

ANNUAL REPORT

2020 - 2021



SAARC

Disaster Management Centre (IU)

GIDM Campus, Gandhinagar
Gujarat, India

ANNUAL REPORT

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SAARC Disaster Management Centre (IU)

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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. As needed, 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 relevant frameworks 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 natural hazards 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 achieve synergies in programmes and activities.
 14. Conduct studies on assessment and management of disaster risks posing a threat to inclusive and sustainable development in South Asia.

15. Undertake research, projects, programmes contributing towards mitigating the impact of trans-boundary disasters.
16. Facilitate from within and outside the region supply of emergency needs in times of disaster, 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 2020-2021

6.1 Preparation of Activity Plan

SDMC (IU) had prepared its annual Activity Plan for FY 2020-2021 based on the discussion in fourth Inter-Ministerial Meeting and shared with MEA, GoI which has been approved by MEA on July 31, 2020.

6.2 Capacity Building Programs organized

Sr. No.	Name of Webinar	No of Participants	Presence of the Member States	Date	Program Details
1.	Enhancing Preparedness for Responding to COVID19 and Extreme Weather Events	91	All	04 th Nov, 2020	Annexure 1
2.	Multi Sectoral Recovery Approaches to Post COVID19 and the 'New Normal'	42	All	15 th Dec, 2020	Annexure 2
3.	Enhancing Preparedness for Climate Related Disasters Using Space-Based Technologies	63	All	17 th Feb, 2021	Annexure 3

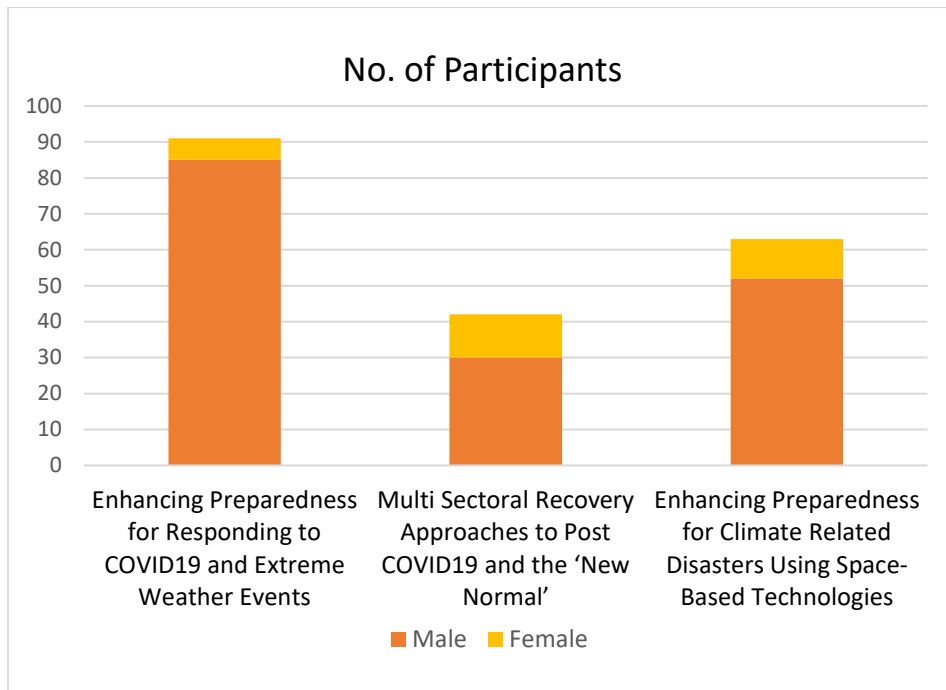
Participants

•**196 Participants** have been oriented in three Capacity Building Programs in webinar mode

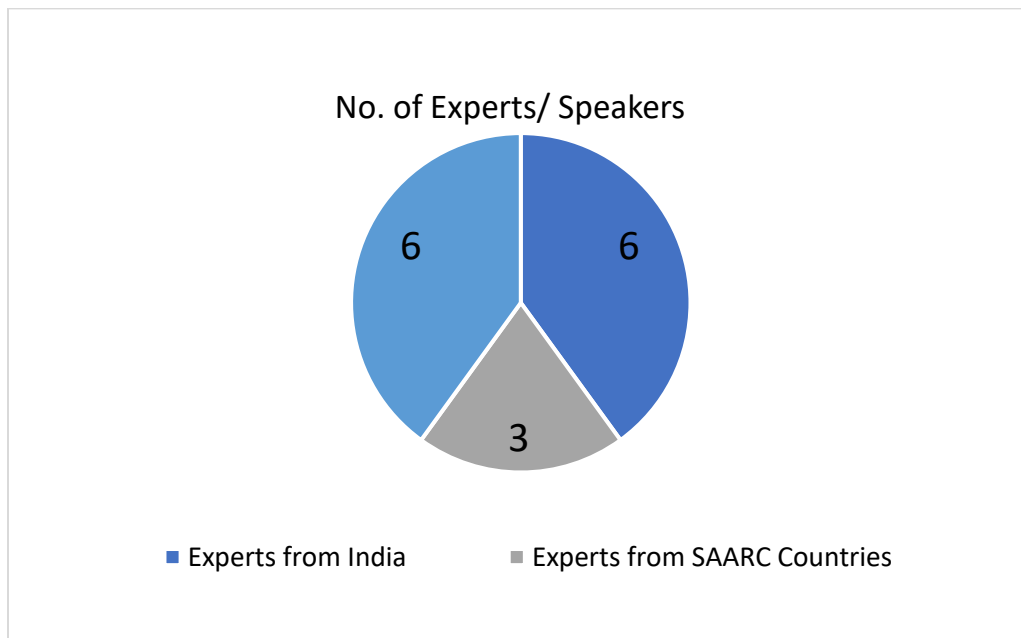
Experts

•**15 Experts** (6 from India, 3 from SAARC Member States and 6 others) have shared their experiences during these capacity development programs

Training Program-wise Number of Participants



Resource Persons/ Experts Invited to deliver the talk



6.3 Other Programs

Sr. No.	Activity	Action Taken
1	Dedicated web-portal on COVID-19 for SAARC Region	<ul style="list-style-type: none"> ○ 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 best practices being followed in member countries. Since the creation of the 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.
2	Programme on Development of Regional Response Mechanism (RRM) in the SAARC Region	<ul style="list-style-type: none"> ○ The Task Force for Development of Draft Regional Response Mechanism in SAARC Region was constituted. ○ Existing Regional Response Mechanism across the world and Response Mechanism in each of the SAARC Member States are being studied.
3	Celebration of SAARC Charter Day	<ul style="list-style-type: none"> ○ Could not celebrate due to COVID-19 pandemic.
4	Publications	<ul style="list-style-type: none"> ○ SDMC (IU) in collaboration with UNDP is developing a Knowledge Product on “What does it mean to Build Back Better in COVID-19 Recovery” for the benefit of the SAARC Member States ○ SDMC (IU) in collaboration with IWMI & UNSPIDER is developing a Repository of Open Source Data Products related to Earth Observation and Geo-spatial technologies for DRM ○ SDMC(IU) Annual Newsletter published on web portal ○ Annual Report of SDMC (IU) developed.

5	Web Portal	<ul style="list-style-type: none"> ○ 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 for updation of the country page.
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6.4 Activities of SDMC (IU) on COVID-19

At the initiative of the Prime Minister of India, a Video Conference of SAARC Leaders on combating COVID-19 was held on 15 March 2020. The meeting enabled Leaders to share assessments of the situation relating to the pandemic, consider best practices, and identify cooperative measures and approaches for each country to minimize and mitigate the spread of the disease while averting public panic and minimising possible economic impacts.



Video Conference of SAARC Leaders held on 15 March 2020

As an action point emerging from the above conference, SAARC Disaster Management Centre (IU) has developed a web portal (<http://www.covid19-sdmc.org/>) on 20 March 2020 and made online on 21 March 2020. The aim of the portal is to disseminate reliable information and updates on the evolving situation relating to COVID-19 in the region, and serve as repository of best practices being followed by the member states in dealing with COVID-19 for the SAARC Region.

