INTERNATIONAL WORKSHOP ON ROLE OF WORLD NATURAL HERITAGE SITES IN DISASTER RISK REDUCTION

(24th-28th August, Dehradun India)

PROCEEDINGS

UNESCO CATEGORY 2 CENTRE FOR
WORLD NATURAL HERITAGE MANAGEMENT AND TRAINING FOR
THE ASIA-PACIFIC REGION

भारतीय वन्यजीव संस्थान
Wildlife Institute of India

United Nations
Educational, Scientific and
Cultural Organization

World
Heritage
Convention

UNESCO Category 2 Centre
World Natural Heritage Management and
Training for Asia and the Pacific Region

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DRR-C2C TEAM

UNESCO C2C

Wildlife Institute of India

Dehradun

Ministry of Environment, Forest and Climate Change

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EXECUTIVE SUMMARY

INTERNATIONAL WORKSHOP AND TRAINING ON THE ROLE OF NATURAL WORLD HERITAGE SITES IN DISASTER RISK REDUCTION (24-28 August 2015)

World Heritage properties, are exposed to natural (flood, drought, earthquake, tsunami etc.) and man-made (forest fires, armed conflicts, industrial accidents, mass refugee movements etc.) disasters which threaten their integrity and may compromise their natural values. Apart from having potential ecological effects, the loss or deterioration of Outstanding Universal Values (OUVs) for which the sites were inscribed on the World Heritage List would have negative socio-cultural and economic impacts. World Heritage properties currently do not have any established policy, plan or process for managing, i.e. reducing, risks associated with potential disasters. At the same time, existing national and local disaster preparedness and response mechanisms usually do not include heritage expertise in their operations.

The revised Strategy for Risk Reduction at World Heritage Properties as formulated in 2007, The UN-Hyogo Framework for Action Priority 4 and the UN World Conference WCDRR in Sendai, Japan recognise the role of Protected Areas as an instrument for ecosystem-based adaptation to Disaster Risk Reduction (DRR). Natural World Heritage Sites exemplify this role by adding the dimension of traditional values, ecosystem integrity, and hence contribute immensely to this strategy.

In furtherance of the above theme, an intensive workshop and training programme was organised from 24th - 28th August at the UNESCO C2C on World Natural Heritage Management and Training for Asia and the Pacific Region, Dehradun, India (website:http://www.wii.gov.in/unesco_category2_centre) . The overall objective of the workshop was to strengthen and build capacity of key stakeholders associated with World Natural Heritage Sites in the Asia- Pacific Region.

The workshop was attended by over 150 participants from 10 countries (Nepal, India, Bhutan, Thailand, Myanmar, Malaysia, Myanmar, Sri Lanka, Vietnam and Indonesia). Over 25 World Heritage sites were represented by site managers, scientists, NGO representatives, students and researchers.

The Chief Guests for the workshop and training were Shri Kamal Kishore, Member, National Disaster Management Authority (NDMA), Govt of India and Shri S.S Garbyal, Former Director General, Forests & Special Secretary, MoEFCC, Govt of India respectively. The team of eminent speakers included more than 30 resource persons from UNESCO (South Asia, Paris and Kathmandu offices), NDMA, FAO, UN-SPIDER, UNISDR, IUCN, Tata Institute of Social Sciences-Jamsetdji Tata centre for Disaster Management, King's College London, Indian National Trust for Art and Cultural Heritage and Indian Institute of Remote Sensing etc.

The first two days of the workshop saw brainstorming sessions on varied topics such as understanding and identification of disaster risk, strengthening disaster risk governance, investing in disaster risk reduction for resilience, enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction. The remaining two days were devoted to exclusive training for site managers (National and International) from the Asia- Pacific region on specific topics such as linking DRR to Climate Change, space technology for hazard zonation and understanding armed conflict in World Heritage. Site visits to local cultural and natural heritage in Dehradun and interactive group activities and games were the highlight of these training sessions. The fifth day of the training was devoted to a site visit to Taj Mahal, Agra (Cultural World Heritage) and Keoladeo National Park (Natural World Heritage) at Bharatpur, Rajasthan.

The major outcome of the workshop and training has been a more sensitised team of site managers, policy makers and practitioners who now recognise the need to integrate and understand the two way linkage between DRR and natural heritage. A comprehensive network of site managers and documentation has been compiled which shall guide further studies and capacity building initiatives of the UNESCO C2C in the Asia-Pacific region.

Introduction and Objectives

Introduction

World Heritage properties, are exposed to Natural (flood, drought, earthquake, Tsunami etc.) and Man-made (forest fires, armed conflicts, industrial accidents, mass refugee movements etc.) disasters which threaten their integrity and may compromise their natural values.

Apart from having potential ecological effects, the loss or deterioration of outstanding values for which the sites were inscribed on the World Heritage List would have negative socio-cultural and economic impacts. World Heritage properties do not have any established policy, plan or process for managing, i.e. reducing, risks associated with potential disasters. Moreover, existing national and local disaster preparedness and response mechanisms usually do not include heritage expertise in their operations. As a result, hundreds of sites are virtually defenceless with respect to potential disasters, and communities worldwide are not exploiting the full potential of their heritage, both tangible and intangible, that have maintained it over the centuries, and therefore, essential towards prevention and mitigation of disasters.

The revised Strategy for Risk Reduction at World Heritage Properties as formulated in 2007, The UN-Hyogo Framework for Action Priority 4 and the proposed UN World Conference WCDRR in Sendai, Japan in March 2015 recognise the role of Protected Areas as an instrument for ecosystem-based adaptation to Disasters and Climate Change. Natural World Heritage Sites exemplify this role by adding the dimension of traditional values, ecosystem integrity, and hence contribute immensely to this strategy.

There are 59 Natural and 11 mixed World Heritage Sites in the Asia-Pacific. The proposed thematic training and workshop is intended to provide a platform to site managers and multi-disciplinary experts for training and work out on a possible action plan for Disaster preparedness through the medium of World Heritage Sites in the Asia-Pacific Region.

The training for on-site managers will be conducted from 24th to 26th August and shall be followed by a two day workshop and brainstorming session on 27th and 28th August 2015. The Training and workshop will be conducted and hosted at the UNESCO C2C on Natural World Heritage Sites for the Asia-Pacific, Dehradun India. This is a newly established centre at Wildlife Institute of India (WII), a premier National Institute for research and training on wildlife conservation in the Indian subcontinent.

