drought Management System (SADMS)

Utility of SADMS tool for operational drought decision support across South Asia31st August to 2nd September, 2022

PROGRAM NOTE

Background

Drought is one of the most threatening natural hazards due to its creeping and invasive nature, which proliferates existing systemic vulnerabilities, creates new risks and consequentially manifests as multi-dimensional hindrances to the objective of sustainable development. South Asiahas faced several droughts in recent decades and 50 major droughts have been reported since 1990,affecting over 750 million people with economic damages estimated at 7 billion USD. The 6th Assessment Report of IPPCC underlines the probability of interannual variability in precipitation at the regional level (SAS), which may lead to droughts locally, especially in the arid and semi- arid areas of India, Pakistan, and Bangladesh. Being able to accurately identify and monitor drought is, therefore, of considerable importance. Monitoring the severity and impact of drought is of critical importance to policy makers for effective drought risk mitigation and management, which would in turn improve food security and enhance livelihood among smallholder farmers.

Drought risks can be reduced by reducing vulnerabilities which exacerbates the effects and impactsof drought conditions or by enhancing coping capacities like taking preventive measures at the sub-national or local levels. Although disaster risk management is everyone's business, efficient drought risk management heavily depends on the local agencies and authorities, as it involves multiple administrative, economic and political factors. Authorities are expected to draw drought risk management plans that encompasses scientific declaration of droughts, response and relief and most importantly, building forward better with an objective of mitigating future impacts.

Much of the drought management system is dependent on station-wise weather data which is usedto derive meteorological drought indices for drought monitoring and early warning. Using these well-established warning systems based on various drought indices, forecasts are made based on the socio-economic conditions. But, due to the sparse meteorological network and lack of timely availability data, accurate and timely monitoring of regional drought is hindered.

Need of the workshop: Introduction to SADMS

The proposed workshop will discuss how earth observation and meteorological data along with ground data can be used to assess drought risks well in time, provide early warning by leveragingthe South Asia Drought Monitoring System (SADMS) developed by the International Water Management Institute.

With the emergence of satellite technologies in early 2005, IWMI in collaboration with US OFDA established the first regional drought monitor for Southwest Asia covering the countries of Iran, Pakistan, and the Western States of India to promote regional capabilities and access to knowledge products on drought severity for timely action on agriculture risk management. Following the success, IWMI was supported by the Integrated Drought Management Programme (IDMP) led by WMO/GWP to promote three pillars of drought risk management at regional to sub-national levels including South Asia. Since 2017, SADMS was supported by the Indian Council of Agricultural Research (ICAR), Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF), and CGIAR Water, Land and Ecosystems (WLE) on broader areas of drought resilience initiatives ranging from monitoring and early warning system, agriculture contingency plans, vulnerability assessment, and climate adaptation measures in rainfed and irrigated systems and importantly capacity-building efforts in South Asia. IWMI was supported with World Bank to implement near real-time drought early warning decision support tool (AF-DEWS) and

SADMS platform is a unique and innovative solution that brings all the components ranging from Weather and Climate (Seasonal, sub-seasonal and weather forecast for 7days), drought management (near real-time drought monitor using multisource satellite data; defining mandatory and impact drought indicators to alert contingency plans), agriculture contingency plans and user-specific drought decision support tool to determine drought to support national agencies for drought mitigation measures including drought declaration efforts. Further, the SADMS platform provides country-specific APIs to access and integrate into their respective platform for monitoring capabilities and strengthening the capacities in the region. The new SADMS platform also offers user-specific drought bulletin to produce based on their choices and needs for timely dissemination.

Workshop objectives

The overall objective of the workshop is to introduce the South Asia Drought Monitoring System(SADMS) to the key stakeholders of South Asian countries through a two days' workshop to -

- Discuss technical advances and challenges in using earth observation to help assess andmonitor drought risks
- Orient the participants to the South Asia Drought Monitoring System (SADMS) platform
- Explore the current capabilities of SADMS in drought monitoring and early warning
- Explore possibilities of institutionalizing the SADMS at sub-national levels of the SAARCMember States and promote multi-institutional collaboration to manage drought risks.

Participants

Participants from key agencies / departments like

- Meteorology or Space Affairs
- Agriculture
- Irrigation
- Revenue
- Disaster management

of the SAARC Member States would be invited to participate in the proposed workshop.

Expected outcome

The expected outcome of the proposed workshop is as follows:

1. Orientation of SADMS to the participants
2. Assessment of the efficacy and usability of the tool by relevant stakeholders from theSAARC Member States
3. Discussions on how to institutionalise SADMS or similar platforms (country-specific) forbetter management of drought risks
4. Discussions on how to foster inter-agency collaboration amongst SAARC Member Statesfor effective management of South Asian droughtscape.

Organising partners

The workshop will be organized by SDMC (IU) with support from CGIAR/IWMI, Indian Council of Agricultural Research (ICAR) and UNOOSA.

Tentative Date & Venue

The workshop is proposed to be organised at SDMC (IU), Gandhinagar on 31st August to 2nd September, 2022.

Agenda

Day 1: Wednesday, 31 August 2022

Time	Program	Lead
09:30 – 09.45	Registration	SDMC (IU)
09.45 – 10:30	**Inauguration & Launch of SADMS Portal** - Workshop Context, Purpose and Goals - Remarks by Director General, IWMI - Remarks by Head, Beijing Office, UN-SPIDERProgramme - Address by Additional Director General, ICAR - Launch of SADMS - Address by Director, SAARC DMC - Reflections of IMis Inda Drought Program **Launch of SADMS Portal** **Group Photo**	- Giriraj Amarnath - Mark Smith - Shirish Ravan - S. Bhaskar - P K Taneja
10:30 – 11:00	*Tea/ Coffee*	
11:00 - 12.00	**Session I: SADMS Platform** *Chair(s): Mr. A. T. M. Siddiqur Rahman, Ministry ofDefence, Bangladesh & Bibhuti Pokhrel, DHM, Nepal* *Moderator: Nishtha Paliwal, IWMI* SADMS framework, Implementation and Operationalcapabilities across South Asia	Giriraj Amarnath, IWMI,RGL-WRDR, Sri Lanka
12:00 – 13:30	**Session II: Earth Observation data for DroughtMonitoring** *Chair(s): A.B. Abeysekara, DOA, SL; Md. Shahud,Maldives Meteorological Services* *Moderator: Brijender Kumar Mishra, NDMA, India*	

	Regional experience: UN-SPIDER services for strengthening capacity of the member states to utilizeearth observation data monitoring and responding to drought and other disasters.	Shirish Ravan

Time	Program	Le ad
	Drought proofing tool Short presentation (10mins): 1. Bangladesh: Md Zahural Alam Chowdhury 2. India: Mr. Anup Srivastava, NDMA 3. Maldives: Md. Shahud 4. Nepal: Bibhuti Pokhrel 5. Sri Lanka: Mr Suganthalingam Discussion: Q & A Session	Alok Sikka, IWMI India Representative
13:30 – 14:30	*Lunch Break*	
14:30 – 15:30	**Session III: Drought Management efforts in SouthAsia** *Chair(s): V K Singh, CRIDA; A M R K Ratnayake, DMC-SL;* *Moderator: Aishath Nafua, MoEnvmv, Maldives* Short presentation (10mins): 1. India: K.V.Rao, CRIDA/ICAR 2. Maldives: Sama Adnan, MoEnvmv 3. Nepal: Bishwamitra Kuinkel 4. Sri Lanka: A B Abeysekera Discussion: Q & A Session	
15:30 – 16.00	*Tea/ Coffee*	
16:00 – 17:00	**Session IV: Group Discussion (SADMS Products, Capacity building needs and internationalization)** *Chair: Anup Kumar Srivastava / A.T.M SiddiqurRahman* *Moderator:* (Each group presentation is 10 minutes + 5 minutes of discussion)	
17:00 – 17:15	**Closing session**	

17:45 – 20:00 Get-to-gather

Day 2: Thursday, 1 September 2022

Time	Program	Lead
09.15 – 09:30	Review of the First Day Workshop Training Objective and Scope	SAARC DMC and Giriraj Amarnath, IWMI
09:30 – 10:00	Drought Monitoring in India	Pulak Guhathakurta, IMD
10.00 – 11:00	SADMS Concept and Solution Architecture	Giriraj Amarnath Surajit Ghosh, IWMI
11.00-11.30	*Tea/ Coffee*	
11:30 – 12:00	Experience sharing on the MENA Drought	Rachael McDonnel, Deputy Director General, IWMI
12:00 – 13:30	SADMS Modules Seasonal and Weather Forecast (Countryanalysis) Drought Monitoring tools	Surajit Ghosh, IWMI Niranga Alahacoon,IWMI
13:30 – 14:30	*Lunch Break*	
14:30 – 16:00	Drought Prediction using VIC model and automation procedures	Suman Padhee, IWMI
16.00 – 16.15	*Tea/ Coffee*	

16:15 – 19:00 Visit to Dandi Kutir, Gandhinagar

Day 3: Friday, 2 September 2022

Time	Program	Lead

09.15 – 09.30	Recap of Day-II	SAARC DMC Giriraj Amarnath, IWMI
9.30 – 10.00	Earth Observation data for drought Monitoring inIndia	Karun Kumar -NRSC
10.00 – 11.00	Country presentation from participants - Countrycase study for major drought event *(10 min each)*	Participants
11.00 - 11.30	*Tea/ Coffee*	

Time	Program	Lead
11.30 – 12.15	Application of Drought APIs for integration innational drought platform	Giriraj Amarnath, IWMI Surajit Ghosh, IWMI
12.15 – 13:00	Drought Decision Support tool	Surajit Ghosh, IWMI Giriraj Amarnath, IWMI
13:00 – 14:00	*Lunch Break*	
14.00 – 14.30	Drought Decision Support tool	Suman Padhee, IWMI
14.30 – 15:15	Drought Contingency Plans	K.V. Rao, CRIDA /ICAR Giriraj Amarnath, IWMI
15:15 – 15.45	SADMS – User guide, APIs, Online bulletin	Surajit Ghosh, IWMI
15.45 – 16.00	Closing remarks	Director – SDMC(IU)
16.00 – 16.15	*Tea/ Coffee*	

16:15 – 19:30 Visit to Ahmedabad

Report of Regional Workshop on

Assessing Drought Risks using Earth Observation

Data&

Launch of South Asia Drought Management System (SADMS)

Utility of SADMS tool for operational drought decision support across South Asia

Background

Drought is one of the most threatening natural hazards due to its creeping and invasive nature, which proliferates existing systemic vulnerabilities, creates new risks and consequentially manifests as multi-dimensional hindrances to the objective of sustainable development. SouthAsia has faced several droughts in recent decades and 50 major droughts have been reported since 1990, affecting over 750 million people with economic damages estimated at 7 billion USD.