The daily situation report of the region is updated on the portal using data from authentic sources like Ministry's website of member states and WHO. Portal comprises regional situation report, individual country situation reports, guidelines and best practices, made available by the member states. It keeps a track of social media updates on COVID-19, relevant to the region. The portal provides useful and knowledgeable video links, providing awareness on the subject. The portal puts in place all the important links for the region which can be accessed for in-depth information.



A snapshot of the portal ([covid19-sdmc.org](http://www.covid19-sdmc.org))

7. Financial Status (Amount in INR)

In the financial year 2020-2021, SDMC(IU) did not received any fund. However, total expenditure incurred from the previous available fund was Rs. 42,86,994/- (Forty Two Lakh Eighty Six Thousand Nine Hundred Ninty Four)



ANNEXURES

Annexure 1

Webinar Report on

Enhancing Preparedness for Responding to COVID19 and Extreme Weather Events

Program Note

Background

SAARC region comprises nearly 23% of the world's population and is one of the most disaster-prone regions in the world. Given the geographical location of the region and the cascading impacts of climate change, the extreme weather events are increasing in intensity and frequency. These events include cyclones, excessive rainfall, heatwaves, drought conditions, locust attack, etc.

Climate change and the complexities associated with disasters are creating deep uncertainties. Enhanced technology and greater data availability allow many hazards to be predicted with greater accuracy, however, climate change results into deviation and amplification of disaster impacts. It is therefore increasingly difficult to determine risk of the given area and prepare accordingly¹.

As per the Global Climate Risk Index 2020, some of the SAARC Countries are ranked in top 20 most vulnerable countries to the fatal impacts of climate risks². Owing the population density other SAARC countries are also highly vulnerable. In 2019, floods and storms events accounted for 68% of the total number of affected people globally. The total number of disaster events occurred in recent years have almost doubled as compared to total number of disaster events in last decade. The South Asian region has recently experienced the brunt of extreme weather events. Cyclones have developed both in the Arabian Sea and the Bay of Bengal, there have been extreme heat events leading to extreme water stress conditions, attack of the locust swarms destroying food and agriculture, and heavy flooding. Most of these events happened amidst the COVID19 pandemic. The COVID-19 pandemic already brought in new challenges for the humanity. In such situation the compounding impact of two or more simultaneous events has been experienced.

With the advent of science and technology South Asian Countries have shown enhancement in preparedness to deal with events like cyclones. They have significantly reduced loss of life from hydro-meteorological events in recent years because of effective early warning systems combined with timely evacuations in the face of extreme weather events. National Disaster Management Organizations (NDMOs), humanitarian agencies and iNGOs already engaged in the COVID-19 response are now blending those efforts with response to heavy rainfall due to monsoon and cyclone seasons which usually impact millions of people across Asia.³

¹ Summary of the Asia-Pacific Disaster Report 2019

² Global Climate Risk Index 2020

³ <https://reliefweb.int/report/india/extreme-weather-events-time-covid-19>

Community-based actions are becoming more vital as emergencies increase in number and frequency, due to changing hazards (e.g. seasonal probable hazards during ongoing COVID 19 pandemic) and growing vulnerabilities (e.g. reduced economic activities, food logistics systems, etc.). This has put more communities at risk, and has challenged the response capacity at national and local levels. Thus, it is essential that greater localization of risk information, preparedness and response efforts, underscored by local partnerships needs to be up scaled considering their crucial role in DRR. This also focuses on the Target E of the Sendai Framework for Disaster Risk Reduction which states to substantially increase the number of countries with national and local disaster risk reduction strategies by 2020. With this it also touches upon other targets like reduction of mortality, affected people, and economic loss.

Community-based actions have demonstrated its significance in reducing disaster impacts against hazards by:

- Enhancing knowledge of the local risk and new emerging risk ensuring that the actual capacities of the communities are developed and utilized;
- Preventing and mitigating risk at local level by avoiding exposure to hazards;
- Preparing and organizing communities to respond in planned and structured manner, taking care of their vulnerabilities;
- Ensuring comprehensive actions in the initial hours after an emergency, thus saving many lives.

Therefore, there is a need to encourage governments and all – of- the – institutions working in DRR to reinforce the community by facilitating preparation of local level action plans, strengthening existing systems, and providing resources to support local actions towards reducing disaster risks and manage residual risk.

Aim

The webinar will aim to highlight lessons learned from the past flood events, challenges faced during recent cyclone response due to COVID19 and deliberate on methods through which Member States can enhance community preparedness through local level action plans for climate related hazards & risk management to build more resilient systems that are better placed to prevent such crises in the future.

Target Audience

This webinar aims to engage Senior Officers from Ministries from Member States dealing with Disaster Risk Management, Disaster Response; National Disaster Management Organizations (NDMOs); Ministries working with Community Preparedness towards Public health in emergencies and other concerned ministries.

Agenda

#	Topic	Time (IST)	Resource Person/ Moderator
1.	Inauguration of the Webinar	13.30 – 13.50	SDMC (IU)
i	Welcome & Introduction of the Director - SDMC (IU)	1 min.	Mr. Sumedh Patil PM/RO – SDMC (IU)
ii	Introductory Address	3 Min	Director, SDMC (IU)
iii	Introductory remarks from the representative of each of the Member States	16 min. (2 min. each)	Representatives from all SAARC Member States- <u>Afghanistan</u> : Mr. Mohammad Omer Mohammadi <u>Bangladesh</u> : Ms. Kazi Tasmin Ara Ajmery <u>Bhutan</u> : Mr. Tshewang Norbu <u>India</u> : Dr. Pawan Kumar Singh <u>Maldives</u> : Mr. Umar Fikry <u>Nepal</u> : Mr. Kali Prasad Parajuli <u>Pakistan</u> : Mr. Tahir ud Din <u>Sri Lanka</u> : Maj. Gen. Sudantha Ranasinghe <u>Moderator</u> – Director, SDMC (IU)
2.	<i>Introduction of the Speaker</i>	13.50 – 14.10	<i>Moderator- SDMC (IU)</i>
	Climate Change & Extreme Weather Events in the SAARC Region + Q & A	20 min.	Dr. Roxy Mathew CCCR, IITM, India
3.	<i>Introduction of the Speaker</i>	14.10 – 14.30	<i>Moderator- SDMC (IU)</i>
	Emerging Risks of Locust attack in the SAARC Region: Genesis, Warning and Response + Q & A	20 min.	Mr. Keith Cressman Senior Locust Forecasting Officer, FAO, Rome
4.	<i>Introduction of the Speaker</i>	14.30 – 14.50	<i>Moderator- SDMC (IU)</i>
	Lesson Learnt from the Cyclone Amphan: Local Level response and challenges caused by COVID-19 situation + Q & A - India Experience - Bangladesh Experience	(10 min. each) 20 min.	Mr. Randeep Ku. Rana DIG Operations -NDRF, India Mr. Syed Ashraf ul Islam Communication and Media Specialist, Department of Disaster Management, Bangladesh
5.	<i>Introduction of the Speaker</i>	14.50 – 15.05	<i>Moderator- SDMC (IU)</i>
	Strategy for development of Local Level Action Plan for enhancing preparedness towards Extreme	15 min.	Mr. Aslam Perwaiz Department Head, ADPC, Thailand

	Weather events compound with COVID19 situation + Q & A		
6.	Experience sharing from Member States towards recent compound disaster events in SAARC Region + Q & A	15.05 – 16.05 (7 min. each) <i>60 min.</i>	Representatives from all the SAARC Member States- <i><u>Afghanistan</u>: Mr. Sayed Abdul Baset Rahmani</i> <i><u>Bangladesh</u>: Mr. Probir Kumar Das</i> <i><u>Bhutan</u>: Mr. Sangay Tenzin & Mr. Ugyen Tshering</i> <i><u>India</u>: Dr. Pawan Kumar Singh</i> <i><u>Maldives</u>: Mr. Umar Fikry</i> <i><u>Nepal</u>: Mr. Sameer Kumar Adhikari</i> <i><u>Pakistan</u>: Mr. Tahir ud Din</i> <i><u>Sri Lanka</u>: Dr. Novil Wijesekera</i> Moderator - Director, SDMC (IU)
7.	Concluding Remarks	16.05 – 16.10 <i>05 min.</i>	Director, SDMC (IU)

Regional Webinar on Enhancing Preparedness for Responding to COVID19 and Extreme Weather Events

Introductory Session

On behalf of the SAARC Disaster Management Centre, Mr. Sumedh Patil welcomed all the participants from respective SAARC Member States for the first webinar conducted by SDMC(IU).