Main Objectives:

- **To identify and assess Natural and man-made disaster risks at World Heritage properties in the Asia-Pacific Region,**
- **To raise awareness about the need to integrate special concern for Natural and Mixed World Heritage properties into national disaster reduction policies and develop an Action plan for Disaster Risk Reduction in World Heritage Management plans;**
- **Carry out training for managers of natural and mixed World Heritage properties in disaster Risk Reduction and adaptation strategies.**

Work Plan

The Workshop objectives were deliberated over a 5-day workshop programme for which the details are as follows:

1: **Day One**: Overview and introduction to the DRR concept along with brainstorming sessions to identify and asses Natural and Man-mad disaster risks to World Heritage. (mode of discussion : Plenary and oral presentations)

2. **Day Two**: Group exercise continued to assess the World Heritage Sites and planning a road map ahead for future collaborative projects including developing a DRR toolkit for Natural Heritage.

3**. Day Three to Day Five** : Training of World Natural Heritage Site managers / other stakeholders on various topics of DRR and its sub themes. These sessions may include topics such as disaster risk preparedness, Post-disaster environmental and social assessment, Environmental cooperation for peace building, mainstreaming Eco-DRR in national development planning, community-based DRR, mainstreaming gender in Eco-DRR, Integrated land-use planning and Eco-DRR and Assessing the economics of Eco-DRR.



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INTERNATIONAL WORKSHOP ON THE ROLE OF WORLD NATURAL HERITAGE SITES (WHS) IN DISASTER RISK REDUCTION (DRR), 24-25 AUGUST, 2015

PROGRAMME **Monday, 24th August 2015**	
0900 – 1000 h	**Registration (Auditorium)**
INAUGURAL SESSION	
1000 – 1005 h	Welcome: Dr. Sonali Ghosh, Scientist F, WII-C2C
1005 – 1015 h	Opening Remarks:Dr. V.B. Mathur, Director, WII
1015-1020 h	Keynote Address: Dr Ram Boojh, UNESCO-India
1020-1035 h	Address by Chief Guest: Shri Kamal Kishore, Member NDMA
1035-1040 h	Vote of Thanks: Mr Niraj Kakati, Technical Officer, WII-C2C
1045 –1115 h	**Group Photograph and High Tea (Auditorium)**
TECHNICAL SESSION – I	
1115-12.30 h	**Defining and identification of Disasters in WHS of Asia-Pacific region**
Chair:	Dr Janki Andharia, Professor, JTCDM-Tata Institute of Social Sciences, Mumbai
Co-Chair(s):	Dr. Thomas Chandy, Principal Secretary Forests & PCCF, Govt of Sikkim Dr. P.K.Mathur, Dean, FWS,WII
Lead Panelists	Dr. Shirish A. Ravan, UN-SPIDER Mr. Ashwin Bhouraskar, FAO
Rapporteurs:	*Mr Chitiz, Ms. Rupa*
TECHNICAL SESSION – II (a) Strategies for risk reduction and role of WHS	
1230-1400 h	**Screening of documentaries on Natural Heritage and Disaster Risk Reduction (Auditorium) -** Facilitated by Dr. Malvika Onial, Scientist E, WII-C2C
PARALLEL STAKEHOLDER CONSULTATION SESSION – II (b)	
1230- 1400 h	**FAO-Manas Biosphere Reserve Project** (**Venue: Board Room**) Lead speaker: Mr Ashwin Bhouraskar, FAO
Chair :	Dr. S.S. Negi, Director General of Forests & Special Secretary to Government of India, Ministry of Environment, Forest and Climate Change, New Delhi

Co-Chair :	Dr A.K. Roy, Principal Secretary, Bodoland Territorial Council, Govt. Of Assam Dr. S.P. Singh, DDG ICFRE
Rapporteurs:	*Ms. Persis, Ms Rupa*
1400-1500 h	**Lunch (Auditorium)**
TECHNICAL SESSION – III	
1500-1700h	**DRR in World Natural Heritage Sites in Asia and the Pacific Region: Sharing experiences and best practices**
Chair:	Dr. Shirish Ravan, UN-SPIDER, Beijing
Co-Chair(s):	Dr. N.M. Ishwar, IUCN, New Delhi Dr. A.K. Bhardwaj, Scientist G, WII
Lead Panelists:	Ms. Laura Heiskanen, UNESCO-Nepal Dr. Sarnam Singh, Head, Forestry & Ecology Department, IIRS Mr Jair Torres, UNESCO Focal Point PEDRR
Rapporteurs:	*Mr. Anukul, Mr. Dhruv*
1900–2000 h	**Cultural Programme (Auditorium)**
2000-2100 h	**Dinner (Auditorium)**
Tuesday, 25th August 2015:	
TECHNICAL SESSION – IV	
0930-1100 h	**Linking Ecosystem Services, DRR and World Heritage- from an evaluative perspective**
Chair:	Mr Jair Torres, UNESCO Focal Point PEDRR
Co-Chair(s):	Dr. P.N.Prasad, PCCF(Wildlife), Govt of Manipur Dr Asha Rajvanshi, Scientist G, WII
Lead Panelists:	Mr Ashwin Bhouraskar, FAO Ms. Margherita Fanchiotti, UNESCO-Paris
Rapporteurs:	*Mr Chitiz, Ms Jyoti*
1100-1115 h:	**Tea Break (Auditorium)**
TECHNICAL SESSION – V	
1115-1330 h:	**Man-made disasters, resource conflict and trans-boundary management of WHS**
Chair:	Mr. O.P. Pandey, PCCF (Wildlife), Govt of Assam
Co-Chair(s):	Dr Ram Boojh, UNESCO-India Dr. G.S.Rawat, Scientist-G, WII
Lead panelists:	Dr Richard Milburn, King's College, London Dr Janki Andharia, JTCDM-TISS, Mumbai Dr Lokesh Ohri, REACH-INTACH Dr. Rahimatsah Amat IUCN TBPA Specialist Group, Malaysia