The 6th Assessment Report of IPPCC underlines the probability of interannual variability in precipitation at the regional level (SAS), which may lead to droughts locally, especially in the arid and semi-arid areas of India, Pakistan, and Bangladesh. Being able to accurately identify and monitor drought is, therefore, of considerable importance. Monitoring the severity and impact of drought is of critical importance to policy makers for effective drought risk mitigation and management, which would in turn improve food security and enhance livelihood among smallholder farmers. Drought risks can be reduced by reducing vulnerabilities which exacerbates the effects and impacts of drought conditions or by enhancing coping capacities like taking preventive measures at the sub- national or local levels.

Although disaster risk management is everyone's business, efficient drought risk management heavily depends on the local agencies and authorities, as it involves multiple administrative, economic and political factors. Authorities are expected to draw drought risk management plans that encompasses scientific declaration of droughts, response and relief and most importantly, building forward better to mitigate future impacts. Much of the drought

management system is dependent on station-wise weather data which is used to derive meteorological drought indices for drought monitoring and early warning. Using these well-established warning systems based on various drought indices, forecasts are made based on the socio-economic conditions. But, due to the sparse meteorological network and lack of timely availability data, accurate and timely monitoring of regional drought is hindered.

Need for Workshop

The workshop discussed how earth observation and meteorological data along with ground data can be used to assess drought risks, provide early warning by leveraging the South Asia Drought Monitoring System (SADMS) developed by the International Water Management Institute.

South Asia Drought Monitoring System (SADMS)

SADMS platform is a unique and innovative solution that brings all the components ranging from Weather and Climate (Seasonal, sub-seasonal and weather forecast for 7days), drought management (near real-time drought monitor using multisource satellite data; defining mandatory and impact drought indicators to alert contingency plans), agriculture contingency plans and user-specific drought decision support tool to determine drought to support national agencies for drought mitigation measures including drought declaration efforts. Further, the SADMS platform provides country-specific APIs to access and integrate into their respective platform for monitoring capabilities and strengthening the capacities in the region.

The SADMS platform also offers user-specific drought bulletin to produce based on their choices and needs for timely dissemination.

Objective

The overall objective of the workshop was to introduce the South Asia Drought MonitoringSystem (SADMS) to the key stakeholders of South Asian countries. The broad objectives are

–

- Discuss technical advances and challenges in using earth observation to help assess

andmonitor drought risks

- Orient the participants to the South Asia Drought Monitoring System (SADMS) platform
- Explore the current capabilities of SADMS in drought monitoring and early warning
- Explore possibilities of institutionalizing the SADMS at sub-national levels of the SAARC
- Member States and promote multi-institutional collaboration to manage drought risks.

Participants

Participants from key agencies / departments like Meteorology or Space Affairs, Agriculture, Irrigation, Revenue and Disaster management of the SAARC Member States participated in the workshop. They were introduced to SADMS to discuss technical advances and challenges in using earth observation to help assess and monitor drought and explore possibilities of institutionalizing the SADMS at subnational levels and promote multi-institutional collaboration to manage drought risk.

Organizers

SAARC Disaster Management Centre (SDMC-IU)

The Interim Unit of SAARC Disaster Management Centre (SDMC-IU) has been set up at Gujarat Institute of Disaster Management (GIDM) Campus, Gandhinagar, Gujarat, India in November 2016 with a mission to support Member States in their Disaster risk Reduction (DRR) initiatives through application of Science & Technology, knowledge from multiple disciplines, exchange of bests practices, capacity development, collaborative research and networking in line with the global priorities and goals and other relevant frameworks adoptedby Member States.

International Water Management Institute (IWMI)

The International Water Management Institute (IWMI) is a non-profit international water management research organisation under the CGIAR with its headquarters in Colombo, Sri Lanka, and offices across Africa and Asia. Research at the Institute focuses on improving how water and land resources are managed, with the aim of underpinning food security and reducing poverty while safeguarding the environment.

United Nations Office for Outer Space Affairs (UNOOSA)

The United Nations Office for Outer Space Affairs (UNOOSA) is an office of the U.N. Secretariat that promotes and facilitates peaceful international cooperation in outer space. It works to establish or strengthen the legal and regulatory frameworks for space activities, and assists developing countries in using space science and technology for sustainable socioeconomic development.

The Office was established in 1958 to assist and advise the ad hoc Committee on the Peaceful Uses of Outer Space (COPUOS), which was established by the UN General Assembly to discuss the scientific and legal aspects of exploring and using outer space to benefit humankind. The Committee became permanent the following year, with UNOOSA undergoing several structural changes before its relocation in 1993 to the United Nations Office in Vienna, Austria.

UN-SPIDER ("United Nations Platform for Space-based Information for Disaster Management and Emergency Response") is a platform which facilitates the use of space-based technologies for disaster management and emergency response. It is a programme underthe auspices of the United Nations Office for Outer Space Affairs (UNOOSA).

CGIAR

Formerly the Consultative Group for International Agricultural Research, CGIAR is a global partnership that unites international organizations engaged in research about food security. CGIAR research aims to reduce rural poverty, increase food security, improve human health and nutrition, and sustainable management of natural resources. It is carried out at 15 centers (CGIAR Consortium of International Agricultural Research Centers) that collaborate with partners from national and regional research institutes, civil society organizations, academia, development organizations, and the private sector. These research centers are around the globe, with most in the Global South and Vavilov Centers of agricultural crop genetic diversity.

Indian Council of Agricultural Research (ICAR)

The Indian Council of Agricultural Research (ICAR) is an autonomous body responsible for coordinating agricultural education and research in India. It reports to the Department of Agricultural Research and Education, Ministry of Agriculture. The Union Minister of Agriculture serves as its president. It is the largest network of agricultural research and education institutes in the world.

Gujarat Institute of Disaster Management (GIDM)

The Gujarat Institute of Disaster Management (GIDM) is registered as an autonomous society under the Government of Gujarat. The Institute has been entrusted with the responsibility of human resource development, capacity building, training, research and documentation in thefield of Disaster Management.

Discussions

Inaugural Session

Inaugural ceremony was conducted in the presence of Mr. P. K. Taneja, Director SDMC(IU), Dr. Mark Smith, Deputy Director General (Research for Development) – IWMI, Dr. Shirish Ravan, Head- UN SPIDER Beijing Office, Dr. Giriraj Amarnath, Research Group Leader forWater, Risks to Development and Resilience – IWMI, Dr. S. Bhaskar, Assistant Director General (Agronomy, Agro-Forestry and Climate Change) – ICAR and Dr. Alok Sikka IWMI Country Representative – India.

Important discussions held in the inaugural session are as follow:

- Drought is one of the most threatening natural hazards and continues to affect ecosystems, communities and entire economies. It escalates systemic vulnerabilities, creates new risks andimpedes our efforts to achieve goals of sustainable development.
- Devastating droughts are ravaging South Asia just about every year and causing widespread agricultural land destruction, an increasingly dehydrated population with little access to cleanwater and growing social distress.

Session on SADMS Platform

The session on SADMS Platform was delivered by Mr. Giriraj Amarnath from IWMI. Duringthe session he mentioned that there was previously no integrated end-to-end drought monitoring and management system available for South Asia. In 2014, IWMI began includingmonitoring and visualization capabilities. At the time, no one was using complex remote sensing data for this kind of application; now it is routinely being used by organizations such as the Indian Council of Agricultural Research, Sri Lanka's Disaster Management Centre andUN World Food Programme and the partners of World Bank. The South Asia Drought Monitoring System (SADMS) incorporates multisource information namely; access to real- time weather updates and open-access satellite data that provides farmers, extension workers

and agriculture and water resources authorities with all the information needed to forecast, monitor and manage drought.

Earth Observation data for Drought Monitoring

The session on Earth Observation data for Drought Monitoring was delivered by Dr. Shirish Ravan, Head- UN SPIDER Beijing Office. During the session he mentioned that disaster is not only limited to developing nations now. Climate change is not sparing any country. Therefore, building resilience should be the key focus – where systems like SADMS will play a big role. The SADMS tool integrates remote sensing and ground truth data like vegetation indices, rainfall data, soil information, hydrological data. The tool intends to support regionally coordinated drought mitigation efforts that can be further tailored to national level and will help us build climate resilience, reduce economic and social losses, and alleviate poverty in drought - affected regions of South Asia through an integrated approach to drought management. He discussed the UN-SPIDER services for strengthening capacity of the member states to utilize earth observation data monitoring and responding to drought and other disasters.

Drought Monitoring in India

The session on Drought Monitoring in India was delivered by P. Guhathakurta, Scientist F, Climate Research and Services, India Meteorological Department. During the session he mentioned that in the years 1965 and 1966, major parts of India were under prolonged and severe drought conditions due to deficient monsoon rainfall. On the recommendations of the Planning commission, India Meteorological Department (IMD) has started Drought Researchand monitoring at Pune in 1967. He told that IMD monitors drought by using four well established drought indices. One of which is purely meteorological drought, the second one is agricultural drought and the third and fourth ones started few years back covers meteorological, agricultural as well as hydrological droughts.

Climate Hazards and Vulnerability Atlas

He mentioned that India Meteorological Department (IMD) monitors and provides impact-based early warning services for various meteorological disaster events at different temporal and spatial scales to support disaster risk reduction, mitigation and management. As a part ofthese services, IMD has prepared a Web GIS version of Climate Hazards and Vulnerability Atlas of India for the thirteen most hazardous meteorological events, viz. Cold wave, Heat Wave, Flood, Lightning, Snowfall, Dust Storm, Hail Storm, Thunderstorm, Fog, Strong winds, Extreme rainfall, Drought and Cyclone that cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption or

environmental damage. The web Atlas is depicted using Geographic Information System(GIS) tools and is made available at:

- IMD Pune website: https://www.imdpune.gov.in/hazardatlas/index.html
- IMD Delhi main website: https://mausam.imd.gov.in/

The Atlas provides districts maps on Hazard events and vulnerability for all the calendar months and at annual scale. The Hazard maps are prepared based on the climatological data, census data on population and housing density and using different statistical and mathematical methods. Climate vulnerability maps are prepared based on the disaster data from the annual publication of India Meteorological Department "Annual Disastrous Weather Reports" for the climate hazardous events that cause casualties in terms of death and other losses.

Drought Prediction using VIC (VARIABLE INFILTRATION CAPACITY) model and automation procedures

The session on SADMS Drought Prediction was delivered by Dr. Suman Kumar Padhee Researcher – Water Risk Modeler International Water Management Institute New Delhi, India. He mentioned that drought prediction is of critical importance to early warning for drought managements. Indices calculated based on long-term hydrometeorological simulations, short-term weather forecast products, and hydrologic modelling for forecast. Present capability of drought prediction is for 10 days of forecast based on short-term weather forecast products and hydrologic model simulation. Provides drought prediction in terms of meteorological forecast from the forecast product, and hydrological forecast, and top-layer soil moisture forecast simulated by VIC global hydrological model. Challenges still exist in drought prediction at long lead time and under a changing environment resulting from natural and anthropogenic factors.

Future research to improve drought prediction, high-quality data assimilation, improved model development with key processes related to drought occurrence, optimal ensemble forecast to select or weight ensembles, and hybrid drought prediction to merge statistical and dynamical forecasts.