The keynote address was given by Mr. P.K. Taneja, Director, SDMC (IU). He welcomed and introduced all the dignitaries and resource persons. Representatives from each Member States gave introductory remarks.

Session 1: Climate Change & Extreme Weather Events in the SAARC Region Dr. Roxy Mathew Koll, Indian Institute of Tropical Meteorology, India



Dr. Roxy talked about the plethora of extreme weather events that occur in the Indian Ocean region. These events include cyclones, excessive rainfall, heatwaves, drought

conditions, locust attack, etc. Major change in the Indian ocean is the sea level rise and most of the heavily populated coastal cities in the SAARC region are located at the rim of Indian ocean. As per the analysis done, sea level rise is happening at 3-6 cm per decade. There are visible impacts of sea level rise in the Indian Ocean like the Vaan Island in Gulf of Mannar. The impacts of climate change have been on the biodiversity as well, Bramble Cay Melomy is the first species to be extinct due to anthropogenic climate change. Dr. Roxy also discussed about the mitigation measures like the Seagrass and Coral restoration. He also explained movement of Locust swarms that started in East Africa following heavy rains of 2018-2019 activated due to warming in Western Indian Ocean. Cyclone characteristics are also changing and they are becoming more intense in short time. Eg. Cyclone Amphan intensified from Cat1 to Cat 5 cyclone in 18 hours. Predicting the rapid intensification of cyclones is a difficult task for weather models. The warming of ocean that leads to formation of cyclones also results in marine heat waves. The same ocean temperatures that intensified cyclone Amphan, led to coral bleaching in Gulf of Mannar also. On the land, total monsoon rainfall is decreasing, number of extreme rains (above 150 mm/day) are increasing. All these events act together leading to compound events. Dr. Roxy mentioned about the first assessment report on Climate Change over the Indian region; Indian Ocean Review; The IPCC Special Report on Ocean and Cryosphere in a Changing Climate; Economic Impact Assessment in Monsoon Mission; and their salient outcomes. He also discussed about the Flood Warning Systems at Local level

(iFLOWS- MUMBAI) and at SAARC level (South Asia Flash Flood Guidance System).

Session 2: Emerging Risks of Locust attack in the SAARC Region: Genesis, Warning and Response

Mr. Keith Cressman, Food and Agriculture Organization, Rome



Mr. Keith talked about the characteristics of desert locust and factors to mitigate the locust plague. Desert locust basically live in desert and can cover upto 20% of the earth's land surface. They basically live in the area between Senegal to India and South Europe to Tanzania. They grow in number exponentially which is in response to the climate. The change in climate impacts their number as they need rain to reproduce and green vegetation for food and shelter. In SAARC region, they are mainly found in India and Pakistan. Rarely they can reach to countries like Nepal and Afghanistan. In general, they are in desert, in low numbers, not posing a threat. But more rainfall events, means a greater number of locusts. When they form a swarm, they can travel upto a distance of 150 km per day. In last two years there have been dramatic increase of desert locust numbers in the South West Asia. They have huge impact on food security and livelihood not just on farmers community but on countries and regions. Mr. Keith highlighted the reasons behind more desert locusts which are increasing temperatures, unusual rainfall events, and

changing wind patterns which lead to more rapid maturation, more frequent outbreaks, and new invasion areas, respectively. Subsequently he discussed upon methods to deal with swarms of locust like aerial control operations which includes spraying of pesticides and biopesticides from the aircraft. This can be supplemented with ground control operations also. Such operations also have high cost implications. He discussed about the desert locust early warning system which is nearly 100 years old and very rich in experience and data. All the affected countries share data directly with FAO through desert locust early warning network. The strategy is very similar to forest fire prevention. Detection in early stage is very essential. There are tools to collect information from the field or using remote sensing/satellite imagery or instruments like drone. The data is shared through cloud in realtime which is used by concerned departments of the countries. There is a specific Commission of FAO for the South Asian region (covering India, Pakistan and Afghanistan of the SAARC) – Commission for Controlling the Desert Locust in South-West Asia. It helps strengthen the capacities of the countries to manage desert locust.

Session 3: Lesson Learnt from the Cyclone Amphan: Local Level response and challenges caused by COVID-19 situation

India Experience

Mr. Randeep Ku. Rana, National Disaster Response Force, India



Mr. Randeep described the strongest cyclone 'Amphan' to strike the Indian coast since the 1999 Odisha Super cyclone and the process that Disaster Response Force followed prior and post landfall. 38 & 20 teams of NDRF were deployed in the States of West Bengal and Odisha, evacuating 8,13,092 and 2,37,296 respectively. In view of the COVID-19 scenario, all teams were reoriented for facing dual challenge and equipped with PPE etc. to carry out community awareness campaigns and restoration work in both the States. Mr. Rana explained the ABCD analysis and preparedness by NDRF which basically includes protection gears for COVID19. Tailor-made training on COVID-19 was given to response personnel. The challenges to deal with Complex emergency situation were many, responders and stakeholders were also infected by COVID19 during operations (including 74 NDRF personnel), lack of COVID-19 safe accommodation was also a challenge and many buildings were converted to evacuation shelter keeping in view the COVID advisories about physical distancing. Community involvement, coordination- both at macro and micro level, homogeneity between central, state and local agencies, and India's preparedness and EWS contained the loss of lives to just double digits.

Bangladesh Experience

Mr. Syed Ashraful Islam, Department of Disaster Management, Bangladesh



Mr. Syed talked about the double burden issues - the sufferings, losses and displacement due to COVID19 faced with flood and cyclone. 2.6 Million were provided shelter in 13,153 shelters during cyclone. Fortunately, the containment zones were not affected by Cyclone Amphan and subsequently floods did not occur at extreme hot spots. Government of Bangladesh took extensive relief and incentive support program through the Ministry of Disaster Management and Relief. Many MoDMR field officials were also affected by COVID-19. Mr. Syed highlighted the drivers of Disaster Management Response to COVID-2019 viz PM's 31-point directive in wake of the novel coronavirus situation which focussed on most disadvantaged people, senior citizens and children, etc. DDM prepared contingency plan and COVID protocols. All cyclone, flood and temporary shelters maintained a supply of sanitizers, masks, and other basic protective material for stranded people along with food, fodder for livestock etc. He also highlighted the fact that it had not been practical to apply COVID19 precautions during the humanitarian phase of Amphan and during sessions of flood, since saving of lives was precedence over the risk of contracting the disease but after disaster, social distancing was not ignored when relief was distributed.

Session 4: Strategy for development of Local Level Action Plan for enhancing preparedness towards Extreme Weather events compound with COVID19 situation

Mr. Aslam Perwaiz



Mr. Aslam interestingly highlighted the shift from global to local level since 2015 through implementation of international frameworks and defined local level anything which is below National level. He showed the analysis of Target E of the Sendai Framework and reflected upon local DRR & resilience strategies and action plans. Reflections were upon: Identifying key priorities based on risk & resilience assessments, including governance diagnosis and financial aspects; Fostering an enabling environment for local actions through awareness, advocacy, bridging governance gap, capacity and monitoring; Overcoming challenges and moving ahead because disaster that will happen is not the one we prepared for; the cost of doing nothing could be very high. He focussed on all- hazards approach to achieve risk reduction as a basis for sustainable development. COVID-19 pandemic is a timely reminder of how hazards within the complex and changing global risk landscape can affect lives, livelihoods and health.