Rapporteurs:	*Ms. Persis, Ms Rupa*
1330 – 1430 h:	**Lunch (Auditorium)**
TECHNICAL SESSION – VI	
1430-1630 h	**Assessment of DRR IN WHS of the Asia-Pacific Region and developing an ecosystem-based DRR toolkit (interactive session with site managers)**
Chair:	Mr. P.C. Tyagi, Scientist G, WII
Co-Chair(s):	Dr. Amit Mallick, Field Director, Periyar Tiger Reserve
Lead Panelists:	Dr. D.V.S. Khati, Chief Wildlife Warden, Govt of Uttrakhand Mr Jair Torres, UNESCO-Paris, Dr. Janki Andharia, JTCDM-TISS, Mumbai Ms Margherita Fanchiotti, UNESCO-Paris
Rapporteurs:	*Mr Anukul, Mr. Dhruv*
1630-1700 h:	**Tea Break (Auditorium)**
1700-1730 h :	**CONCLUDING SESSION** **Chief Guest:** Dr. R.B.S. Rawat, Former PCCF, Govt of Uttarakhand
1700-1710 h :	Update on Action: Dr. Sonali Ghosh, Scientist F, WII-C2C
1710-1725 h :	Address by Chief Guest: Dr. R.B.S. Rawat
1725-1730 h :	Vote of Thanks: Mr Niraj Kakati, Technical Officer, WII-C2C

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INTERNATIONAL TRAINING ON THE ROLE OF WORLD NATURAL HERITAGE SITES IN DISASTER RISK REDUCTION (DRR), 26-28 August, 2015

PROGRAMME SCHEDULE 26th August, 2015 (Wednesday)	
0600-0730 h	**Cultural Heritage Walk in collaboration with INTACH-Dehradun -** Facilitated by Dr. Lokesh Ohri, INTACH, Dehradun Chapter
0900- 0915 h	**Inaugural Session:** Guest of Honour: Dr. S. S. Garbyal, Former Director General, Forests & Special Secretary, MoEFCC, Govt of India
0915- 1000h	**Conserving Natural Heritage in the Asia-Pacific Region** Dr V.B.Mathur, Director Wild Life Institute of India
1000-1100h	**Understanding the Sendai Framework for Disaster Risk Reduction 2015-2030 -from a risk reduction to world heritage perspective** Mr.Sujit Mohanty, Regional Programme Officer, UNISDR
1100-1200h	**Linking Biodiversity, Ecosystems, Protected Areas, DRR and Climate Change adaptation** Mr Jair Torres, UNESCO focal point for PEDRR
1200-1300h	**Remote Sensing and GIS for natural hazard assessment and DRR** Dr Sameer Saran, Head Geo-informatics Division, Indian Institute of Remote Sensing
1300-1400h	Lunch at Green Lounge
1400-1500h	**DRR and ICT initiatives.** Dr. Piyoosh Rautela, Executive Director Uttrakhand Mitigation and Management Centre
1500-1600h	**Linking DRR with socio-economic vulnerability/development** Dr. Janaki Andharia, Professor, Tata Institute of Social Sciences, Mumbai
1600-1800h	**Visit to Indian Institute of Remote Sensing**

Evening	Interaction of mentors and site managers (in groups)
27th August, 2015 (Thursday)	
0630-0730h	**Nature Walk at Forest Research Institute**
0900- 1000h	**Communicating Disasters: DRR, Media & World Natural Heritage Sites** Ms. Prerna Bindra, Trustee, BAGH
1000-1100h	**Armed conflict in World Natural Heritage Sites and Peace-building for DRR.** Dr Richard Milburn, King's College London
1115-1330h	**Site manager presentations** with feedback from mentors (
1330-1400h	**Feedback and Valediction:** Guest of Honour, Dr. P.K.Mathur, Dean FWS
1400-1500h	Lunch at Green Lounge
1530-2230	Departure by Institute Bus and overnight stay at National Institute of Public Finance and Policy, 18/2, Satsang Vihar Marg, Special Institutional Area (Near JNU), New Delhi 110067 (http://www.nipfp.org.in/home-page/)
Day Five: 28 August, 2015 (AT DELHI)	
06:30 -22:00.	**Field Visit to Cultural WHS (Taj Mahal , Keoladeo World Heritage Sites) ,** Departure of Participants from Delhi (0630), Departure from Agra (1700)

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Workshop Proceedings

INAUGURAL SESSION

Chief Guest: Mr. Kamal Kishore, Member NDMA Govt of India

Guest of Honour: Dr Ram Boojh, UNESCO South-Asia office

Panel member: Dr. V.B.Mathur, Director Wildlife Institute of India

Rapporteurs: Ms. Sharmishtha Singh, Ms. Jyoti Negi

1- SESSION OVERVIEW

World Heritage properties, are exposed to Natural (flood, drought, earthquake, Tsunami etc.) and Man-made (forest fires, armed conflicts, industrial accidents, mass refugee movements etc.) disasters which threaten their integrity and may compromise their natural values. Apart from having potential ecological effects, the loss or deterioration of outstanding values for which the sites were inscribed on the World Heritage List would have negative socio-cultural and economic impacts.

The Inaugural session is aimed at giving a head start to the idea of linking natural World Heritage Sites to Disaster Risk reduction and Adaptation. Shri Kamal Kishore gave an overview of the global and national scenarios and emphasised the need to highlight the idea of Eco-DRR into our national strategies. Dr. V.B.Mathur from WII highlighted the role of Natural world heritage and the C2C. Dr Ram Boojh cited case studies that were relevant to Natural world heritage and DRR adaptations.

2- RATIONALE

World Heritage properties do not have any established policy, plan or process for managing, i.e. reducing, risks associated with potential disasters. Moreover, existing national and local disaster preparedness and response mechanisms usually do not include heritage expertise in their operations. Keeping this in mind, a workshop for sensitising the Natural world heritage site managers is being organised for the first time in the Asia-Pacific region.

3- OBJECTIVE

To sensitise Natural world heritage site managers and other stakeholders on the role of Disaster Risk Reduction and mitigation.

4- EXPECTED OUTCOME

Initiate brainstorming sessions and dialogue on the two-way linkages between DRR and natural World heritage. Build partnerships and networks for future works in this field.

5- DETAILED PANEL INPUTS

In his inaugural address**,** Dr V.B.Mathur welcomed all participants and informed the gathering about the shift in policies of various countries including India towards from Disaster Reduction to Disaster Risk Reduction. He highlighted the various action points of the Sendai Framework for Action and highlighted those that were of relevance to Natural world heritage sites. . He also informed the house about the recent initiatives at Govt of India level where WII is likely to be involved in a project to study the role of animals in sensing and predicting earthquakes.