Hands on Experience on SADMS

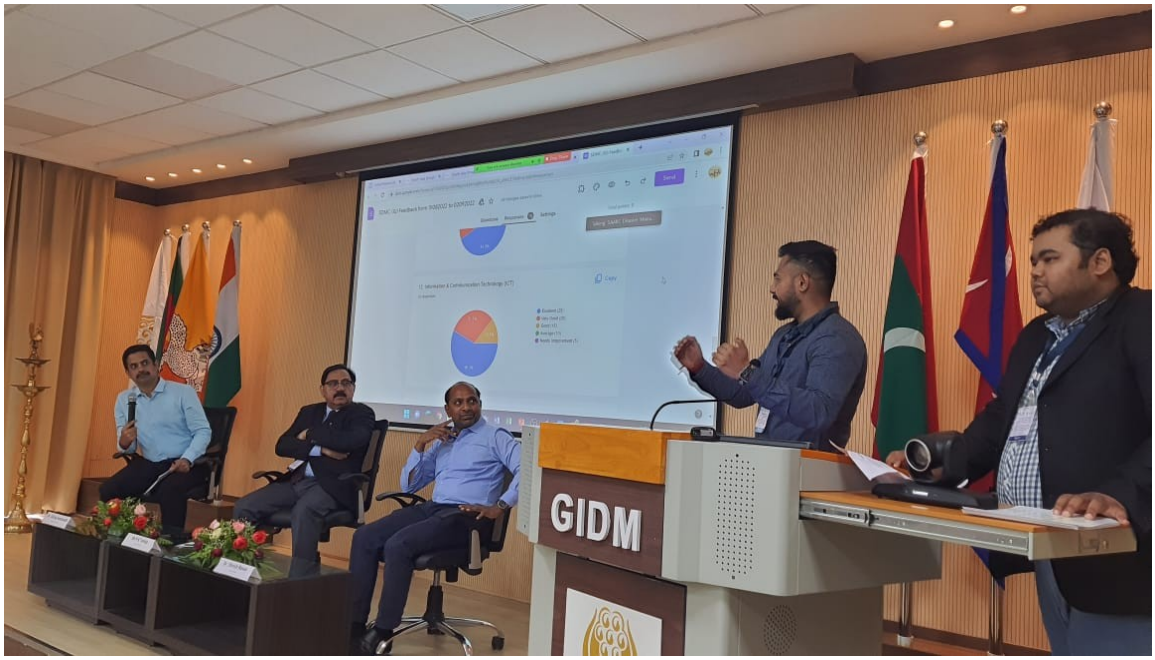
During the Workshop, participants were provided hands on experience on SADMS. Participants were given previously occurred drought scenario and were asked to back test andvalidate the efficacy of the SADMS Platform. During the exercise participants discussed technical advances and challenges in using earth observation to help assess and monitor drought.

Country Presentations

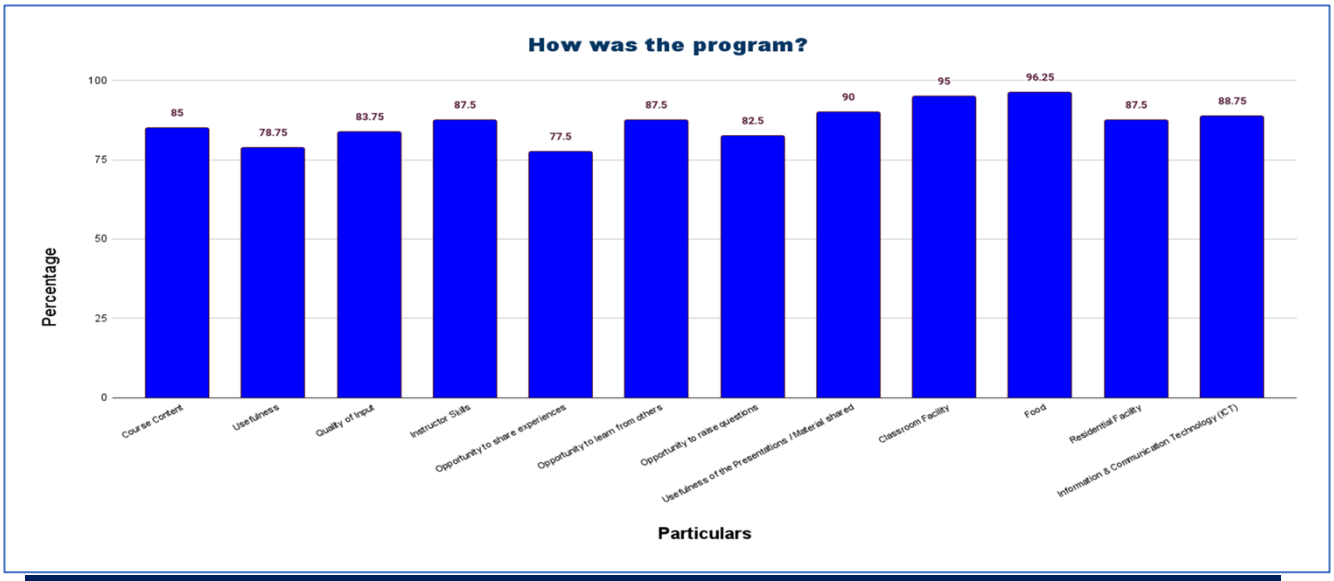
During the country presentations, delegates from Member States shared details on their respective Earth Observation data for Drought Monitoring and existing Drought Managementefforts


Valedictory Session

The valedictory session was presided by Mr. P. K. Taneja, Dr. Shirish Ravan, Head- UN Spider Beijing Office and Dr. Giriraj Amarnath, Research Group Leader for Water– IWMI. During the valedictory session, Director-SDMC (IU) call for more international solidarity with Pakistan flood victims. Director SDMC (IU) mentioned that the global climate crisis hascontributed to the terrible floods and caused unprecedented human suffering in Pakistan and it is important that international relief efforts are guided by human rights, prioritizing humanitarian assistance to the most vulnerable.



Director SDMC (IU) discussed about relevance and usefulness of this training course. He informed that the entire event was very participative in approach and participants showed their full interest during workshop. He discussed about need for more inputs from participants to improve the quality of upcoming courses at SDMC. He informed that SDMC is in process to create a compendium of best practices from SAARC region and requested participants contribute. The course evaluation was also discussed in the view of further improvement. At the end of the valedictory session, certificates of participation were distributed to participants.



Course Evaluation

On last day of training, all the participants were given feedback forms. Feedbacks were received from all participants presented in following figure. Overall, this Regional Workshopand Capacity Building Programme was rated satisfactory by all participants.

List of Participants

#	Country Name	Flag	Participants Name	Designation	Department	Contact Details	
						Mobile Number	Email Address
1	Bangladesh		Mr. A.T.M Siddiqur Rahman	Joint Secretary	Ministry of Defence	880 1703301178	ds10@mod.gov.bd
2	Bangladesh		Mr. Md Zahurul Alam Chowdhury	Deputy Secretary	Ministry of Disaster Management & Relief	880 1550155017	zahuruly@yahoo.com; zahurul.alam13@gmail.com
3	India		Mr. Anup Kumar Srivastava	Sr. Consultant (Drought & Heatwave)	NDMA, New Delhi	91 9868639942	anupsricpr@gmail.com
4	India		Dr JVNS Prasad	NICRA-TDC Coordinator			jasti2008@gmail.com
5	India		Dr S K Bal	PC, AICRPAM	AICRPAM, IRIDA		bal_sk@yahoo.com
6	India		Mr. Suman Kumar Padhee	Researcher, Water Risk Modeller	IWMI		
7	India		Mr. C C Patel	Director of Relief	Revenue Department, Gujarat		
8	India		Mr. Sanjay Kusambi	Deputy Director of Agriculture	Directorate of Agriculture, Government of Gujarat		
9	India		Dr. Sandeep Pandey	Associate Professor	GIDM	7574802288	apspm-gidm@gujarat.gov.in
10	India		Mr. Shantanu	Prog. Officer	Climate Change Department		
11	India		Mr. Devas Pathak	Project Associate	ICLEI, South Asia		
12	Maldives		Ms. Aishath Nafua	Environmental Research Officer	Ministry of Environment, Climate Change and Technology	960 7592035	aishath.nafua@environment.gov.mv
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15	Maldives		Ms. Safa Ahmed	Assistant Director	Environmental Protection Agency	960 9645680	safa.ahmed@epa.gov.mv
16	Nepal		Mr. Bishwamitra Kuinkel	Under Secretary	Ministry of Home Affairs	977 9841269739	bkuinkel@nepal.gov.np; bkuinkel@gmail.com
17	Nepal		Mr. Surendra Kumar Bairacharya	Under Secretary	Ministry of Energy, Water Resource & Irrigation	977 9841359237	sukbjr@gmail.com
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19	Pakistan		Mr. Nasir Yaseen	Asst. Meteorologist	Pakistan Meteorological Department	92 3334133135	nasir.yaseen@gmail.com
20	Sri Lanka		Mr. A M R K Ratnayake	Assistant Director	Disaster Manegement Centre	94 761352485	ruwanr@dmc.gov.lk
21	Sri Lanka		Mr. Eng T Suganthalingam	Irrigation Director	Department of Irrigation	94 776193365	uga_thi15@yahoo.com
22	Sri Lanka		Ms. A B Abeysekera	Principal Scientist	Natural Resource Management Centre	94 718446763	arunikasekera@gmail.com

Annexure 2

Residential Workshop on

Urban Resilience and Making Cities Resilient

Date: 5-8 December 2022

Urbanization provides South Asian countries the potential to transform into being more sustainablyresilient, liveable and prosperous. South Asia's urban population grew by 130 million between 2001 and 2011 and is poised to rise by almost 250 million by 2030. The opportunity posed by the magnificent demographic dividend, however, remains under-leveraged due to various reasons, disasters being one of the primary ones. As per EM-DAT's Disasters in Numbers, 2021 saw 174 disasters in Asia with India contributing 19. Disasters differentially impact urban and rural areas;while urbanisation exudes the essence of innate resilience, exposure of assets of higher value, acute and chronic vulnerabilities due to urbanization being messy and hidden, put urban areas at substantial risk.

Positively, however, urban local governments are on the '**frontline of opportunity**' to foster transformation, reduce effect & impact of disasters, reduce chronic vulnerabilities like keeping people out of poverty and protect hard-earned local development gains, enabling urban areas, commonly acknowledged as municipalities, to become more inclusive, safe, resilient, and sustainable. Challenged by climate emergency, pandemic, and other such seen and unforeseen shocks and stresses, resilience building can no longer be a stand-alone issue and must take into consideration the inter-dependencies between sectors, the interconnectedness of socio-economic factors, the complexity of hazards and the systemicity of disaster risk.

Therefore, cities must take a long-term approach to reduce risks and must make resilience buildingan integral part of sustainable urban development.