Session 5: Experience sharing from Member States towards recent compound disaster events in SAARC Region

Afghanistan

The Member State representative listed the extreme weather events that impacted the country this year, which were heavy snowfall, avalanches, landslides and flash floods. Some 144,039 people were affected and the harsh weather conditions resulted in interruption of the delivery of humanitarian assistance. COVID 19 crisis forced to revise the existing Country Humanitarian Plan. Ministry of Public Health established the Centre for Command and Control. To address socio-economic impact of COVID-19, government provided short term assistance to the affected population across the country, in the meantime coordinated with the humanitarian actors on expansion of responses. The lessons learnt were: Weather events are localized and leave very less time for respond, therefore preparedness action needs to be localized; Disaster Risk Assessment should encompass the greater component for climate risk assessment; Integrated Early Warning System with reaching to very remote areas with Maximum lead time; Strengthen coordination between all key stakeholders and create multiple Working Group to feed in to the policy process.

Bangladesh

The major disasters of 2020 were Cyclone Amphan, flood, and lightning that claimed a total of about 300 deaths. The representative of the Member State presented on the statistics of Cyclone Amphan and the initiatives taken by Govt. of Bangladesh. Early Warning Dissemination was done through IVR

(Interactive Voice Response - a technology that automates interactions with telephone callers) where in 5 million people called in during 19-20 May 2020. Joint Need Assessment was conducted after the Cyclone Amphan which highlighted destroyed infrastructures, inundation of agri-land by tidal surge and salinity intrusion, loss of livelihood, physical distancing in emergency shelters was challenge. As a way forward, Bangladesh representative mentioned about re-establishment of South Asian Disaster Knowledge Network Portal (SADKN), development of digital vulnerability atlas for each member state under unique frame work, improve best practices and lessons learnt from DRR efforts at national levels, develop and implement regional programmes and projects for Multi-Hazard Early Warning, establish a regional sharing platform for using space based technology in disaster management.

Bhutan

Bhutan, with zero COVID mortality till date, highlighted the timeline of COVID19 interventions. The representative from the Member State discussed the Community Transmission Mitigation Strategy which included intensive testing, enhanced surveillance, enhanced surge capacity, and behavioral change. Leadership of the Bhutan government and national COVID19 Incident Command Structure played a major role in management of the disease. The road ahead focuses on health, social, and economic security.

India

Representative from the Member State talked about the situation of the pandemic in the country. Ministry of Health and Family

Welfare is the nodal agency for managing biological disasters. Soon after the outbreak, COVID19 containment plan was released by the Ministry. Template for state and district level planning were formulated by NDMA. As pre-emptive measure GoI took several steps in sensitizing States, UTs, and other stakeholders to plan for concurrent disasters during ongoing pandemic. This included preparatory and mitigation measures on heatwave, planning for floods, disasters particularly impacting urban areas like earthquake and urban floods, etc. Advisories were released before the onset of cyclone season, in view of the pandemic situation, which included maintenance of physical distancing and using face mask during mass evacuation, capacity of evacuation shelters shall be reworked, PPEs for first responders. Member State representative discussed about various hazard related plans for preparedness and response at national level. Strengthening regional cooperation is the major way ahead as the region faces similar type of hazards.

Maldives

Maldives has a low impact, high frequency hazard profile. These include cyclonic rainfall, storm surges, swell waves, wind storm, flooding, tsunami is also a threat. Such events also cause severe coastal erosion in the islands. Maldives needs to reiterate the future outlook due to climate change. There have been stress of coral bleaching and heatwave events due to rising sea temperature. Representative from the Member State mainly highlighted the impacts of climate change that an island nation would bear in future if measures to mitigate the impacts are not taken.

Nepal

Representative from the Member State explained the organizational structure for command and response for COVID 19 and the activities undertaken. The monsoon event that started in June was heavier than usual, destructed many infrastructures and many casualties were reported. There were warning on chances of glacial lake bursting due to heavy precipitation. Rare event of locust attack also happened, more than 8 million locusts entered Nepal and resulted in crop damage of 1,118 hectares of land. Ministry of Agriculture and Livestock Development implemented strategies to minimize the damage - Early warning with locust trajectory prediction, Developing and disseminating Locust Advisory, Developing and disseminating User's guide for reporting the locust. Key learnings highlighted were multi sectoral coordination and collaboration in every disaster, health systems strengthening required against infectious diseases outbreak/pandemic, necessity of integrated and tailored approach, technological advancement and usage, early and honest risk communication and community engagement.

Pakistan

The representative from the Member State talked about compound disasters in the country which include COVID, locust and floods. He mentioned three tiers of disaster management organizations in the country. Like any other SAARC country, Pakistan faces similar natural and man-made hazards but in the pandemic situation, the strategy was required to be updated as per the requirement. The response was planned keeping health department as the main stakeholder in the situation. Working of National Command and Control Centre and National Command and Operation Centre (to deal with ground issues) was discussed.

People were aware of the historical hazards like earthquake and floods that have been impacting the country but exposure to pandemic was new which lead to revision of the strategies and action plans. Representative highlighted the logistics and supply challenges faced, socio-economic impacts and measures taken to manage the same.

Sri Lanka



The emergencies that occurred in Sri Lanka during COVID19 were floods, landslides, and drought. Both urban and rural areas were affected and large number of deaths associated with landslides. Effective response in this situation was promoted due to Disaster Management Institutional Framework, Standard Operating Procedures, Emergency Operation Centers, resilient health system and support of the defense sector – tri-forces, police and state intelligence service. The way forward as highlighted by the representative of the Member State - All hazard approach must be continued for the investments to be cost Effective; Health – Disaster Management – Defense Sector coordination is critical for effective preparedness and response; Capacity building is the key for effective preparedness for future extreme events.





Concluding Remarks

Concluding remarks and vote of thanks was given by Director SDMC(IU).






















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Annexure 2

Webinar Report on

Multi Sectoral Recovery Approaches to Post COVID19 and the 'New Normal'

Program Note

Context

The SAARC region is frequently affected by natural hazards including floods, cyclones, earthquakes, landslides and droughts affecting millions of people every year. According to UNDDR, in 2015, 54% of the total disaster related deaths occurred in SAARC Member States. The new coronavirus that emerged in 2019, has added to the historical risks that prevail in the SAARC Region, one of the most disaster-prone in the world.

The pandemic is still evolving worldwide, and statistics of COVID-19 infected people and casualties are changing rapidly overtime. As of 10th December 2020, 68,165,877 people have been affected by COVID-19 worldwide. The SAARC region comprises over 23% of the world's population which remains vulnerable towards COVID-19. The SAARC Member States have reported about 11 million cases and a total of 161 thousand deaths in the region. COVID-19 primarily being a health crisis exposed the gaps in public health infrastructure and in basic facilities like sanitation facilities and access to broadband connectivity that sought highest importance during the pandemic.