Dr Ram Boojh, congratulated WII and C2C to organise a very timely workshop which he believed could be a trendsetter for linking DRR and WHS. He reiterated the interest of UNESCO to address DRR as part of its global strategy and gave examples from best practises adopted in Maldives for addressing the same. The Ba Atoll Biosphere Reserve in Maldives has especially designated and managed to address the needs of climate change mitigation and adaptation. The country is also working on a detailed framework to declare the entire island nation as a Biosphere Reserve so as to minimise the impact of natural disaster related tragedies. DRR could be integrated into the overall concept and management of Biosphere Reserves, GeoParks and world heritage sites especially in the Asia-Pacific region. The way forward to achieve this would be to invest in robust science and creating an evidence base besides ensuring capacity building and DRR preparedness of site managers, local communities and other stakeholders through novel and innovative approaches. He also mentioned about the UN-Sustainable Develeopment Goals which are likely to come up for adoption in Sept, 2015 where DRR strategy has been recognised as one of the achievable goals.

Mr Kamal Kishore, in his detailed keynote address helped to set contact and direction the workshop. He divided his talk into three broad thematic areas; a) the global scenario b) the trends in India and the role of NDMA c) what we as an audience could do to contribute.

Globally today, the subject of DRR has come of age, although it was started way back in 1994 in Yokohama, Japan and was primarily driven by the engineers. In 2015, with the Sendai conference it came in as a full circle as emphasis was now laid on 4 major points related to Disaster Risk reduction and preparedness which were to; Understand risk, Improve governance of risk , increased resilience and Improve systems for response. The Sendai Framework for Action has 7 Global Targets out of which 4 are outcome oriented while 3 are capacity oriented for the local communities for preparedness. One key trend has been to save lives and reducing the impact on number of people getting affected and that is a challenge that one must address while designing policies and management options. One must also go beyond saving lives to saving livelihoods as this would be a key in coming years, especially with better information and technology for designing early warning systems.

In his second part of the talk he gave an overview of the current scenario in India where a big progress has been made saving people's lives. He cited the example of Cyclone Phailin in 2013 where the mortality had been reduced by 5-6% as compared the cyclone in 1999 in the same area. In India, DRR is required by law and almost all states in India now have a State Disaster Management Authority and district level disaster management plans. While these plans may have a varying quality in terms of content and plans for actual implementation on the ground, but that documentation is now available at a macro level must be recognised and supported for future improvement and implementation. We need to also go further deeper and implement these plans at even smaller levels such as village panchayats and may be even link these other schemes such as Aadhar to maximise the benefits to the effected community and individuals.

He stressed that currently 60-70% of our work and efforts are on disaster response and not disaster reduction and this is what needs to be addressed by novel approaches such as linking Natural World Heritage and protected areas to DRR. It was indeed heartening to learn that now there is an audience that has embraced this idea and have initiated this workshop to discuss and deliberate on this further.

In the final part of his address he shared his aspirations for the audience and what he desired could be deliberated in the coming days of the workshop. First of all , he requested that one must explore the topic of DRR and WHS conceptually and in both ways, i.e., what the role of World Heritage sites could be in reducing Disaster risk and vice versa. In this regard, he gave the example of Thailand floods of 2011 where the entire automobile industry of 30 years was wiped out in one year as the factory was set up on reclaimed land that was lowland with past history of floods and inundation. He also emphasised that recent events such as the Nepal earthquake must be revisited and studied to assess our response and recovery plans. Were there any world heritage sites impacted and what has been done for recovery? There is a need to link our country and state level plans to climate action plans and there is a need to integrate the two at the implementation level. There is also a need to quantify the risks for example the risk based quantification of natural world heritage sites and what were the benefits that accrued from preserving such sites. Lastly, he stated that one can benefit by working towards to work towards arriving at some practical guidelines and points about what actually can be done on the ground, He reassured support from NDMA in all aspects of technical, advocacy and coordination as and required with other departments for promoting the idea of DRR and natural world heritage.

Session I : Defining and identification of Disasters in World Heritage Sites of the Asia-Pacific Region

Chair: **Dr. Janki Andharia, Professor, JTCDM-Tata Institute of Social Sciences, Mumbai**

Co-Chair(s): **Dr. Thomas Chandy, Principal Secretary Forests & PCCF, Govt of Sikkim**

Dr. P.K.Mathur, Dean, Faculty of Wildlife Sciences, Wildlife Institute of India

Lead Panelists: **Dr. Shirish A. Ravan, UN-SPIDER, Beijing office**

Mr. Ashwin Bhouraskar, FAO, Rome office

Rapporteurs: **Mr Chitiz Joshi, Ms. Rupa Bhardwaj**

1.0 SESSION OVERVIEW

The Sendai Framework for Disaster Risk Reduction: 2015-2030 (SFDRR) has set a reference point from which direction could be taken for identifying and assessing the disasters that are likely to impact World Heritage. However it was also required that they be revisited and reiterated for this workshop. In this session the speakers gave an overview of the identified disasters and discussed on the ways to address the same.

RATIONALE

The two way linkage between DRR and WHS must be identified and for this, the type of disasters that are likely to effect natural world heritage sites must be clearly elaborated. The disaster risk reduction and preparedness against each of the identified disasters can then be identified.

2.0 OBJECTIVE

- Outline the disaster risk and articulate focused discussion on addressing the major issues that are likely to impact Natural World Heritage Sites.

3.0 EXPECTED OUTCOME:

This session will inform the audience on the nature and type of disasters through case studies and examples and initiate a thought process towards addressing these.

4.0 DETAILED PANEL INPUTS

The chair of session Dr. Janki Andharia from Tata Institute of Social Sciences, Mumbai set the scene of the session with her opening remarks on the need of disaster management in present era to protect natural heritage sites of the world. She gave a concise introduction on hazards, risk, disasters and role of ecosystems in preventing these happenings. Ms. Andharia emphasised upon role of science and technology & policies in disaster risk reduction.