Introduction to the Making Cities Resilient (MCR) Campaign

The Making Cities Resilient 2030 (MCR2030)[1], a 10-year global partnership accelerating local resilience, provides a clear 3-stage Resilience Roadmap guiding cities and municipalities towardstaking a long-term and continuous approach to resilience investments, from awareness raising to enhanced strategic planning and taking a whole-of-society approach to implementation. Foundedon the fact that disaster prevention is an investment and not a cost, MCR2030 aims to Leave No Municipality Behind in this ambition. MCR2030 prioritizes strengthening of the local resilience agenda and the link between national and sub-national in terms of coordination, planning and

[1] https://mcí2030.undíí.oíg

implementation of resilience actions as well as across city actors. MCR2030 offers a platform forcities to access knowledge, experience, networks, tools, resources and services in support of theirresilience journey to ensure cities become inclusive, safe, resilient, and sustainable by 2030, contributing directly to the achievement of Sustainable Development Goal 11 (SDG11) "Make cities and human settlements inclusive, safe, resilient and sustainable", and other global frameworks including the Sendai Framework for Disaster Risk Reduction, the Paris Agreement, and the New Urban Agenda.

Objectives of the workshop

This workshop would serve as a fundamental training on urban disaster and climate resilience. It would aim to -

a) Increase the knowledge and capacities on disaster risk reduction and climate resilience
b) Introduce the Resilience Roadmap, the normative framework guiding cities towards a long-term resilience investment and other offers by MCR2030 partners
c) Provide approaches and tools to further support resilience building at the local level
d) Strengthen national and local government linkage and support on disaster and climate riskreduction
e) Foster city-to-city exchange and learning of good practices

Course pedagogy

The training will be held in person, facilitated by trainers from UNDRR Global Education and Training Institute (GETI) and SAARC Disaster Management Centre (IU), joined by guest speakers from partner institutes. The training will include presentations, group exercises, discussions, andfield visits.

Targeted participants

The workshop would invite participation from the SAARC Member States of -

- **1 official** from the national ministry of urban development, and,
- **2 officials** from urban local bodies like municipalities, preferably one from the national capital city

Organizers

The workshop will be organized by SDMC (IU) with support from **United Nations Office for Disaster Risk Reduction (UNDRR) Global Education and Training Institute (GETI)** and **Making Cities Resilient 2030 (MCR2030)** initiative.

Date and venue

The workshop will be organized in the Seminar Hall of SDMC (IU), Gandhinagar, in Gujarat,India. The dates of the workshop are 5th to 8th December, 2022.

Agenda

Day 1: Monday 5 December 2022

Time	Session	Speaker / Facilitator
09:15-09:30	Registration	SDMC (IU)
09:30-09:50	**Welcome Session** • Welcome and participant introduction • Introduction to the workshop	SDMC (IU)
09:50-10:20	**Opening Session** • Introductory Remarks by UNDRR	**Mr. Sanjaya Bhatia**, Head of UNDRR GETI
	• Special Address by Mr. Emani Kumar	**Mr. Emani Kumar**, Dy.Secretary General, ICLEI South Asia
	• Inaugural Address by Director – SDMC (IU)	**Mr. P. K. Taneja**, Director-SDMC(IU)
	• Group Photo	
10:20-10:30	Health Break	
10:30-11:25	**Concepts and trends**: urban resilience and disasterrisk reduction (Presentation & discussion) • Concept, terminologies, and trends • Linkage between DRR and climate change andsustainable development • Global frameworks: Sendai, Paris, SDG, NewUrban Agenda	UNDRR
11:25-12:30	**MCR2030 overview** (Presentation & discussion) • Introduction of Making Cities Resilient 2030 (MCR2030) & Ten Essentials for Making CitiesResilient • Resilience Roadmap • MCR2030 in action: good practices • Accessing service via MCR2030 dashboard	UNDRR
12:30-13:30	Lunch Break	

Time	Session	Speaker / Facilitator
13:30-14:30	**Urban resilience in the SAARC region**	Mr. Emani Kumar,ICLEI South Asia
14:30-15:15	**Assessing gaps and needs using Disaster ResilienceScorecard for Cities** (Presentation & discussion) • Disaster Resilience Scorecard for Cities – a toolfor disaster resilience planning (Column one of template)	UNDRR
15:15-15:30	Health Break	
15:30-16:30	**Group exercise**: Disaster Resilience Scorecard forCities -preliminary version (Scoring and baseline assessment) • Group breakout (6-7 participants/group) • Group work	UNDRR & SDMC (IU)
16:30-16:45	Wrap-up Day 1	SDMC (IU)

Day 2: Tuesday 6 December 2022

Time	Programme	Speaker/ Facilitator
09:30-09:40	Recap from Day 1	SDMC (IU)
09:40-10.45	**Group exercise**: Disaster Resilience Scorecard for Cities preliminary version (Scoring and baselineassessment finalization)	UNDRR & SDMC (IU)
10:45-11:00	Health Break	
11.00–11.30	Group Exercise – cont.	
11:30-12:30	**Developing local disaster risk reduction plans** (Presentation & discussion) • How to integrate DRR into urban planning usingtemplate and scorecard assessment • Examples of local DRR strategies and actionplans • Examples on mainstreaming DRR into sectoralprogrammes for risk-informed socio-economic development	UNDRR
12:30-13:30	Lunch Break	

13:30-15:55	**Group exercise**: Developing local disaster riskreduction strategies • Group Work: Developing DRR action plan	UNDRR & SDMC (IU)
15:55-16:00	Wrap-up Day 2	SDMC (IU)
16.00-16:10	Health Break	
City Visit (Dandi Kutir)		

Day 3: Wednesday 7 December 2022

Time	Program me	Speaker/ Facilitator
09:30-09:40	Recap from Day 2	SDMC (IU)
09:40-10:00	**Monitoring and Evaluation of DRR plan** (Presentation & discussion) • Monitoring & Evaluation, SMART indicators	UNDRR
10:00-11.15	**Group exercise**: Developing DRR action plan • Group Work: Developing DRR action plan	UNDRR & SDMC (IU)
11.15-11.30	Health Break	
11.30-12.30	**Group exercise – Cont.**	
12:30-13:30	Lunch Break	
13:30-14:30	**Group exercise**: Developing local disaster riskreduction strategies – cont. • Group Ppts: Developing DRR action plan	UNDRR & SDMC (IU)
14:45-15.45	Visit to GIFT City	
City Visit for Shopping (Alpha One Mall)		

Day 4: Thursday 8 October 2022

Time	Program me	Speaker/ Facilitator
9:45-10:15	Recap from Day 3	SDMC (IU)
10:15-10:55	**Financing for disaster and climate resilience actions** (Presentation & discussion) Project preparation and options for financing	Ms. Kathleen Geslani-Jovellanos, ADB
10:55-11:10	Health Break	
11:10-12:20	**Country Presentations (8 minutes for each ppt.)**	Director-SDMC(IU)
12:20-13:00	**SAARC Charter Day Celebration** • Introduction & theme – **Director SDMC (IU)** (5mnts)	UNDRR & SDMC(IU)
	• Presentation by GIFT City- **Mr. Rajeev Sharma** (10 mnts)	
	• Presentation by CII- **Mr. Sameer Sinha** (10 mnts)	

	• Presentation by CRO-SMC – **Mr. KamleshYagnik** (10 mnts)	
	• Way forward to build resilience – **Mr. SanjayaBhatia**(5 mnts)	
13:00-13:45	Lunch Break	
13:45-14:15	Wrap-up & **Training evaluation**	SDMC (IU)

Report of Regional Workshop on

Assessing Drought Risks using Earth Observation

Data&

Launch of South Asia Drought Management System (SADMS)

Utility of SADMS tool for operational drought decision support across South Asia

Day 1: 5th December 2022

Opening Session

Welcome and Participants Introduction

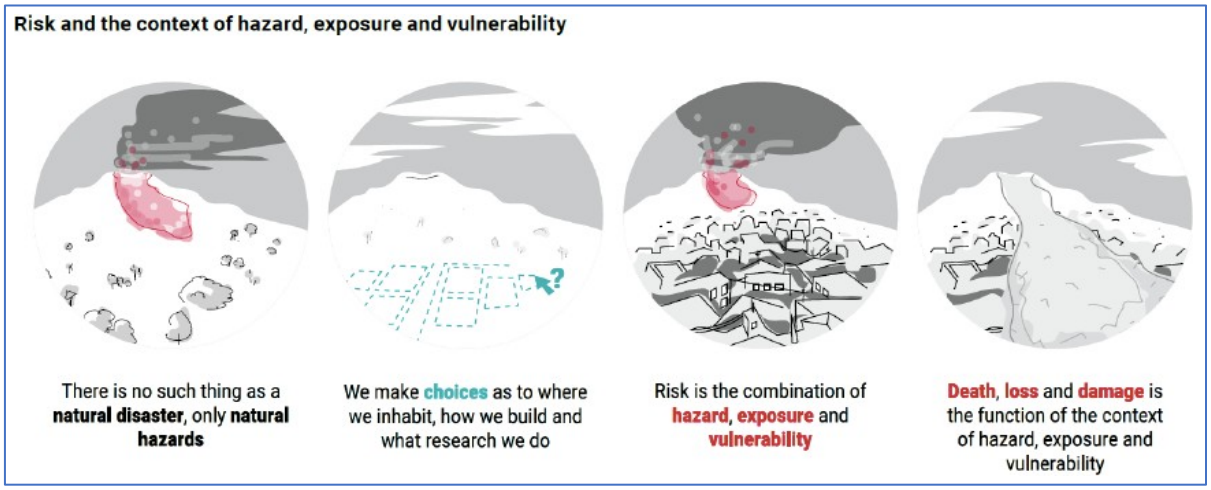
On behalf of SDMC(IU), Mr. Ankur Srivastava welcomed and introduced all the dignitaries on the dais, participants from respective SAARC Member States and resource persons for the Regional Workshop on Urban Resilience and Making Cities Resilient.

Course Introduction

Mr. Sanjaya Bhatia, Head UNDRR- Global Education and Training Institute (GETI), gave a briefintroduction about the course, explaining the importance of risk information in the field of urban planning. He explained the need of such a hands-on workshop, its objectives and how it will be useful for the participants.Mr. Emani Kumar, Deputy Secretary General at ICLEI - Local Governments for Sustainability, also addressed the occasion.

Keynote Address by Mr. P.K. Taneja, Director General, GIDM

Mr. P.K. Taneja welcomed all the delegates from SAARC Member Countries and resource persons. He highlighted the fact that cities generate over 80% of global GDP and hence, if managedwell, urbanization can contribute to sustainable growth through increased productivity and innovation. He mentioned that the growing rate of urbanization and the increase in population density in cities can lead to creation of risk, especially when urbanization is rapid, poorly plannedand occurring in a context of widespread poverty and therefore, it is absolutely necessary to buildcities green, resilient and inclusive as once a city is built, its physical form and land use patterns get locked in for generations, leading to unsustainable sprawl. Drawing references to one of the



UNDRR reports, he urged to emphasise on smaller and medium sized cities as disaster risks are known to be increasing faster in rapidly growing small and medium-sized urban centres than in either rural areas or larger cities. Because a new wave of urbanisation increase disaster risk, it alsobrings new opportunities for building resilience.

Finally, he highlighted the need of resilience building to be not worked upon as a stand-alone issue,rather the focus should be on the inter-dependencies of sectors, the inter-connectedness of socio- economic factors, the complexity of hazards and the systemicity of disaster risk.