While COVID-19 is first a health risk, governments measures such as lockdowns, social distancing and travel bans had cascading effects across economic and social dimensions, increasing inequalities and impacting on a range of human rights. Government policies to contain the spread of the virus, such as lockdowns and travel bans, had knock-on effects on economies as reduction in global supply and demand, increased oil prices, disruptions in the supply chains and reduced regional and global transport connectivity caused a global economic recession. In turn, disruptions in the supply chain led to huge economic losses in the commerce, business and enterprise sectors, resulting in increased unemployment, affecting particularly informal sector workers. Collapse of international trade has adversely affected South Asian countries as export orders have been cancelled or suspended for key labor-intensive products such as garments, leather footwear, handicrafts, and shrimp from South Asian countries causing widespread revenue and job losses. Tourism, an important sector in all South Asian economies, particularly for Maldives, has been severely hit destroying the livelihoods of millions dependent on it and related activities. Foreign exchange remittances, which account for over 30% share of GDP of Nepal and have significant shares in Bangladesh, Pakistan, and Sri Lanka could decline by 22% on an average.⁴ A World Bank report, has tried to quantify the impact of school closures in monetary terms. The report says that up to 391 million children have been kept out of schools across the South Asian region leading to a severe learning crisis. Further, it says that 5.5 million children may end up dropping out of schools due to the pandemic. The school shut-down will

⁴ https://www.unescap.org/sites/default/files/South%20Asia%20Covid-19%20Paper_5.pdf

lead to a loss of 0.5 'learning adjusted years of schooling.'⁵ Both the health risks and the economic impacts of the coronavirus are disproportionately affecting population groups with pre-existing vulnerabilities as well as creating new poor and new vulnerabilities.

With no foreseen permanent cure, the risk continues to increase, and there is high uncertainty around the return to business as usual. The approach to socio-economic recovery from COVID-19 must be dynamic and flexible, adapting to the 'new normal', with various sectors deriving resilient approaches for sooner and better recovery.

Objectives

Against this background, the **SDMC (IU), in collaboration with UNDP**, organized a webinar on **"Multi Sectoral Recovery Approaches to Post-COVID-19 and the 'New Normal'"** on the **15th December 2020**. The objective of the webinar was to highlight the challenges faced by different countries and sectors during COVID-19 and discuss multisectoral and resilient recovery approaches to the post-COVID-19, and beyond. In particular, the Webinar aims to:

- i. Highlight the impact of COVID-19 across different sectors including health, education, tourism, industry and commerce, employment and livelihoods, gender, social protection and others, during the pandemic of COVID-19;
- ii. Discuss policies and measures adopted by different countries to respond and adapt to the pandemic scenario;
- iii. Discuss Recovery plans and strategies that are sustainable and resilient to deal with such crisis in the future.

Participants

This webinar engaged Senior Officers from Ministries (especially, health, education, tourism, industry and commerce, employment and livelihoods, gender, social protection) from Member States dealing with Disaster Risk Management, Disaster Response; National Disaster Management Organizations (NDMOs) from all the SAARC Member States.

⁵ <https://bloncampus.thehindubusinessline.com/news-wrap/politeco/the-covid-cost-of-education/article32882193.ece>

Agenda

S.No.	Topic	Time	Resource Person
1.	Inauguration of the Webinar	30 min	SDMC (IU)
	Welcome & Introduction of the Speakers and about the Webinar	10 min	Director, SDMC (IU)
	Introductory Remarks by Member States	16 min (2 min each + 4 min moderation)	Representatives from all the SAARC Member States Afghanistan: Mr. Mohammad Omar Mohammadi Bangladesh: Ms. Momena Khatun Bhutan: Mr. Tashi Dawa India: Mr. Sandeep Poundrik Maldives: Ms. Aminath Shanfa Nepal: Mr. Beda Nidhi Khanal Pakistan: Mr. Niaz Muhammad Khan Sri Lanka: Maj. Gen. Sudantha Ranasinghe
2.	Panel Discussion: Experience of COVID-19 Needs and Recovery Assessments (Experts presentation) 1. COVID -19 Recovery Needs Assessment 2. Post COVID Recovery: A Health perspective 3. Promoting Green recovery	50 min (15 min each)	Mr. Ronald Jackson, UNDP Dr. Maung Maung Than Htike, WHO Dr. Muralee Thummarukudy, UNEP
	Discussion + Q&A	15 min	Moderator – Ms. Rita Missal, UNDP
3.	Experience Sharing and Lessons Learned from Member States: Recovery approaches towards building back better	45 min (5 min each)	Representatives from all the SAARC Member States Afghanistan: Dr. Lais Mustafa, MoPH Bangladesh: Ms. Momena Khatun, Ministry of DM & Relief

			<p>Bhutan: Mr. Tashi Dawa, Ministry of Economic Affairs</p> <p>India: Mr. Sandeep Poundrik, NDMA</p> <p>Maldives: Ms. Aminath Shanfa, NDMA</p> <p>Nepal: Mr. Beda Nidhi Khanal, NDRRMA</p> <p>Pakistan: Mr. Niaz Muhammad Khan, MED</p> <p>Sri Lanka: Ms. Kimarli Fernando, Tourism Development Authority</p>
	Discussion	10 min	Moderator - Director, SDMC (IU)
4.	Wrap up	10 min	Ms. Rita Missal, UNDP

Regional Webinar on Multi Sectoral Recovery Approaches to Post COVID19 and the 'New Normal'

Introductory Session

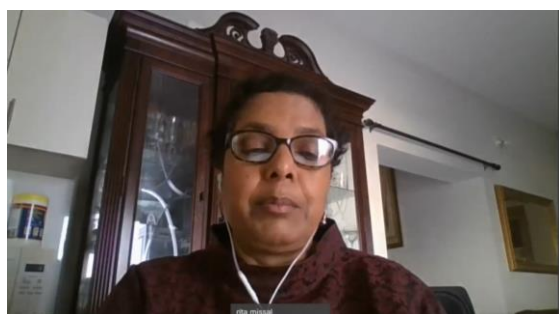
On behalf of the SAARC Disaster Management Centre, Mr. Sumedh Patil welcomed all the participants from respective SAARC Member States for the second webinar conducted by SDMC(IU).



The keynote address was given by Mr. P.K. Taneja, Director, SDMC (IU). He welcomed and introduced all the dignitaries and resource persons.

Representatives from each Member States gave introductory remarks.

The panel discussion was moderated by Ms. Rita Missal, UNDP.



Session 1: COVID -19 Recovery Needs Assessment

Mr. Ronald Jackson, UNDP



Mr. Ronald gave brief idea about the systemic risk and how is it changing the nature of disasters. Given the current global situation, novel coronavirus has added to the existing historical risks in Asia and the Pacific. In 2019, this region witnessed relentless sequence of disasters. The underlying risk drivers have been poverty, gender inequality, marginalization, social-economic & political exclusion, climate change, rapid & unplanned urbanization, unsustainable use of natural resources, etc. COVID 19 with this platform of risk drivers has made nature of risk quite systemic. Risks are not local and unique to exposed element but can cascade to other parts of the 'system'. The cascading effect of COVID19 on the economy have created new poor and new vulnerabilities. He listed 10 lessons learnt from the pandemic:

Lesson 1- Caught Unaware: Countries need to anticipate and plan for pandemics and disasters.

Lesson 2- Health first: A faster and stronger health response is critical to contain pandemics.

Lesson 3- Preventing a Socio-Economic Crisis: Rapid funding is pivotal to protect the most vulnerable.

Lesson 4- Get the Evidence: Data and Assessments must guide recovery.

Lesson 5- Show me the money: Diverse financing arrangements help to sustain long term recovery.

Lesson 6- Be the leader: Dedicated national leadership is essential to achieve effective recovery.

Lesson 7- Stronger together: Engaging local governments and community for inclusive response.

Lesson 8- Build forward: Greener, smarter, better.

Lesson 9- Use the data: Disaster data can help countries deal with changing riskscapes.

Lesson 10- Innovate!

Here he gave example of a feasibility study done by UNDP Bangladesh on Universal Basic Income for COVID 19 recovery. The study showed that income support of US\$29 per month to every household for six months will cost less than 2% of the country's 2019 GDP.

Mr. Ronald highlighted recommendations for COVID19 socio-economic recovery which include international & regional cooperation, governance, social protection, green economy, digital disruption and innovation, and funding to reduce multiple risks.