Dr. Shirish Ravan, the lead panelist for this session gave an overview on Earth observation and how it has been used to assess ecological health. Dr. Ravan described the role of Earth observation in the monitoring and conservation of world heritage sites. He also described the role of scientific organizations like UN-SPIDER, UNISDR and others in the disaster risk reduction. To give a short overview on existing framework, he discussed about the major outcomes conferences like UN World Conference on Disaster Reduction (WCDR) (2005) and Sendai declaration (2015). Hyogo framework was more on making policy for DRR while Sendai framework mostly focused on action for DRR. Sendai framework 2015-2030 encourages the strengthening of baseline information and periodically assess disaster risks, vulnerability, capacity, exposure, hazard characteristics and their possible sequential effects at the relevant social and spatial scale on ecosystems in line with national circumstances. Furthermore it strengthens the sustainable use and management of ecosystems and implement integrated environmental and natural resource management approaches that incorporate disaster risk reduction under Sendai framework. Dr. Ravan insisted that the natural hazard like floods, drought and landslides can be prevented through robust ecosystem as it helps in building disaster resilience. He gave an idea on ecosystem health and its indicators like composition, extent, distributions and viability. He explains the importance of linking of Ecosystem based DRR and ecosystem based adaptation. Dr. Ravan also portrayed the role of space and geospatial technology which plays an important role in disaster risk reduction in context of World Heritage Sites. By sighting an example of forest mapping, habitat suitability and also discuss global issues such as global warming and carbon flux related to global issues such as deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks he described the application of geospatial technology in

conservation of natural heritage sites. Dr. Ravan also addressed how Geographical entity and remote sensing brings real time information, localised event detection and spatially extensive mapping of inaccessible sites. Furthermore, Dr. Ravan put weight on the significance of healthy and balanced ecosystem role in preventing disasters and its mitigation importance as well. In relation to this, he explained Ecosystem based adaptation approach which includes actions like sustainable development, eco-sensitive zone mapping, protected area management and community participation.

Mr. Ashwin Bhouraskar, the other lead panelist spoke on the importance of sharing information among institutes and site managers, stakeholders and scientist to address the issue of disaster management. He raised some important points on the policies and practises that are currently followed by the participants (site-managers) to reduce disaster risk; and the need to assess the efficacy on the ground. He also linked climate change effects with distribution of flora-fauna, community composition and associated indicators in the WHS. Mr. Bhouraskar particularly focused on the issue of bringing down the information from Institutes & agencies (such as UN SPIDERS) to site level managers. There is a gap among institutions and site-level managers which delays the whole process of knowledge/information sharing during crisis.

Subsequent to the panel presentations, a discussion was held in which Dr. P.K. Mathur shared his observations with the participants and insisted that all the process in ecosystem are correlated. He explained the importance of protected areas in the development of forest and agriculture industry. Dr. Thomas Chandy, gave an example of Glacial lake outburst flood in Khangchendzonga National park and explained how the livelihoods of the people that were dependent on national park was also affected. He also reiterated for the need to move from reducing people's mortality to people's livelihoods. He also raised some concerned on unsustainable/unplanned development around the WHS & PAs. Mr. M.K. Yadav, Director of Kaziranga National Park, India expressed his views on considering unnatural extinction of floral and faunal species from protected areas as a type of disaster, as in the case of recent spate in rhino poaching across the world. He also, mentioned the adverse effects of urbanisation and rapid development activities, changing land-use pattern & its subsequent impacts on natural heritage world sites. Mr. A.M. Anjankar, Dy. Conservator of Forest, Kaas Plateau, Maharashtra highlighted the ill-effects of irresponsible tourism in his site which has caused damage to the site. Ms. Urvana, Policy Officer, WWF-India raised a point about the livelihood of local communities that were dependent on natural resources and how disasters affect their livelihood and put extra pressure on natural heritage sites. Dr. Janki Andharia concluded the

session with the remarks that the concept of disaster is complex and multidisciplinary. Co-operation of different institutes towards the disaster risk reduction is necessary. Unsustainable development and disaster are correlated and would have huge impact on mankind in coming future if not addressed in time.

Technical Session II (a) Strategies for risk reduction and role of World Heritage Sites of the Asia- Pacific Region.

Screening of Documentaries

Commentator: Dr Malvika Onial, Scientist E, UNESCO C2C

Rationale

Documentary films are a handy tool to promote change in the mindset of target and could also be used to influence the ideas and actions of people on wider platform. The screening of documentaries was intended to give the site managers and practitioners a clear picture of the World Heritage Convention, World Heritage sites and associated disasters with the help of some case studies.

To give a brief background of UNESCO World Heritage concept following documentaries were showcased:

1. History of World Heritage Convention
2. Our World Heritage UNESCOs World Heritage Convention
3. World Heritage Dangers and Success Stories
4. World Heritage Local Communities and Partners

Background note on Documentaries

Documentaries based on UNESCO World Heritage Convention were screened to provide an overall glimpse of Heritage sites to familiarize the site managers and other participants.

Documentary based on "World Heritage in Danger" portrays the threat faced by the sites which are listed in danger and highlighted the issues related to heritage sites in danger list.

The key objective of Danger listing is to avoid a loss of OUV (which would imply delisting) and in cases where the OUV has been eroded by ascertained danger, to identify the necessary actions to restore the OUV.

Case Studies

1. The Last Minutes on Mount Everest by the New York Times.

This documentary captures minutes before April's deadly Everest avalanche and highlights the Sherpas' pride and resilience that not only support western expeditions but also the Sherpas' families far below. The footage of Sherpas setting off for the Khumbu Icefall on the morning of April 18, 2015 loaded with heavy baggage and equipments. They were waiting in line to climb a ladder for an ice field known to be one of the most dangerous places on Mount Everest, under a "hanging glacier''. A massive ice formation, Serac, broke apart and triggered an avalanche which killed nearly 16 men.

2. The Road to Recovery: The 'Himalayan Tsunami'

June 16, 2013 was an extreme weather event unfolded in Uttarakhand, India with a heavy rainfall and cloud burst in multiple places. Due to glacial lake outburst, a huge volume of water along with glacial boulders came down the river Mandakini devastating Kedarnath and many other towns and villages. According to official estimates, around 5000 people swept away with thousands of houses and shops, besides destroying a large portion of the state's road and communications network. This documentary is based on inter-agencies cooperation and ground work for rescuing and recovery of the site. The documentary also show the effort of rescue team worked and helped the state government, in providing relief at the time of disaster. It conveys that the road to recovery is a long process but with government, international civil society organizations, NGO's support and participation of local community in the restoration work is making a steady progress.

3. **Trapped in Kedarnath:**

This documentary showcases the National Geographic coverage of finding hope in Kedarnath's tragic event of flash floods. Bringing forward the cause of tragic event, efforts of restoration and heart- wrenching stories of the survivors, experiencing nature's wrath, it tracks everything that has happened after the calamity struck the region of Uttarkhand.

In June 2013, a multi-day cloudburst centered on the North Indian state of Uttarakhand caused devastating floods and landslides in the country's worst natural disaster since the 2004 tsunami. As of 16 July 2013, according to figures provided by the Uttarakhand government, around 5000 people were "presumed dead." Landslides, due to the floods, damaged several

houses and structures, killing those who were trapped. The heavy rains resulted in large flashfloods and massive landslides.