He closed by highlighting the process of Making Cities Resilient (MCR) campaign and how the workshop has been planned to benefit the Member States and encourage the participants to join the global drive to make cities resilient. He requested all the participants to share their experiences,thoughts and inputs throughout the workshop.

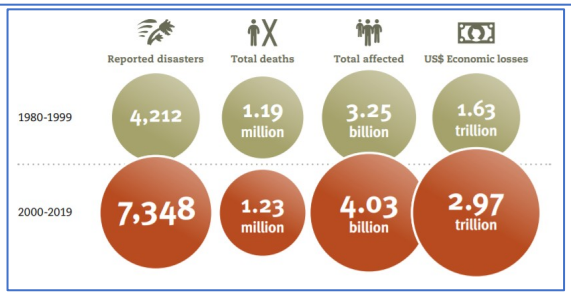
Session 1: Concepts and trends: urban resilience and disaster risk reductionBy Mr. Sanjaya Bhatia, Head UNDRR- GETI

Mr. Sanjaya explained the basic concept of hazard, exposure, vulnerability, risk and resilience and emphasised on the fact that ‘Disasters are not natural’.

The participants were explained how our choices steer the consequences of a hazard into a disasterby disregarding the increasing exposure coupled with vulnerabilities and lack of coping capacity.He placed focus on the fact that hazards, climate change do not affect everyone equally.

He explained the human cost of disasters in terms of the losses recorded.

(Source: UNDRR 2019)

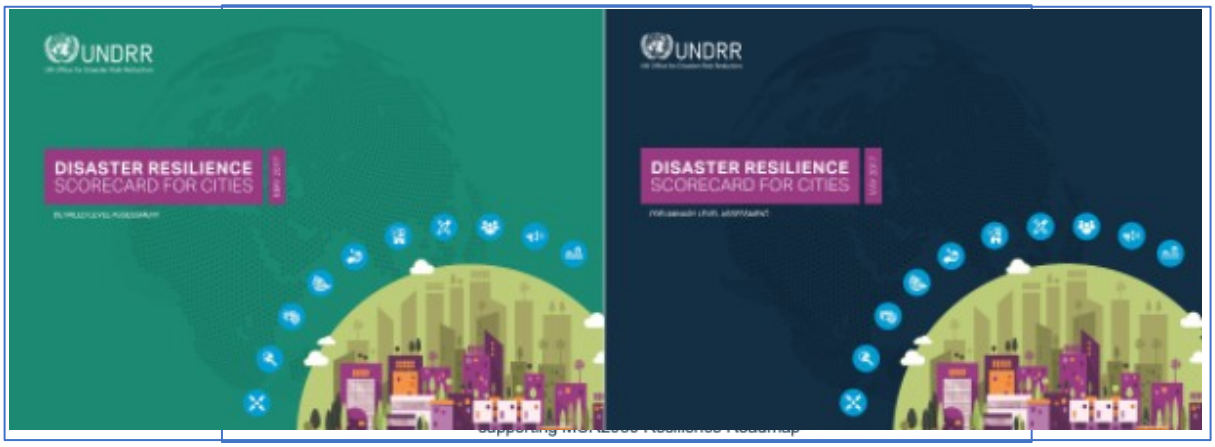


Citing the World Economic Forum's The Global Risk Report of 2021, he illustrated the perceptions of various risks in terms of likelihood and impact to urge the participants to look at risks in a comprehensive manner listing some of the key issues of resource scarcity, unchecked urbanisation coupled with high exposure, governance challenges, crippling issues if equity, poverty and inclusion etc.

He used these to explain how they are contributing to building of stressors up till 'tipping points', post which we would encounter systemic failure, often referred to as the multiple breadbasket failure.

Driving home the concept of 'risk management' rather than 'disaster management' and the idea of disaster risk being systemic in nature, he explained the 'innovation curve' - from destructive to regenerative approaches towards Systemic Risk Governance.

Having said that, he put forth certain recommendations to integrate climate change adaptation, sustainable development and disaster risk reduction like promoting joint decision-making processes, tools, metrics, ensuring the use of relevant data, science and knowledge and taking a systems approach.



Session 2: MCR2030 Overview and Assessing gaps and needs using the Disaster Resilience Scorecard

By Ms. Daria Mokhnacheva, UNDRR

Ms. Daria introduced the participants to the overall approach of the Making Cities Resilient (MCR)Campaign.

The Disaster Resilience Scorecard for cities was also introduced in this session – which is a tool to support disaster risk reduction and resilience planning – to understand the cities' status on resilience building (baseline snapshot), to identify priority areas and actions for DRR and to createdialogue and help to engage multi-stakeholders in the process.

She explained that every city is made up of 'system of systems' and each system has different owners and stakeholders thus working towards 'resilience' is a multi-organizational & multi-stakeholder endeavour.

She described the **Ten Essentials for making cities resilient**- the guiding principles and how each of the essential can be achieved.

1. Organize for disaster resilience
2. Identify, Understand and Use Current and Future Risk Scenarios
3. Strengthen Financial Capacity for Resilience
4. Pursue Resilient Urban Development and Design
5. Safeguard Natural Buffers to Enhance Ecosystems' Protective Functions
6. Strengthen Institutional Capacity for Resilience
7. Understand and Strengthen Societal Capacity for Resilience
8. Increase Infrastructure Resilience
9. Ensure Effective Disaster Response
10. Expedite Recovery and Build Back Better

It was highlighted how different essentials circumscribed different dimensions of disaster resilience; Essential 1, 2, 3 are **enabling essentials** which cover governance and financial capacity.

Essential 4 to 8 are **operational essentials** that cover many dimensions of planning and disaster preparation.

Essential 9, 10 are essentials that ensure pre-emptive response and building back better & smarter.

Ms. Daria further explained the linkages of agendas of DRR, climate change adaptation and mitigation & sustainable development at the national and local levels. The rationale behind the 10Essentials was illustrated lucidly.

1. To begin with the local level institutional and coordination capacity needs to be strengthened orestablished, if such an institutional mechanism does not exist. This is the initiation of a local ecosystem that is conducive to the pursuit of disaster resilience.

2. Once such an institutional system is in place, a concerted effort is to be made to identify and understand disaster risks, not only in the present scenario but also in the future scenarios and disaster risk is to be perceived through a systemic lens.

3. The third Essential talks about developing a practice of understanding the economic impact of disasters and the need for investment in resilience. Until and unless there is an inherent want of investing in disaster risk reduction, financial arrangements would always favour management of disasters.

4. The fourth Essential talks about resilient urban development and design. This essential is fed bythe implementation of Essential 2.

5. Often the mad rush of urbanisation takes a toll on what the natural ecosystem has to offer. The fifth essential is about safeguarding natural buffers to enhance the protective functions offered bynatural ecosystems. Efforts are to be made to identify, protect and monitor critical ecosystems services that confer a disaster resilience benefit.

6. Understanding a city's institutional background regarding risk reduction / management and building resilience can help in detecting current gaps in local capacity to coordinate and act towards prevention, mitigation, response and recovery in the case of disasters, as well as identifying the best and most-effective approaches to strengthen relevant institutions for managingdisaster risk. Compliance to the sixth Essential ensures that all institutions relevant to a city's resilience have the capabilities they need to discharge their roles.

7. Every effort made towards disaster risk reduction must ensure that a culture of disaster resilience is cultivated within the community or communities. The seventh essential moves beyond the traditional approach of training and awareness and proposes the understanding and strengtheningof societal capacity for resilience.

8. Disasters risks manifest not in silos but in a systemic manner affecting multiple sectors; transport (roads, rail, airports and other ports), vehicle and heating fuel suppliers, telecommunication systems, utilities systems, hospitals and healthcare facilities, educational institutes and school facilities, food supply chain, police and fire services, etc. Thus, the compliance to essential 2 should also lead to assessment of the capacity and adequacy of, as well as linkages between, criticalinfrastructure systems and upgrade them as per the risks identified.

9. While all measures are taken to address the acceptable disaster risks, often times, residual disaster risks wreak havoc and thus the ninth Essential talks about ensuring the creation and updating of disaster response plans as per risks identified in essential 2 and communicated to all stakeholders through use of organizational structure as per essential 1.

This is a perfect example of how one Essential leverages the successful compliance of other Essentials; the Essentials are to be achieved not individually but comprehensively.

10. The last Essential talks about building back better, smarter and for that to happen there is a need to ensure sufficient pre-disaster plans according to risks identified and that after any disaster, the needs of the affected are at the centre of recovery and reconstruction, with their support to design and implement rebuilding.

In addition to the Essentials, the participants were introduced to the series of Words into Actions (WiA). The WiA guidelines are pragmatic roadmaps to programming an effective implementation strategy. This is facilitated by promoting a good understanding of the main issues, obstacles, solution finding strategies, resourcing and aspects for efficient planning.

The guidelines can be valuable resources for national and local capacity building through workshops and training in academic and professional settings. They can also serve as a reference for policy and technical discussions. Emphasis was laid on the WiA instalment on '**Implementation guide for land use and urban planning**', developed by UNDRR and availablefreely on preventionweb.net

Ms. Daria reinforced the idea that every effort towards disaster risk reduction must percolate downto the last mile of social structure and thus building of capacities at all levels, depending on the context, is an immediate and utmost necessity.

Having explained the Scorecard and how to use it and read reports generated using it, the participants were brought to a stage where they were ready to use it in their own contexts.

The first exercise was to use the preliminary scorecard to identify gaps in a city of the participants'' choice and convert those gaps into objectives and actions for the DRR Action Plan as per the format shown below –

Action Plan for Calendar Year _____ – _____	
City/Local Government Name	
Country	
Focal Point Details	Name: Contact Info:
Title of existing local disaster risk reduction strategy	
Timeframe of existing strategy or plan	

Strategic Area/Goal 1:	*e.g. Strengthen disaster risk governance*				
#	OBJECTIVES	PLANNED ACTION(s)	INDICATORS (Specific, measurable, attainable, realistic)	TIMEFRAME (Timebound)	RESPONSIBILITY (+Support) AGENCIES (Assignable)	Budget

"What is MCR2030?"

The Making Cities Resilient (MCR) Campaign was first launched from 2010 to 2020 with an objective to ensure cities around the world develop and grow sustainably and resiliently. Lookingat the success of the 1st instalment of the campaign, it was relaunched again, from 2021 and wouldrun its course till 2030.

The campaign provides a clear 3-stage **Resilience Roadmap** guiding cities and municipalities towards taking a long-term and continuous approach to resilience investments, from awareness

raising to enhanced strategic planning and taking a whole-of-society approach to implementation. Th campaign connects cities with expert organizations, pool of resource and knowledge through online dashboard and is an excellent platform to support national urban resilience programme.