Session 2: Post COVID Recovery: A Health perspective

Dr. Maung Maung Than Htike, WHO



Dr. Htike highlighted that recovery is the most complex of the disaster management functions. In this pandemic, health and socio-economic sector recovery must happen

together. Emerging lessons being learned from the pandemic are- leadership at all level of governance, risk-informed decision making, whole of society approach, knowledge & innovation, managing the infodemic, core health requirements under IHR, and community engagement. Dr. Hitke recollected the WHO regional priorities related to health emergency and disaster risk management which includes:

- “Scaling up capacity developments in emergency risk management” – one of the eight regional flagship priorities in South-East Asia Region since 2014
- “Delhi Declaration on Emergency Preparedness”, 2019 with four main focus areas: Identify, Invest, Implement, Interlink
- “Member States’ declaration for collective response to COVID19”, 2020

He explained the health risk management framework, for achieving resilience and SDGs, especially focussing on universal health coverage. Framework also highlights that preparedness is the key to achieve resilience. Dr. Htike explained about the Intra-Action Review (IAR) in preparedness and response cycle for qualitative review of actions at national and sub-national levels so that countries do not miss critical opportunities for learning and improvement to better respond to the COVID-19 outbreak. Further he discussed about Health Emergency and Disaster Risk Management Framework, resilient health system, and promoting partnerships & cooperation.

Session 3: Promoting Green recovery

Dr. Muralee Thummarukudy, UNEP



Dr. Muralee discussed that how COVID 19 is a primarily a health crisis but we also know that it's not just the health crisis. It led to lockdowns which led to economic recession and even in countries which did not lockdown. Like every other sector, COVID19 has also affected environmental sector. He discussed about habitat destruction and zoonotic diseases. To prevent future pandemics, better management of environmental resources and biodiversity is required. With such huge number of people affected by the virus, health waste management has been of concern. The waste produced is not only from the patients but also the healthcare workers which includes PPEs. It is estimated that waste of 1kg-3kg is produced per patient per day. In many countries, problem wasn't the existing system to manage waste but these systems got overwhelmed. The need to improve healthcare waste management system, with or without COVID, came as a lesson. Dr. Muralee discussed about the work of UNEP in Afghanistan and India. He also highlighted that not just the healthcare waste management was affected but also general waste management was affected due to multiple reasons. Due to lockdown, there were issues of waste collection- segregation or aggregation of waste from people who were in quarantine or isolation was an issue. At many places such waste was not collected because this was household waste potentially contaminated. The plastic waste management also took a backseat during this crisis. The amount of

plastic waste increased dramatically because of packaged material, packaged food, online shopping. These challenges emerged on environmental sector during the pandemic and are lessons to be learnt for future.

Session 4: Experience Sharing and Lessons Learned from Member States: Recovery approaches towards building back better

Afghanistan

The Member State representative from Ministry of Public Health presented on the statistics of the cases in Afghanistan. Afghanistan formulated new policies post first wave of COVID which were expanded after second wave. Few such policies are strengthening national health system, participation of private sector, introduction of clinical case definition and standard treatment guidelines, strengthening risk communication, home based care, prevention of corruption. Plans were made in line with these policies. Measures were taken accordingly like strategic leadership for controlling COVID19, hospital care, lab expansion, surveillance & contact tracing, risk communication, logistics & operation, and trainings. The trend of COVID19 is still not known thus mid-term and long-term recovery plan is required. The pandemic disturbed other essential services like mother and child care, polio immunization program, etc. but also came as an opportunity to strengthen the system.

Bangladesh

The Member State representative couldn't connect online. Few points from the presentation shared are as follows:

With the outbreak of covid-19 there was precautionary lockdown and Army was

deployed all over the country. Other measures were closer of providing online class facilities, arrange loan facilities for the students to buy smart phone, declare incentive for prime health fighters, cash incentive for temporarily workless people, cash incentive by EFT to avoid middleman, conduct mobile court to ensure social distancing and daily need supply chain uninterrupted.

Bhutan

The Member State representative from Ministry of Economic Affairs highlighted the very controlled number of cases in Bhutan and zero mortality because of good political leadership. All the 438 cases (out of which 404 are recovered) that were in isolation or quarantine, all the associated cost was borne by the State. This was done as per the constitution of Bhutan – to provide free health care services to all its citizen. The socio-economic issue was dealt with by providing minimum daily wages to all people who have been displaced, who lost their small businesses, or businesses that shut down. Infodemic has been avoided through dissemination of right information through regular updates, press releases and briefings by the Prime Minister. All the students in all parts of the country received online education through self-instructional material developed by Ministry of Education. Accelerating investment in manufacturing sector, public infrastructure development work to ensure liquidity in the market, promoting bubble and domestic tourism, are some of the measures taken towards recovery.

India

The Member State representative from NDMA described how phasewise lockdown happened since March 2020 and use of technology –

Aarogya Setu - in contact tracing and alerting people. NDMA developed a DSS platform that was geo-enabled to which all the state authorities and other stakeholders were given access and data was taken from Ministry of Health. This helped in planning actions to respond to COVID19. National Migration Information System (NMIS) was also developed to facilitate coordination between interstate, states and railways for stranded persons. Similarly, he explained about other systems that were developed in response to COVID like COVID-19 Savdhan, psychosocial helpline for COVID-19 people, mobility monitoring, etc.

Maldives

The Member State representative from NDMA shared the previous experience of such health emergency and existing multi-sectoral approach as mentioned in the DM act. Health protection agency from all the stakeholders were operating even before the first case was reported. National Emergency Operation Centre was established and responsibility was given to NDMA, Maldives. The tourism was not allowed with the identification of first case itself, this had negative impact on the income of many people who were dependent on tourism. As a lesson learnt from this pandemic, Maldives need to find other mechanism of ensuring the food security because 90% of food consumed in Maldives is imported; Importance of CSOs and private sector inclusion in emergency management.

Nepal

The Member State representative from NDMA highlighted that Nepal being a land-locked country faced issue of managing migrants as borders were sealed due to lockdown. In four months of lockdown all the sectors including

tourism, education, employment has been affected. Many ministries are planning recovery framework. Food, health and infrastructure systems are in first priority and much is invested in these sectors. Risk mapping and communication is a major lesson, data command centre is necessary to avoid data gaps. Many systems like health and education are based on private sector which are tried to be run on digital facilities. Regulating the private sector has come in as a challenge. Infodemic and economic growth are other challenges.

Pakistan

The Member State representative from Ministry of Industries and Production informed about the National Coordination Committee; and Commands and Operation Centre headed by Ministry of Planning. In terms of relief, Government released Rs. 1.2T worth of package spent through multi-sector to address the challenges. Economic package supported low income families, daily wage workers, agriculture sector, utility stores corporation, accelerated procurement of wheat, SMEs, COVID19 testing was almost free through National Institute of Health. Construction sector was opened first considering the long value chain, then industries were open in phases.

Sri Lanka

The Member State representative from Ministry of Tourism informed that only selected areas identified by Ministry of Health are undergoing lockdown, rest provinces and districts are open. Tourism industry in Sri Lanka has been resilient to past challenges but the COVID situation has been very unique where entire global tourism industry come to a halt. There has been no tourist arrival in Sri

Lanka since March. For recovery in tourism sector, 3 key areas have been identified. First, in short term, survival of industry stakeholders and service providers so that they don't move out otherwise it would be difficult to rebuild capacities to resume tourism. Thus, financial support & relief package was provided to these service providers in form of moratoriums, special loans, financial grants and delaying payments of utility bills. In medium term, contribution and promotion of local tourism for business sustainability was looked into. In long term, changing strategic direction of the industry to be effective under new norm and conditions. Linking digitization and technology with tourism need to be explored. Sustainable tourism; clean, green and responsible tourism; is going to play a major role during and after COVID.


Concluding Remarks

Concluding remarks were given by Ms. Missal and vote of thanks was given by Director SDMC(IU).