This documentary captures a comprehensive view on the tragedy with survivor stories through extensive interviews, restoration efforts in the valley and rescue operations by the armed forces.

SESSION III: DRR in World Natural Heritage Sites in Asia and the Pacific Region: Sharing experiences and best practices

Chair:	**Dr. Shirish Ravan, UN-SPIDER, Beijing**
Co-Chair(s):	**Dr. N.M. Ishwar, IUCN, New Delhi**
	Dr. A.K. Bhardwaj, Scientist G, Wildlife Institute of India
Lead Panelists:	**Ms. Laura Heiskanen, UNESCO-Nepal**
	Dr. Sarnam Singh, Head, Forestry & Ecology Department, IIRS
	Ms. Margherita Fanchiotti, UNESCO-Paris
	Mr Jair Torres, UNESCO Focal Point PEDRR
Rapporteur:	**Mr Dhruv Verma, Ms Persis Farooqy, Mr. Anukul Nath**

1.0 OVERVIEW

Case studies are an important way of creating focus and interest in a complex and multi-faceted concept such as DRR. In this session the focus was on sharing experiences and best practices in relation to DRR in World Natural Heritage Sites in Asia and the Pacific Region.

2.0 RATIONALE

Lessons learnt and best practises can guide towards arriving at a strategic plan for DRR and WHS**.**

3.0 OBJECTIVE

To discuss and document plausible case-studies relevant to DRR and WHS in the Asia-pacific region.

4.0 EXPECTED OUTCOME

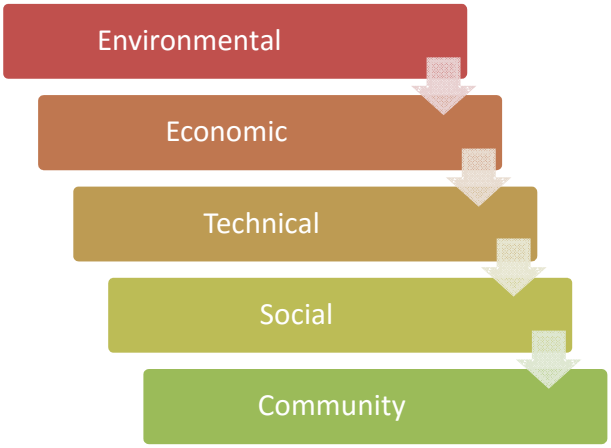
A more sensitised group of site managers and others stakeholders, documentation of best practises and a network of practitioners.

5.0 DETAILED PANEL INPUTS

The chair of session Dr. Shrish Ravan started the session with opening remarks on the need of ecosystem based approach to reduce disaster risk. He gave a brief introduction of co-chairs and panellists and asked them to begin the session with their respective talks.

Ms. Laura Heiskanen, gave a presentation titled 'The April 2015 Earthquake and Sagarmatha National Park, Natural World Heritage Site in Nepal'. She first introduced her working place and talked about the World Heritage Sites in Nepal. There are four UNESCO world heritage sites in Nepal, having two natural and two cultural sites. She gave an introduction of Sagarmatha National Park and related information as in area of extent, tourist footfall, management plan which includes disaster management plan. Possible hazards identified in the property are Glacial Lake Outburst Flood (GLOF), drought, avalanches and landslides. She also mentioned that tourist influx has increased from 3000+ to 37000+ in recent years due to its inscription in UNESCO World heritage List. Zeroing down on the recent disaster that occurred in Nepal, she gave detailed information on Nepal Earthquake that hit on Saturday 25 April, 2015. The earthquake had a magnitude of 7.8 on the Richter Scale and caused severe damage to Kathmandu Valley and Sagarmatha National Park (inscribed as World Heritage Site in 1979). An after effect of the earthquake was an avalanche that killed 19 people at Everest base camp. The avalanche had impact on total 22 districts which caused a huge loss of life and property. As part of post disaster management, assessment of loss and its extent was done in the Sagarmatha National Park and its buffer zone. She also discussed about Miyamoto International which is global firm for earthquake engineering and its role in making buildings along the hiking path. The earthquake resulted in imbalance of ecosystem dynamics, loss of habitat and out flux of locals to other areas. In the wake of this, a project has been recently launched namely "Community Based Flood and Glacial Lake Outburst Risk Reduction Project" which encourages community participation in disaster risk reduction. Laura put emphasis on role of media, livelihood source for dependent communities, coordination with Government and other stakeholders to raise awareness among people living on the periphery of WHS and needs in-depth assessment of the affected sites.

Ms. Margherita Fanchiotti, was the second panelist who gave a presentation titled '*World Natural Heritage Sites & Disaster Risk Reduction (DRR) - Sharing Experiences and Best Practices'.* Ms. Franchiotti described DRR as a concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters' (UNISDR, 2005). As per Alliance Development Works, 2013 Southeast Asia is a global disaster risk hotspot and there is an urgent need of Eco-DRR approach to address these disasters. Fanchiotti put emphasis on "Sendai Framework for DRR 2015-2030"with four priority actions viz., Understanding disaster risk, Strengthening disaster risk governance to manage disaster risk, Investigating disaster risk reduction for resilience and enhancing disaster preparedness for effective response followed by recovery & reconstruction. She also informed participants about the UNESCO critical experience in "soft dimensions" of DRR including climate change, education, disaster preparedness, ethics and culture and association of UNESCO-IOC: Indian Ocean Tsunami system with INCOIS, Hyderabad. She gave an introduction on UNESCO World Heritage Sites and strategies to reduce risks on WHS as per Managing Disaster Risks for World Heritage manual. In WHS, disaster poses risks to physical attributes, lives of visitors, staff and local communities living on the site or in neighboring areas, and important collections & documents and local economy. In Biosphere reserves, UNESCO has launched recently a disaster risk assessment initiative calling for participatory risk assessment in each reserve. Similarly, In Geoparks, UNESCO gives its *ad hoc* support to Geoparks initiatives through the Global Geoparks Network. Global Geopark is a unified area with geological heritage of international significance. These parks promote awareness of geo-hazards and help prepare disaster mitigation strategies among local communities and UNESCO has launched a disaster risk assessment initiative calling for participatory risk assessment in Geoparks as well. Preventive actions which need to be taken are: monitoring & early warning, reporting and preparedness and followed by corrective actions Disaster risk mitigation, climate change and Mitigation. And most importantly sharing knowledge on Research work carried out (site-specific), best practices done by local communities, communication and networking which need to pass on global audience. She also discussed how Mangrove forest in Sundarbans helped as a natural defense mechanism against disasters. Ms. Franchiotti also shared her views on holistic approach for DRR which is shown below:



Besides Sundarbans Mangrove Forest, she cited an example of Mahanadi delta, Odisha, India case study where she described the role of community's education and participation in disaster resilience. She also discussed sustaining coral communities with the example of Biosphere Reserve in Maldives. UNESCO recognized the Baa Atoll's great potential for demonstrating sustainable development throughout the Maldives and the region, while relying on a green economy. At last, she urged on a comprehensive training to World Heritage Sites Managers to monitor disaster risk, good governance and capacity building of all stakeholders and sharing of best practices.