The process moves through 3 stages

–Stage A – Know Better

Stage B – Plan Better

Stage C – Implement Better

- Maldives' National Disaster Management Authority (NDMA) restarted their support to sub-national authorities on resilience through MCR2030, with active engagement of Local Government Authority (LGA).
- The Technical Training on Urban Risk Reduction and MCR2030 for the Maldives in May 2022 led Kulhudhuffushi City to be the first Maldivian city to join MCR2030 and commit to resilience building.
- In 2022, the national DRR strategy is revised to include a focus on local resilience
- Another technical training is planned for the Southern Maldivian City in January 2023

- Strong coordination between Association of Municipalities and cities
- 264 municipalities in Bangladesh joined MCR2030
- 54 municipalities completed Resilience Scorecard

Municipal Association of Bangladesh-MAB
April 1 ·

MCR2030 workshop held in Faridpur region.

A day-long workshop on MCR2030 sign up and access the dashboard was organized by Madaripur Municipality with the participation of representatives of 23 Municipalities in the greater Faridpur region as part of the program adopted by the UN Disaster Risk Reduction Department.

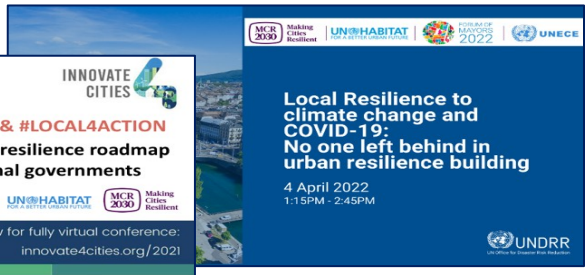
Mayor of Madaripur Municipality Mr. Md. Khalid Hossain yead, Secretary General, Municipal Association of Bangladesh-MAB was present as the chief guest in the workshop.

The meeting was presided over by Mr. KH Ahammad Firoz, Secretary, Madaripur Municipality, President, BAPS, Faridpur Region.

Mr. Md. Shafiqul Islam, Mr. Arafat Zaman and Mr. Sohail Sardar were present as Master Trainers.

Secretary, Executive Engineer, Assistant Engineer, Councilor of Madaripur Municipality, Officers-Employees and representatives of various professions from 23 Municipalities were present.

S M Abdur Rauf, Consultant of MCR2030 Bangladesh conducted the training session of the workshop with the aim of building disaster risk reduction management framework in all cities of the world by 2030 at the initiative of UN.



Session 3: Urban Resilience in the SAARC

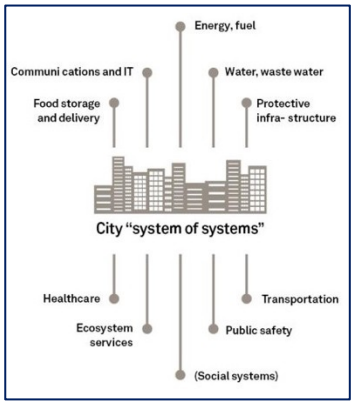
RegionBy Mr. Emani Kumar, ICLEI

Mr. Emani Kumar, Deputy Secretary General of ICLEI – Local Governments for Sustainability, introduced his organisation to the participants, which is an international city network established in 1990 that advances local sustainability. ICLEI is the leading global network. He went on to introduce the five ICLEI pathways –

The participants were briefed about the various interventions of ICLEI South Asia.

1. City Profile and **Baseline** Assessment (Energy Use and Greenhouse Gas EmissionInventories)
2. Systematic and Integrated **Climate Action Planning** Processes and **Tools** (ClimateResilientCITIES)
3. **Climate Action Plans** and City Resilience Strategies (CRS)
4. Urban **Low Emission Development Strategies** (URBAN-LEDS)
5. Holistic Solid Waste Management (SUNYA)
6. Promoting **Climate Knowledge Brokering** (CDKN-Knowledge Accelerator)
7. Greener and **Resilient Recovery Solutions** in Post Covid Economy (ReCAP21)
8. Urban Food Systems To Promote **Nutritional and Food Security**
9. Technical Support by Global Climate Action Partnership (GCAP) to Asian Countries *(formerly Asia LEDS Partnership)*
10. Open and Green Spaces, **Nature Based Solutions, Urban Biodiversity**
11. Transition Towards Sustainable **Electric-Mobility**

A brief discussion was also held on Climate Resilience Action Plans of South Asian Cities.



Examples from India, Nepal and Bangladesh were also cited on capacity building on climate resilience, urban heat resilience and development of knowledge products and about platforms likeGlobal Covenant of Mayors for Climate and Energy (GCoM).

Session 4: Group Exercise

The participants, in this session, moved into the first group exercise where they used the Scorecard to identify gaps and turn into objectives and Action Plans using the template handed out to them.

Day 2: 6th December 2022

The day started with a brief recap by Mr. Shubham Daberao, from the Gujarat Institute of DisasterManagement (GIDM).

After a brief continuation of the group exercise from the previous day, the first technical session was delivered.

Session 1: Developing local disaster risk reduction

plansBy Mr. Sanjaya Bhatia, UNDRR

The session opened by introducing the participants to the concept of the fictional city of Drecca-Susdev, where, ideally, various issues are understood and dealt through a systems approach and in a coherent manner.

For this to be translated into reality, one needs to understand cities as a system of system, with multiple connections and interactions.

Mr. Bhatia used the process of MCR to explain how a city can become resilient in an organised and systematic fashion, starting from organising and preparing for disaster risk reduction, then moving onto disaster risk and resilience assessment, developing DRR strategies and Action Plansand implementing them and finally, through monitoring and evaluating the progress.

He also introduced the participants to the 'Table of Contents' of a DRR Strategy.

- Preface, including adoption decision
- Executive Summary
- Introduction Why and how are we doing this? *(e.g. local context of why DRR strategy is needed, scope and structure of the strategy, linkage with the national DRR strategy, legal framework and process of development)*
- Current situation and trends: challenges Where are we now? *(e.g. results of risk assessment, quick risk estimation, scorecard assessment, etc.)*
- Mission, vision and objectives
  Where do we want to be?
- Overview of action plan: rationale for proposed risk reduction measures
  What are we going to do to get there?
- Implementation Strategy
  How do we ensure we can get there?
- Monitoring, evaluation and reporting

Mr. Bhatia cited examples of this has been done in cities like Lisbon, where some of the Action Plans have been converted into 'bankable projects'.

Different cases of how DRR issues have been mainstreamed into various sectors were also exemplified.

The exemplary **School Safety Programme – Towards a Culture of Disaster Prevention in Korea** – was also discussed. The programme was developed by UNDRR Incheon office, Ministry of the Interior and Safety and Incheon City in 2016 to complement South Korea's disaster safety training for youth. The main point of School Safety Programme is based on Sendai Framework forChildren.

It encompasses -

- Prevention-focused training: Focuses on providing students with informationregarding what to be known and done prior to disasters
- Discussion-and participation-focused training: Utilizes diverse training materials such as RISKLAND and HAZARD Bingo games to promote better engagement.

Day 3: 7th December 2022

The day started with a brief recap by the UNDRR team and after a brief continuation of the groupexercise from the previous day, the first technical session was delivered.

Session 1: Monitoring and Evaluation of DRR

planBy Ms. Daria Mokhnacheva, UNDRR

Ms. Daria explained the terminologies of monitoring and evaluation and that the Monitoring & Evaluation (M&E) information is useful only if it is used. She also explained about indicators andtheir characteristics like what is to be measured, unit of measurement, quality to be achieved, time frame, target population, etc. She also elaborated the SMART indicators as specific, measurable, assignable, realistic, and time related. She gave example of indicators of DRR strategy and the process of monitoring and evaluating the DRR strategy.

Following Sessions on Group Exercises with the Disaster Resilience Scorecard for

Cities:By UNDRR & SDMC (IU)

The continued group exercise interspersed with technical sessions helped the participants to understand each and every nuance of the Ten Essentials in great details. The participants had the opportunity to analyse their city using the Scorecard and understand how gaps in DRR & ClimateAction can be turned into objectives of a larger strategy which can then be converted into projects.

Day 4: 8th December 2022

The day started with a brief recap of the previous days, which set the tone for the next sessions aswell as for the 'Special Session' organised to observe the SAARC Charter Day.

Session 1: Financing for disaster and climate resilience actions

By Ms. Ms. Kathleen Geslani-Jovellanos, CDIA-Asian Development Bank

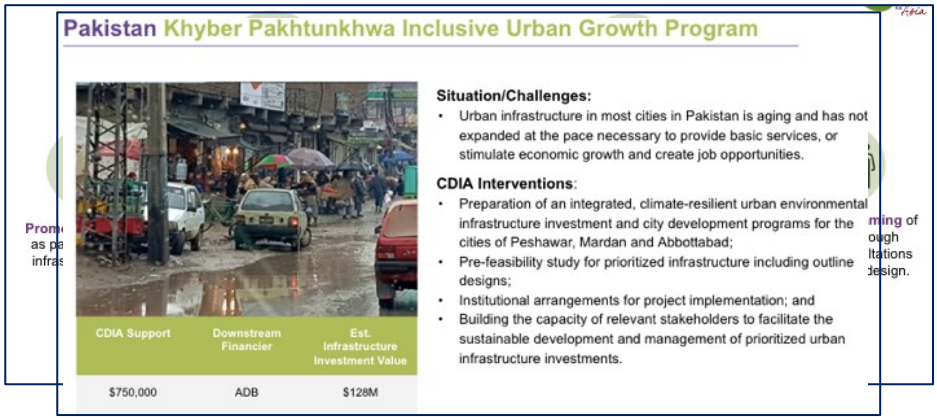
Ms. Kathleen opened the session by introducing the participants to the Cities Development Inititaive for Asia (CDIA) of the Asian Development Bank (ADB).

Ms. Kathleen introduced the participants to the different infrastructure financing options within the broad scope of public, public-private and private financing. She discussed some Critical Elements in attracting funds for urban infrastructure projects:

1. Capacity as a viable investment partner— Creating an enabling environment, i.e. policies on ease of doing business, credit worthiness of the city, presence of framework for aligned and smoother infrastructure implementation, clear direction of where the city wants to go.

2. The feasibility of the investment project(s), and

3. Alignment to financiers' priorities



She went on to explain what bankable projects are –

A project is bankable, whether from public or private sources, **when its risk-return profile meetsinvestors' criteria and can secure financing to implement the project.**

Key criteria for bankability include the probability of meeting the project's financial, environmental, and social goals, sufficient estimated cash flows to cover costs and produce returnsthat meet investor expectations.

Ms. Kathleen cited some examples of projects that CDIA has taken up to encourage participants to prepare bankable projects for disaster risk reduction.

Finally, the session closed with the following remarks –

1. Bankable projects undergo rigorous technical preparation to take it up to investment-readylevels.
2. Required levels of details in the project preparation stage may vary depending on the funder, the project nature and the project size.
3. Each Project Preparation Facility (PPF) has criteria used to select projects that it will support. Thus, eligibility of a project will differ for each PPF, making the selection of PPFsto apply to is an important consideration for cities seeking support.

Session 2: Country Presentations

Moderated by Mr. P. K. Taneja, SDMC (IU)

Mr. P. K. Taneja, Director SDMC (IU) moderated the country presentations in this session.