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Annexure 3

Webinar Report on Enhancing Preparedness for Climate Related Disasters Using Space-Based Technologies Program Note

Introduction

SDMC (IU) and the United Nations Office for Outer Space Affairs (UNOOSA), through the UN-SPIDER, organised two programmes in 2018 and 2019 for the countries in South Asia. These programmes focussed on the using space-based information for monitoring of Sendai framework and it also explored specific topics such as multi-hazard disaster risk assessment. The programme has been successful in keeping regional level engagement with disaster management community and technical organisations that are provider of space-based information in the SAARC region. These programmes are supported by two important partners: International Water Management Institute (IWMI) and Centre for Space Science and Technology Education for Asia and the Pacific (CSSTEAP). Considering the success of earlier conducted programs, it is planned to maintain continuity during COVID-19 pandemic situation, through virtual mode.

About the proposed Webinar (Training and Simulation exercises)

The workshop is aimed at supporting efforts of the countries in the region to make effective utilization of space-based information for providing early warning and risk information, which also contributes to achieve targets of the Sendai Framework. This joint effort should allow the participants to identify risk areas, access flood and cyclone related early warning information, prepare for the use of emergency response mechanisms like International Charter Space and Major Disasters and Sentinel Asia and prepare the products needed for decision making. These will be tangible outcome of the workshops. The workshop will also allow the participants to share their experiences.

Participants

The webinar engaged senior officers from National Disaster Management Authorities, senior officers dealing with DRM at various levels, agencies dealing with application of Remote Sensing & Geospatial technologies from SAARC Member States.

Organizers

- SAARC Disaster Management Centre (IU); and
- United Nations Office for Outer Space Affairs (UNOOSA), through its United Nations Platform for Space based Information for Disaster Management and Emergency Response (UN-SPIDER)

- International Water Management Institute (IWMI), Sri Lanka and
- Centre for Space Science and Technology Education for Asia and the Pacific (UN affiliated), India

Agenda

S.No.	Technical Sessions	Time	Resource Person
1.	Inauguration of the Webinar	13:30 - 14: 00	SDMC (IU)
	- Welcome & Introduction of the Speakers	<i>05 min</i>	Director, SDMC (IU)
	- Opening remarks	<i>02 min</i>	Dr. Shirish Ravan – Head, UNDRR
		<i>03 min</i>	Dr. Mark Smith - Director Gen., IWMI
		<i>03 min</i>	Dr. Prakash Chauhan – Director, CSSTEAP
	Introductory Remarks by Member States	<i>16 min (2 min each + 4 min moderation)</i>	Representatives from all the SAARC Member States <u>Afghanistan</u> : Md. Omar Mohammadi, DIR, SMDM <u>Bangladesh</u> : Mr. Sanjay Ku. Bhowmik, Joint Secy. MoEFCC <u>Bhutan</u> : Mr. Tayba Buddha Tamang, Chief, NCHM <u>India</u> : Dr. Manoj Rajan, Commissioner, KSDMA <u>Maldives</u> : Ms. Mariyam Shizna, Prog. Coord., NDMA <u>Nepal</u> : Mr. Janakraj Dahal, Joint Secy., MHA <u>Pakistan</u> : Mr. Idrees Mahsud, Member, NDMA <u>Sri Lanka</u> : Maj. Gen. Sudantha Ranasinghe, DMC

2.	Understanding meteorological information for early warning	14:00 – 14:45 <i>(15 min each)</i>	Dr. R. Jenamani, Scientist – IMD, India
	Discussion	<i>15 min</i>	Moderator- Dr. Prakash Chauhan, CSSTEAP
3.	Earth Observation for Risk Analysis and scenario building i. Puzzle ii. Presentation iii. Online browsing of various knowledge products for natural hazards & disaster (NOAA GFS, Himawari, GloFAS, Earth Engine, NASA Worldview, Bhuvan or NDEM, Disaster charter)	14:45 – 15:30	Presenter & Moderator- Dr. Giriraj Amarnath, IWMI
4.	Earth Observation for Emergency Response and scenario building 1. Listing space-based/geospatial information mapping flood risk zones, monitoring flood situations and providing early warning <i>(Participants to put their answers in the chat box)</i> 2. Use Case: Recent floods in Uttarakhand, India - experience of using Earth Observation.	15:30 – 16:00	Moderator- Mr. C.M. Bhatt & Dr. Shirish Ravan (CSSTEAP)
5.	Experience Sharing by SAARC Member States	16:00 – 16:45 <i>(5 min each)</i>	Representatives from all the SAARC Member States <u>Afghanistan</u> : Mr. Abdul Baset Rahmani, Sr. Advisor, SMDM <u>Bangladesh</u> : Md. Mahmud Hossain, Dy. Dir., Dept. of Env. <u>Bhutan</u> : Mr. Tayba Buddha Tamang, Chief, NCHM <u>India</u> : Mr. Raja Chakraborty, Consultant, NDMA

			<p><u>Maldives</u>: -</p> <p><u>Nepal</u>: Mr. Anil Pokheral, Chief Exc. Dir., NDRRMA</p> <p><u>Pakistan</u>: Mr. Muhammad Farooq, Dir. (SACRED), SUPARCO</p> <p><u>Sri Lanka</u>: Mr. K.A.D.P.K. Kodippili, DMC</p> <p>Moderator - Director, SDMC (IU)</p>
6.	Wrap up	16:45 – 17:00	

Regional Workshop on Enhancing Preparedness for Climate Related Disasters Using Space- Based Technologies

Introductory Session

On behalf of the SAARC Disaster Management Centre, Mr. Sumedh Patil welcomed all the participants from respective SAARC Member States for the third webinar conducted by SDMC(IU).



The keynote address was given by Mr. P.K. Taneja, Director, SDMC (IU). He welcomed and introduced all the dignitaries and resource persons.

Opening remarks were given by Dr. Shirish Ravan – Head, UNDRR; Dr. Mark Smith - Director Gen., IWMI; and Dr. Prakash Chauhan – Director, CSSTEAP.



Dr. Shirish Ravan briefed about this third program conducted in collaboration with SDMC(IU). UNSPIDER is working with several countries in the SAARC region by providing technical advisory and services to strengthen

use of space based and geo-spatial information. It has facilitated the access to satellite imagery during emergency. Sri Lanka has already been authorized to activate the international charter which they did during Cyclone Burevi and got all the satellite images. They were assisted by IWMI to monitor the impact.



Dr. Mark Smith acknowledged on behalf of IWMI. He briefly talked about the 2019 policy brief which included possible technologies for vulnerable communities in South Asia towards climate risk. He appreciated the timely step of conducting this workshop in fascinating and crucial area of science and technology.



Dr. Prakash Chauhan emphasized on the role of space technology in early warning systems, DRR, and post disaster recovery. He talked about the issue of climate change and its implications like sea level rise, extreme

weather events, etc. With the use of space technology, scientists can see the big picture.

Representatives from each Member States gave introductory remarks.

Session 1: Understanding meteorological information for early warning

Dr. R. Jenamani, IMD



Dr. Jenamani delivered a session on Application of Space based System in Severe Weather Monitoring and Early Warning. His presentation covered the basics of Remote Sensing and its application to weather related disaster/hazard monitoring, EWS and post disaster recovery. He explained the advancement in obtaining satellite data- from 1960s when data was obtained from NOAA and now countries have their own satellites with range of receiving data in minutes.

Further he explained in detailed tracking of clouds in satellite imagery to predict the weather and watching for dust storms, smog, pollutions, forest/oil fires, volcano eruption, etc. He browsed through the RAPID application, a web-based quick visualization and analysis tool for INSAT satellite data for identification of weather events. He discussed the case of thunder-lightning event in June over Bihar and East Uttar Pradesh, States of India, that caused around 89 lives lost – analysis of satellite imagery. He further explained the examples of extreme events –

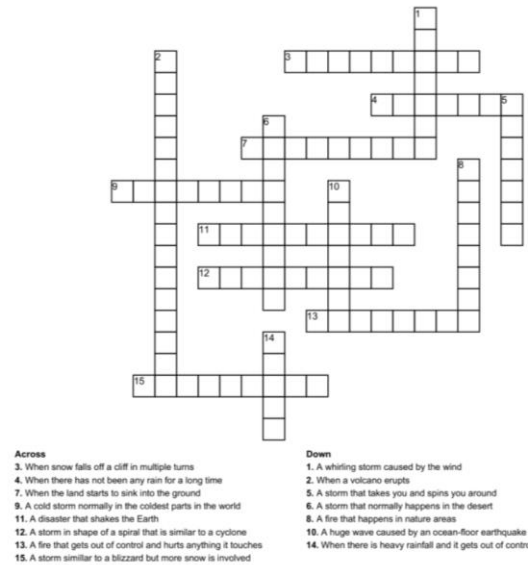
heavy rainfall, tropical cyclone, dust plume, smog/pollution, their analysis and impacts.