Dr. Sarnam Singh, the third panelist then gave a presentation on how capacity building can reduce and help in quantifying and reporting disaster using Geo-spatial technology. He emphasized that inter-agency coordination and understanding is a must to develop efficient technologies and research methodologies. He also highlighted on the topic of Biodiversity Characterization at Landscape Level using Satellite Remote Sensing and GIS. Dr. Singh also discussed about the maps that IIRS has developed over the years. These maps include Vegetation type, fragmentation and landuse map of India. He cited examples of Kaziranga, Great Himalayan National Park and Nanda Devi showing fragmentation and biological richness of the area. Dr. Singh threw light on how above ground biomass and carbon was being lost due to disasters such as landslides, forest fires in the natural forest ecosystem of Mandakini Valley and also discussed the mortality trend of wild animals in Kaziranga NP due to floods since 2006. He also showed the forest fire monitoring in Mudumulai WLS using RS and GIS technology which helped in conservation and management of World Heritage Sites. In his presentation he

showed the mapping of burnt area from March 1991 to March 2005. This indicated that use of modern technology can help in strengthening management practises.

Mr. Jair Torres, was the fourth panelist who gave a talk titled '*Natural Hazards in UNESCO's Designated and Affiliated Sites'*- Mr. Torres gave an overview of world heritage sites in world and global scope of World Conference on Disaster Risk Reduction, 2015 which has focal points on international voluntary mechanisms for monitoring and assessment of disaster risks, including exchange of relevant data and information between national Government bodies and stakeholders in the interest of sustainable social and economic development. He also gave an idea on UNESCO's response to disasters by giving examples of Landslides in Machu Pichu, Peru. He talked on the global scenario of geological hazards like tsunamis, landslides, earthquakes and volcanic eruptions and analysis of these risks on heritage sites. The analysis was done by Open-access data on risk and volcanism. The methodology also included Periodic Reporting which is part of the World Heritage monitoring system. He stressed that national disaster reduction policies must integrate the concern for World heritage sites. He mentioned that a report that analysed 981 WHSs worldwide indicated that atleast 60% of such world heritage sites were exposed to atleast one hazard as identified by the datasets. Out of the hazards, the most impacted were those by (44.9 %)for earthquakes, (32.5 %) for landslides, (12.1%) for volcanic eruptions and (11.0 %) for tsunamis. The most vulnerable regions were Asia and the Pacific followed by Latin America and the Caribbean regions. He also mentioned that in the period of 1979 - 2014, geological hazards were key topics in 158 reports from 41 WH sites. To tackle these burning issues, In-depth risk assessments at regional scale is necessary. Apart from this, evaluation of the disaster risk awareness and series of regional workshops with site managers should be organized on prevention, emergency preparedness and recovery, maintenance and monitoring at each concerned site. A methodology for risk-sensitive management plans for the World Heritage sites should be further developed.

In second part of his talk he gave an overview on Biosphere Reserves and DRR as this was also part of the UNESCO mandate. A total of 631 Biosphere reserves are there in world with varied geographical, biological and social settings. Disaster management in these areas are equally important as community participation and involvement is more in such areas. According to the worldwide surveys, 79 % of Biosphere Reserves where natural hazards are being considered an important issue. Hydro-meteorological hazards like cyclones, flood etc are more frequent in these reserves in comparison to geological hazards. Similarly, there are 111 Geoparks in world which are also a part of UNESCO protected sites and must have a DRR based

approach. According to the survey in Asia, natural hazards are being considered an important issue by 94% Geoparks. Surveys also showed some interesting results that most of the Biosphere reserves and Geoparks don't have risk management plan, but they are willing to incorporate Eco-DRR approach into their management practises. Site managers also showed interest in sharing good practises and learning new methods of disaster management.

In the concluding discussion, Dr. Shirish Ravan appreciated the efforts of IIRS and its new centre and proposed that collaboration of UNESCO-C2C, WII and IIRS will boost the management efforts in World Heritage Sites. Dr. A.K. Bhardwaj insisted on integration of disaster risk management plan and protected area management plans to facilitate Eco-DRR approach. Community involvement and participation in sharing best practises and traditional knowledge should be proactively taken up by the site managers. Mr. Bhardwaj also described the significance of remote sensing and GIS technology and asked to develop maps like biodiversity characterization and so. Dr. N.M. Ishwar mentioned about a recent publication by IUCN titled 'Safe Heavens' which focuses on ecosystem health and role of traditional knowledge in management. Safe infrastructure (ponds, protected areas, mangroves, beach nourishment, wetland restoration and reef revival) was also highlighted in his intervention and how important they are in disaster protection. He also discussed the importance of natural components like Mangrove forests which enhance rice cropland resilience to tropical cyclones by giving example from the Bhitarkanika Conservation Area, Odisha. Dr. Thomas Chandy raised a query on effect of earthquake on eco-tourists and local communities and how diversified livelihood is there in WHS of Nepal. To answer this, Ms. Laura told that impacts of disaster were wide and it resulted into change in livelihood pattern of locals. Mr. A.K. Bhardwaj also intervened by citing an example of Kerala where alternate livelihood and empowerment of stakeholders is in process and is a good solution to incorporate locals in management and conservation of site.

Summary of the presentation and discussion are as follows:

- Site/Heritage Site Managers need to put chapter related to DRR in their annual Management Plan.
- Documentation and sharing of information is necessary
- Crucial to assess the Biodiversity loss in each Heritage Site affected
- Finding lacuna and filling gaps in WHSs on DRR
- Action & long-term Strategies need to plan for WHS.