Bangladesh

The current population of Bangladesh is 168,641,063 as of Thursday, December 1, 2022, based onWorldometer elaboration of the latest United Nations data, which is equivalent to 2.11% of the total world population and it ranks number 8 in the list of countries (and dependencies) by population. The population density in Bangladesh is 1265 per sq.km and the total land area is 130,170 sq.km. 39.4 % of the population is urban (64,814,953 people in 2020). The median age inBangladesh is 27.6 years.

Bangladesh faces issues of waste management, lack of public health facilities, scarcity of skilled workforce, and inadequate finance resource allocation. Under land use and planning, they face pricing issues, lack of master plans, in-adequate monitoring, lack of skilled manpower, slow planning process and poor public participation. This will be worsened by climate change as it is estimated that average tropical cyclones cost around $ 1 billion annually.

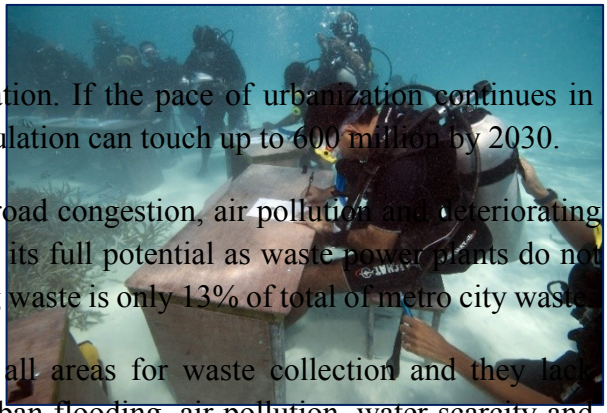
Bhutan

Considering the state of urbanization, the land area is 38, 3394 sq.km with forest cover and arableland comprises of 71%, 8% respectively with just 1% of human settlements. The projected population in 2022 is 763, 249 and projected urban population is nearly 50%.

They face sector specific challenges e.g. transportation is difficult due to difficult terrain and frequent landslides. Waste management is poor state due to rapid increase in population, pressure on landfills and no recycling plants. Lack of medical staff puts burden on National Referral Hospital. Under land use and land planning, they lack comprehensive hazard mapping in governance planning. However, the land use planning is confined to planned localized areas. Though building codes are in place, but the resource constraint hinders the overall process. Apart from this there is communication gap between various agencies and stakeholders implementing DRM. Bhutan is also tackling disparity in development where the western part is more developed,resulting in high rural urban migration from east to west. It eventually increases population densityin western urban centers.

India

India's urban population is around 377.1 MN (2011) and per citizen urban land has decreased from0.03ha (2001) to 0.02ha (2011). The following graph shows the evident increase in number of



metropolitan cities and the share of urban population. If the pace of urbanization continues in suchrapid manner, then in just one decade the population can touch up to 600 million by 2030.

India's present day challenge in transportation is road congestion, air pollution and deteriorating road safety. Waste management could not unleash its full potential as waste power plants do not really help generate energy when the energy giving waste is only 13% of total of metro city waste.

Apart from this, municipalities do not consider all areas for waste collection and they lack holisticplanning. Climate change has impacted urban flooding, air pollution, water scarcity and other hazards. More than 40% of India's population may face water scarcity by 2050 and at the same time the country's coastal areas, including big cities like Mumbai, will be affected by rising sea levels. Severe landslides and floods are projected to become increasingly common in such states as Assam.

Maldives

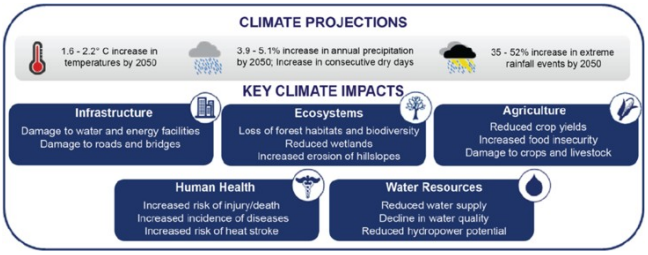
Maldives is an island country with Male as the capital which is also heavily urbanized with 48.7% of total population living in cities. This resulted in disparity between Male and other regions. Thefacilities and infrastructure is improving with 100% telecommunication, uninterrupted electricity supply and the government is workingfor road development, harbors, etc.

Maldives being an island nation is at vulnerable state due to floods, heavy rains, sea level rise, coastal erosion and sea surges. Future climate projections indicate that extreme flooding events are likely to become more frequent. This increase the vulnerability of the Maldives' economy as its major dependency on tourism. As the natural ecosystem and the coral reefs is at a greater risks from climate change, it has cascading effect on fisheries sector and ultimately food security and livelihoods.

Nepal

Nepal is a landlocked sovereign country, strategically located between China in north and India insouth. It is extensively diverse in terms of topography, flora and fauna, where mountains and rugged hills cover almost 75% of Nepal's land area. As seen the figure, Nepal is the hotspot of natural disasters. In 2015, 7.6 magnitude earthquake strike killing over 8000 people, injuring 21,000 people and displaced 2 million people.

challenge in various sectors like transportation, land planning. As per Climate Risk Profile, Nepal o increase by between 1.6 and 2.2 degree Celsius. eased but decrease in cold days and nights. It is nfall is projected to increase 3.9 to 5.1% in July-September. Andthe dry season is projected to be drier and monsoon season is wetter. Lastly, the glacial melt and incidences of Glacial Lake Outburst Floods (GLOFs) is projected to increase.



Pakistan

The current metro area population of Islamabad in 2022 is 22 million a 2% increase in each year. The total population is more than 23.12 Crores living in total area of area 7,96,095 Sq.km). Islamabad is a developed city having all type of facilities and modern infrastructure to facilitate the citizen of Islamabad. There are many welfare and development schemes are in progress and also in future plan to upgrade the living standard of the citizens e.g. metro project, residential towers, flyovers, under passes, hospitals, educations institutes, solid waste management, sectors development, construction commercial high rise buildings, water treatment plant, emergency services.

Transportation is a big challenge for the managersof capital city as the city is expanding and population is increasing Government is trying to provide public transport and to enhance metro system for the transportation also constructing of paved roads and interchanges to maintain the flow of traffic. Health sector is also progressing in capital city, many Govt & Private sector Hospitals equipped with latest machinery and diagnostic systems are available. Capital city was divided in 5 zones and with proper planning land was utilized with the help of private public partnership. A separate Directorate is responsible to implement the building codes especially after 8th October 2005 earthquake amendments was made in building codes and implemented accordingly. Due to rapid population growth rate it consumesmost of financial and natural resources and leaves little for development.

Sri Lanka

- The first presentation was delivered by the Chief Resilience Officer (CRO) of the Surat Municipal Corporation, Mr. Kamlesh Yagnik, who narrated the journey of the city of Surat under the 100 Resilient Cities Initiative.
- The second presentation was of Mr. Sameer Sinha who factually established how the pursuit of sustainability in the sector of building construction is profitable.
- Finally, the third presentation was delivered by Mr. Rajeev Sharma, Vice President (Mechanical) of GIFT City, who encourage the participants to join the MCR2030 campaign by narrating GIFT City's journey through the different stages of the

There are 6 districts which are highly vulnerable to climate change scenarios. Sri Lanka faces urban flooding, heat island effect, issues in implementation of the DRR and Climate Policy due tofollowing reasons:

1. Lack of early warning dissemination at local levels.
2. Slow response.
3. Lack of community preparedness
4. Lack of coordination and information management between stakeholders.
5. Lack of capacities for enforcement.
6. The number of policies and overlapping responsibilities between organizations.

Session 3: Special Session to Observe SAARC Charter

DayModerated by Mr. P. K. Taneja, SDMC (IU)

On 8th of December in 1985, the leader of the Seven South Asian Countries (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka) had signed the Charter in order to set up the South Asian Association for Regional Cooperation (SAARC). SAARC was joined by the Afghanistan asa Member in the month of April, 2007.

Accordingly, 8th December is observed as the **SAARC Charter Day**.

Mr. P. K. Taneja opened the session by speaking about the history of SAARC and the work that has been done by the SAARC Disaster Management Centre (IU).

This was followed by three presentations –

With the final words of Mr. Bhatia from UNDRR, the workshop was declared closed.

List of Participants

#	Country Name	Flag	Participants Name	Designation	Contact Details	
					Mobile Number	Email Address
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3	Bhutan		Mr. Sonam Dorji	Urban Planner, Ministry of Works and Human Settlement	975 77323652	sonamdorji2@mowhs.gov.bt
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17	Maldives		Ms Hawwa Niswa	Assistant Architect, Ministry of National Planning, Housing and Infrastructure	960 9949401	hawwa.niswa@planning.gov.mv; nishwa12@gmail.com

18	Maldives		Mr Ali Ahmed	Deputy Mayor, Kulhuduffushi City Council	960 9992327	ali.ahmed@kulhudhuffushicity.gov.mv
19	Nepal		Mr. Rabin Man Shrestha	Head, Disaster Management Department Kathmandu Metropolitan City, Kathmandu	977 9851024305	rms916@hotmail.com
20	Nepal		Mr. Yugdip Luitel	Section Officer, Itahari Sub Metropolitan City, Sunsari	977 9842412505	yugdeepluitel@gmail.com
21	Nepal		Mr. Jhapat Bahadur Thapa	Chief Divisional Engineer, Ministry of Urban Development	977 985104628	
22	Pakistan		Mr. Zafar Iqbal	Additional Director (Operation/ Admin), Emergency & Disaster Management Directorate, Islamabad	92 3335123536	zafarpka@gmail.com
23	Pakistan		Mr. Tariq Masood	Assistant Director Deputy Cmdr (USAR), Emergency & Disaster Management Directorate, Islamabad	92 3335881117	tm.usar@gmail.com
24	Sri Lanka		Mr. Eng. M.W.P. De Silva	Director General (Urban Development Division), Ministry of Urban Development and Housing	94 712210875	desilvaprasanna9@gmail.com
25	Sri Lanka		Mr. Y.A.G.K Gunathilake	Director (Uva Province), Urban Development Authority	94 718255512	kgunathilake333@gmail.com
26	Sri Lanka		Mr. M.P. Ranathunga	Deputy Director General, Urban Development Authority	94 774154102	ranatungamanna68@gmail.com; ddgplanninguda@gmail.com

Annexure 3

Regional Workshop on

Approaches to "Socio-Economic Recovery from COVID-19"

Date: 01-04 March

2023Program Note

PROGRAM NOTE

Background

The worldwide COVID-19 health impact and its related containment measures have caused sharpdecline in economic activity, jobs and livelihoods losses and negative repercussion on the quality of health, education, and value-chain related services. It has disproportionately affected the most vulnerable population such as children, elderly, persons with disabilities, migrants and refugees and exacerbated inequalities in human development. The Global COVID Gender ResponseTracker[2] developed by UN Women and UNDP in 2020, has found that, while women have been at the center of global COVID-19 response efforts, they have been significantly underrepresented in meaningfully participating in key COVID-19 decision-making and governance worldwide. Women's exclusion from COVID-19 planning and decision-making leaves governments ill- equipped to respond effectively to the gendered social and economic fallout of the pandemic. Asa result of the extensive socio-economic effects, the pandemic has negatively impacted hard-won development gains of the 2030 Agenda, such as SDG 1 (no poverty), 2 (zero hunger), 3 (good health and well-being), 4 (education) 5 (gender equality), 8 (decent work and economic growth) and 10 (reduced inequalities).