Session 2: Earth Observation for Risk Analysis and scenario building

Dr. Giriraj Amarnath, IWMI



The session started by engaging participants in a puzzle on natural hazard terminology.



Dr. Giriraj further presented on earth observation data for risk analysis. He presented IWMI's strategy and programmes that promote resilience among farmer communities, which are largely affected by the extreme weather events happening in the region. Technologies are playing a big role and supporting governments proactively in risk management strategies. He explained the iterative approach of disaster risk continuum

wherein DRM is a continuous process over time and the frameworks can't exist in different compartments of preparedness, response, recovery, etc. All the pillars should be well-connected supported by scientific knowledge. With the help of satellite based observation, hazards can be identified, levels of exposure and vulnerability can be assessed to take timely decisions. With this sustainable climate investment can be promoted and infrastructure can be planned in better way to reduce risk in the future. He explained the application of space technology in all the four phases of DRM. He showed some examples of - Mapping water-related disaster risk, climate screening products for investing in disaster resilience, hydro-met optimization tool, use of data during cyclone Amphan - overlay of cyclone-flood hazard with covid19 cases and crops likely to be harvested, and evolution of flood risk resources and technology from paper to digital mapping. He also discussed on how next generation flood risk technologies would look like. It would be AI based prediction system. He explained in detail about the climate insurance and how it helps in enhancing resilience - Index Based Flood Insurance.

He browsed through some of the online knowledge products related to natural hazards and disaster datasets and observations like NOAA, Worldview, Global Flood Awareness System, Meteorological Satellite Centre, GEE, and Committee on Earth Observation Satellites.

Session 3: Earth Observation for Emergency Response and scenario building

Mr. C.M. Bhatt, IIRS

Mr. Bhatt explained the targets and priorities of SFDRR, Mr. Bhatt focussed on Priority 1 i.e.

Understanding Disaster Risk, where space based technology has an important role to play. Post declaration of global frameworks, trends in satellite data availability from different sensors is becoming freely available to public, showing potential it has. He listed some of the recent advancements like new geospatial policy, cloud computing, AI-ML, drones, analysis ready products, and the online resources that just require bandwidth internet to run operations.

He further presented on the case study of the recent Uttarakhand flood - Rishi Ganga Valley flash fool, Chamoli.



The cause behind the disaster was studied as an ice mask sliding causing avalanche/landslide in the rishi ganga valley and flooding the stream and river below. It damaged various hydel projects downstream and even created a lake in a tributary. The area was monitored and observed from the space data. This has been a classic example where satellite data/images have been able to give first opinion after the disaster happened. Because being a difficult terrain people were not knowing exactly where and why this happened. He showed before, during and after-event satellite images (SENTINAL, CARTOSAT, IRS) which clearly interpreted the cause of the floods. The satellite imagery of such type of events are of great help to the government to identify the area and exact damage. In this case, the satellite images were very rightfully used and was able to subside the confusion within the public.

He explained about the 'international charter' which has 61 contributing satellite, continuously providing data in different resolutions, helping to respond in a faster manner.

Session 4: Experience Sharing by Member States:

Afghanistan

The Member State representative from Office of State Minister of Disaster Management presented about the utilities and application of space based technology in Afghanistan. He briefed about the climate related hazards in the country like intensive precipitation and flash floods. The govt. of Afghanistan in collaboration with international partners has sufficiently improved the Afghanistan Natural Hazards Data Centre in terms of DRM. One of the systems established in the country is the Remote Assessment System which can be used by all stakeholders in DRM. The objective for the future is to develop for real time disaster management.

Bangladesh

The Member State representative from the Dept. of Environment gave the background of climate vulnerability of Bangladesh with the risk of sea level rise and displacement of people in coastal areas. He mentioned about the major initiatives taken by Govt. of Bangladesh in form of policy response like NDMP, Standing Orders, BCCSAP, BCCTF, NAP, etc. and actions/initiatives like institutionalization & establishment of EWS, training climate vulnerable women, cyclone & flood shelter, etc. Use of technologies to enhance preparedness – Bangladesh launched its first satellite in 2018, established Flood Forecasting & Warning Centre, Real-time

Digital Weather Information through mobile app, etc.

Bhutan

The Member State representative from National Center for Hydrology and Meteorology presented on hydro-meteorological related disasters and services in Bhutan. He gave an overview of different disaster types in Bhutan like land degradation, GLOF, flash floods, wind/thunder/hail storms, droughts, forest fire, etc. He explained the rainfall pattern raising concerns for landslides in particular months, 70% of the settlements are located along the drainage basins vulnerable to floods, various events of GLOF impact downstream, and many other significant hydro-met events. He presented the case of recent GLOF events and the rapid assessment study. Hydro-met services provided include weather services, aviation-met services, climate services historical hydrological data services, EWS, monitoring & modelling services.

India

The Member State representative from NDMA presented on experience in use of geospatial technology. NDMA has developed a GIS system which collects data from the States based on which a decision support system is being developed. He discussed about the national initiatives like India Disaster Resource Network (IDRN), GIS in DM, GIS portal of NDMA. He explained the working of IDRN which is initiated by MHA in collaboration with UNDP; BHUVAN which is single largest web GIS portal for free data and services over India; multi-layered GIS platform by NDMA & NIC; web based composite risk atlas (WEBCRA); geo-enabled messaging platform; National Database for Emergency

Management (NDEM) & its use in recent Uttarakhand floods; and integrated analytical tools.

Maldives

The Member State representative couldn't present due to technical issue.

Nepal

The Member State representative from NDRRMA shared the experience of Nepal on the subject. The National Disaster Risk Reduction and Management Authority (NDRRMA) is relatively newer agency mapped within MHA. It is currently working on the five priorities; first one being risk assessment and setting up of a national disaster risk assessment portal. The agency is also working on hazard assessment with other departments that can convert the assessments into risk information that's accessible down to municipal level. The risk information helps build capacity of the local government and make informed decisions. COVID portal has been developed wherein near real time data is reported. The second priority is on early warning system – impact based early warning system that includes not only communication but also capacity building, landslide EWS. The third area is reconstruction and the recovery works. Fourth area is effectiveness in the response system, support has been received by UNSPIDER in terms of training users on using satellite-based system. The last area is disaster risk financing. He highlighted the need for similar capacity building programs and exchange of knowledge within the region.

Pakistan

The Member State representative from SUPARCO briefed that SUPARCO is the key partner of the NDMA and provide space based

support during the natural hazards particularly flood, earthquake, drought and landslide, and also increasing GLOF phenomenon. The SUPARCO was established as a dedicated centre post experience of two major events of 2005 earthquake and 2010 floods. It utilizes the country's own satellites and partner satellites for response during such events. NDMA is currently undertaking the multi hazard, vulnerability and risk assessment studies and primarily for climate induced disasters. He presented a platform called Disaster Watch with various map layers for different types of events. SUPARCO has also developed recommended practices, for the UNSPIDER program, on flood hazard assessment, flood mapping and damage assessment using SENTINAL 2 optical data, and the third one is in the pipeline on drought monitoring.

Sri Lanka

The Member State representative from DMC couldn't present due to technical issue.


















Concluding Remarks

Concluding remarks were given by Mr. Sumedh Patil and program ended with a vote of thanks.

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