The pandemic is also inextricably intertwined with global environmental issues such as biodiversity loss, climate change, air and water pollution, and waste management, both in terms of its origin and the implications for environmental outcomes and the future well-being of societies around the world. In terms of its origin, COVID-19 is supposedly a zoonotic disease, a disease

[2] https://data.undp.org/gendertracker/

passed from animals to humans. As pressures on natural ecosystems and wildlife intensify, channels of viral outbreak have accelerated in recent years, as also seen in outbreaks of other zoonotic diseases such as Ebola, SARS and MERS in recent years. More than ever, the ability to prevent outbreaks depends on our ability to maintain healthy ecosystems and avoid the blurring of ecological boundaries. In terms of the implications of the pandemic on the environment, as economic activities had to be curtailed due to health-related restrictions, environmental issues tooka backseat across the world. As an example, the use of packaging exploded around the world as people started to order everything from food take-out to other household goods online. Many governments which were committed to take strong action on single use plastic had to either stop enforcing the legislations or delay their introductions. During 2020, the lockdowns and decline ineconomic activity reduced overall plastics use by about 2% from 2019 levels, mostly for large-scale industrial sectors such as motor vehicles, and construction. But overall, this reduction was substantially smaller than the decline in total economic activity. At the same time, the use of medical and protective equipment as well as single-use plastics increased considerably during thepandemic, and exacerbated plastic littering, the build-up of which will continue for decades to come. Relative to 2019, global plastics use increased by 0.3 Mt in 2020 in the health and social work sector, and by 0.2 Mt in the pharmaceuticals sector. Plastics use for face masks is estimatedto represent 300 kilotons in 2020 linked to the production of some 126 billion masks. In other sectors like food services and retail, the shift towards take-away, food delivery and e-commerce all increased demand for plastic packaging (OECD, 2022).

Countries around the world are being forced to confront the challenges of managing compound risks from the COVID-19 pandemic and natural hazards such as, cyclones in India and the Pacific,floods in Japan and Vietnam, and heatwaves in the United States and Europe, among many others. In fact, climate-related hazards threaten to exploit many of the same vulnerabilities, amplifying disaster risk and its potential impacts as the pandemic (IRP, 2020).

In response, ccountries have implemented post COVID recovery and stimulus packages around the world; but the focus remains on livelihoods and employment creation, and environment is onceagain not a priority. For example, green recovery measures are still a small component of total COVID-19 spending (only 21% of recovery spending, or only around 4% of the USD 17 trillion rescue and recovery spending combined). Significant funds are still allocated to measures with

likely environmentally negative and mixed impacts (OECD, 2022). However, the recovery plans that governments are putting in place have the potential to create a recovery that is both green andinclusive. Such a recovery can be defined by its potential to create opportunities for income, jobsand growth, and at the same time accelerate action on medium and long-term environmental goals,both national and global. Such action will significantly enhance the resilience of economies and societies in the face of accelerating environmental challenges due to strengthening feedback loopsand the increasing likelihood of cascading tipping points. Importantly, putting people at the centre of green recovery plans can lay the foundations for sustainable wellbeing. At a global scale, solidarity and collaboration are required to address the exposed systemic risks and underlying vulnerabilities in today's connected societies.

Priority Four of the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030 calls on governments to build back better in recovery from disasters. It represents a global consensus view that recovery presents an opportunity to not only restore what was lost, but to buildgreater resilience and even to make progress across the development sphere. Importantly, it also presents an opportunity to reduce disaster risk as societies recover, rebuild, and rehabilitate.

Objective of the Workshop

The objective of the workshop is to discuss the systematic and scientific approaches for promotinggreen and sustainable recovery in the response to Covid-19. The workshop also aims to highlight the critical role of green infrastructure in supporting economic growth and livelihoods, while safeguarding the Paris Agreement targets.

Course pedagogy

The training will be held in person, facilitated by trainers from UNDP and SAARC Disaster Management Centre (IU), joined by guest speakers from partner institutes. The training will include presentations, group exercises, discussions, and field visits.

Targeted participants (3 participants from each Member States)

This workshop aims to engage **3** Senior Officers from Ministries (especially, health, education, tourism, industry and commerce, employment and livelihoods, gender, social protection) from

each Member States dealing with Disaster Risk Management, Disaster Response; National Disaster Management Organizations (NDMOs) from all the SAARC Member States.

Organizers

The workshop will be organized by SDMC (IU) with support from United Nations Development Program (UNDP) is conducting a 4-day Residential Workshop on "Approaches to Socio-Economic Recovery from COVID-19" from 1-4 March 2023 for disaster risk reduction and recovery practitioners from the SAARC Member States.

About SAARC Disaster Management Centre (IU)

SAARC Disaster Management Centre (SDMC-IU) has been set up at Gujarat Institute of DisasterManagement (GIDM) Campus, Gandhinagar, Gujarat, India. SDMC (IU) is expected to serve SAARC Member States in disaster management initiatives. Since its operations at GIDM Campus, SDMC (IU), has conducted 21 residential capacity building programs and 6 webinars, wherein about 850 officials from the Member States were oriented, sensitized and trained in collaboration with more than 190 domain experts hailing from various regional and global organisations

Date & Venue

The workshop will be organized in the Seminar Hall of SDMC (IU), Gandhinagar, in Gujarat, India. The dates of the workshop are 01st to 04th March, 2023.

Agenda

Day 1: 01 March 2023

Time	Session	Speaker / Facilitator
09:30- 10:00	Registration **Welcome Session** • Welcome and participant introduction • Introduction to the workshop	SDMC (IU)
10:00- 10:30	**Opening Session** • Special Address **(5 mnts)**	**Ms. Rita Missal**, Recovery Advisor, UNDP
	• Inaugural Address **(5 mnts)**	**Mr. P. K. Taneja**, Director-SDMC(IU)
10:30- 11:30	**Session 1: Recovery Challenges in COVID-19 andDeveloping a Recovery Framework and Strategy** - To understand how to develop a recovery strategy and actual interventions. - To understand the key elements of the Disaster Recov ery Framework	Dr. Krishna Vatsa, Member - NDMA
11:30- 11:35	*Group Photograph*	
11:35- 11:45	Health Break	
11:45- 13:00	**Session 2: Approach to assessing Socio Economicimpacts of COVID -19** - Presentation on PRNA tool/methodology – its develo pment, scope, and case studies	**Ms. Dominique Blariaux,**Consultant, European Commission
13:00- 14:15	Lunch Break	
14:15- 14:45	**Session 3A: Approaches to Health Recovery** - Presentation on preparedness, response and recoveryof the health sector	**Dr. Nilesh Buddha,** Lead –Regional Emergencies, WHO South-East Asia Regional Office (SEARO)

14:45:15:15	**Session 3B: Approaches to Health Recovery** Presentation on preparedness, response and recovery ofthe health sector	**Dr. Dileep Mavalankar** Director, IIPH Gandhinagar
15:15-15:30	Health Break	

15:30-16:15	**Special Session:** Case Study on India's Post COVID-19 Economic Recovery	**Prof. Santosh Kumar**, NIDM
16:15-16:20	Wrap-up Day 1	SDMC (IU)

Day 2: 02 March 2023

Time	Programme	Speaker/Facilitator
09:30-10:00	Recap and plan for the day	SDMC (IU)
10:00-11:00	**Session 4: Approach to Recovery of mostvulnerable people** - the practice of social protection measures	**Ms. Rita Missal**, RecoveryAdvisor, UNDP
11:00-11:15	Health Break	
11:15-12:15	**Session 5: Approach to support continuingeducation service during COVID-19** - Presentation on the good practices on support to the education sector.	**Dr. Begur RamachandraRao**, Education Specialist, UNICEF
12:15-13:15	**Session 6: Approach to Economic Recovery;Sectors focus- Agriculture and Food Security** - Presentation on the overview of the issues in eco nomic recovery with good practices from other regions	**Ms. Dominique Blariaux,**Consultant, European Commission
13:15-14:15	Lunch Break	
14:15-15:15	**Session 7: Approach to Economic Recovery; Productive Sectors - Tourism; Trade and Commerce; and MSMEs;** - Presentation on the overview of issues in the ec onomic recovery of productive sectors with good practices from other regions	**Dr. Partha Banerjee,** DEX -DEFT Research and Consulting Pvt. Ltd
15:15-15:30	Health Break	

15:30-16:10	**Session 8: Approach to Cross-cutting Employment and Livelihood Recovery;** Presentation on the overview of cross-cutting issues in livelihood recovery with good practices from other regions	**Dr. Partha Banerjee,** DEX -DEFT Research and Consulting Pvt. Ltd
16:10-16:15	Wrap-up Day 2	SDMC (IU)
Visit to Dandi Kutir, Gandhinagar		

Day 3: 03 March 2023

Time	Programme	Speaker/Facilitator
09:30-10:00	Recap and plan for the day	SDMC (IU)
10:00-11:15	**Session 9: Green Recovery Approaches** - Presentation on green recovery and guidance on main streaming environmental considerations into the recovery framework. - Country case studies on green recovery approaches t hat can be adapted for covid recovery programs	**Ms. Rita Missal,** Recovery Advisor,UNDP
11:15-11:30	Health Break	
11:30-12:30	**Session 10: Building Resilient systems** - Transition to Digital systems, Other good practicesin response and recovery of COVID -19	**Dr. Partha Banerjee,** DEX-DEFT Research and Consulting Pvt. Ltd
12:30-13:30	**Session 11: Role of National DM Agencies inresponding to COVID-19** - Lessons Learnt	**Ms. Rita Missal,** Recovery Advisor, UNDP
13:30-14:30	Lunch Break	
14:30-15:30	**Session 12: Innovations in COVID-19 Recovery**	**Ms. Rita Missal,** Recovery Advisor, UNDP & **Ms. Dominique Blariaux,** Consultant, European Commission
15:15-15:30	Health Break	
15:30-15:35	Wrap-up Day 3	SDMC (IU)
City Visit, Ahmedabad		

Day 4: 04 March 2023

Time	Programme	Speaker/Facilitator
09:30-10:00	Recap and plan for the day	SDMC (IU)
10:00-11:00	**Session 13: Addressing the recovery needs of women &young girls, people with disabilities, LGBTIQ+ and other vulnerable groups** - Presentation on the current state-trend toward the excl usion of women as key actors in critical decisions in the recovery process followed by case studies/ countries	**Dominique Blariaux,** Consultant, European Commission
11:00-11:15	Health Break	
11:15-13:00	**Country Presentations (10 minutes for each ppt.)**	**Director-SDMC(IU)**
13.00-13:20	Wrap-up & **Training evaluation**	UNDP, SDMC (IU) & SAARC MemberStates
13:20-14.00	**Closing Ceremony** ○ Award of Certificates ○ Vote of thanks by participants ○ Closing remarks from UNDP ○ Closing remarks from SDMC	SDMC (IU)
14:00-15:00	Lunch Break	

List of Participants

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