- Landuse policies need to reconstruct according to specific WHS sites .
- IUCN can help in promoting Ecosystem based DRR.
- Traditional knowledge of local people needs to take into consideration.
- Remote sensing can help to identify loss and quantify biodiversity (mostly vegetation cover)
- Lack of baseline data can be fulfilled by coordinating with local as well as International institutes and Organizations (including Regional coordination with C2C).
- WHS with less human pressure can reduce disaster (for example, Nadadevi WHS, Andaman & Nicobar islands)
- Promoting Non-timber forest products surrounding WHS can help to minimize the anthropogenic pressure (e.g., Kerala).

Technical Session IV

Linking Ecosystem Services, DRR and World Heritage- from an evaluative perspective

Chair : **Dr. P.N.Prasad, PCCF(Wildlife), Govt of Manipur, India**

Co-Chair: **Dr Asha Rajvanshi, Scientist G, WII**

Lead Panelists : **Mr. Ashwin Bhouraskar, FAO**

Mr. Jair Torres, UNESCO-PEDRR Focal point and Ms. Margherita Fanchiotti, UNESCO-Paris

Rapporteurs: **Ms. Sharmishta Singh, Dr. Sonali Ghosh**

1. SESSION OVERVIEW

The session was dedicated to discuss on some key points for assessment of risks and vulnerabilities of Natural World Heritage sites. The panel members gave examples from global methodologies that are currently being used by organizations such as FAO and UNESCO.

2. RATIONALE

The overview session would lead up to a hands on exercise where site managers would be expected to peer review the vulnerabilities of their sites.

3. OBJECTIVE

To sensitize site managers to make assessments for natural world heritage sites**.**

4. EXPECTED OUTCOME

To arrive at a standardised methodology and documentation for a DRR toolkit in the Asia-Pacific region.

5. DETAILED PANEL INPUTS

Mr Ashwin Bhouraskar, stated that Natural world heritage sites, ecosystem services and DRR are linked. He stressed on the policy elements that would be required to be able to cope with Disasters etc? He accepted that disasters are manmade and natural and they both have the potential to destroy World heritage sites. However, WHS may also play a role in the occurrence of these disasters and therefore there must be a national level readiness to deal with disasters. For example in policy discourses, some ecosystems are not able to survive natural disasters, so do we plant different types of trees that are able to withstand the calamity? Or do we let nature take its own course . It is here that we need more studies, discussions and collaborations to understand the impacts of this complex situation. He stressed that getting information from Ministries and DRM, to anticipate food/resource shortages and use of site resources is crucial during and post-disasters. At site level, one must see to it that the site managers have the capacity and resources to integrate DRR and Climate change adaptation elements into their annual plans.

Mr. Jair Torres and Ms. Margherita Fanchiotti then gave a presentation titled 'Development of an Ecosystem based DRR toolkit including assessment for WHS'. Mr Jair Torres introduced the audience to PEDRR (Ecosystems for Adaptation and Disaster Risk Reduction) and how it was providing a platform for multiple agencies including UNESCO-WHS for dealing with the complex challenges. PEDRR has been especially useful to address situation where a site could be challenging due to multiple designations (WHS/BR/GeoPark etc.) that there could be several overlapping objectives, reporting could be time consuming and the lack of adequacy at local level to report on DRR information. At the same time, it also led to a potential to gather relevant information/data and provided a valuable platform for experiences and knowledge sharing , potential cooperative actions. He also stressed on the UNESCO's Resource Manual that can serve as a baseline for all site managers when they are about to start their work in this field.

Dr. Asha Rajvanshi, as co-chair of the session laid stress on monitoring and évaluation that were important for any policy to be rightly implemented in the field. She gave examples from her on field of expertise which is Environnent Impact Assissent that has evolved as a science and now mandated as per law in India for all développemental projets that involves forest land. That there is more information and feedback available from the field for EIA that has helped in improving the assessment as the world is now also currently moving

towards Strategic environment assessment. Disaster Risk reduction could be an integral part of these assessments.

Mr. P.N.Prasad, the Chair of the session thanked the resource persons for their valuable time and also emphasised on the need to integrate Disaster Risk Reduction strategies in Proteced Area management plans.

Technical Session V: Man-Made Disasters, Resource Conflict and Trans-Boundary Management of WHS

Chair : **Dr. Ram Boojh, UNESCO South-Asia**

Co-Chair: **Dr. G.S.Rawat, Scientist G, Wildlife Institute of India**

Lead Panelist : **Dr. Richard Milburn, King's College London**

Dr. Janki Andharia, JTCDM- Tata Institute of Social Sciences

Dr Lokesh Ohri, Co-Convenor, INTACH (Uttrakhand)

Dr. Rahimatsah Amat, IUCN Transboundary Specialist Group

Rappoteurs: **Ms. Rupa, Ms. Persis Farooqy**

1. OVERVIEW

The session was dedicated to sensitise the site managers on man-made disasters that are also linked in many ways to management of Protected Areas and Natural World Heritage sites. Similarly several Natural World Heritage sites in Asia are actually transboundary in nature and have issues with regards to man-made disasters. The expert panel first identified such disasters and presented case studies that were relevant to the session. Ideas were exchanged on best ways to integrate the same.

2. RATIONALE

A holistic approach towards addressing natural and man-made disasters .

3. OBJECTIVE

To sensitise site managers and various stakeholders towards addressing man-made disasters.

4. EXPECTED OUTCOME

More inputs and discussion on man-made disasters and trans-boundary management of such issues in Natural world heritage sites in Asia-Pacific region.

5. **PANEL INPUTS**

Dr. Ram Boojh taking the responsibility of the Chair started the session and called upon Dr. Richard Milburn for his presentation. Dr. Richard Milburn, gave a detailed presentation on man-Made Disasters, Resource Conflict and Trans-Boundary Management of WHS". Starting with armed conflicts and WHS, he divided this topic in five parts which are summarised as follows:

- All about war: Conventional Armed Conflict between states was taken as example which is increasingly rare, potentially very damaging due to large forces and weaponry used but can occasionally be beneficial for conservation("warzone refuge" effect). Limited amount can be done for mitigation also.
- Insurgency/Guerrila warfare has been more common form of armed conflict over past two decades which has affected biodiversity (2/3 biodiversity hotspots affected). This is usually negative, but occasionally warzone refuge effect occurs. He suggested increasing livelihood standards and good governance as measures to prevent these conflicts.
- Illegal Trade in Wildlife/Timber (Subsistence) is very common in WHS. Talking about the impacts that are not too severe he pointed out the danger which can occur later on i.e. 'what starts as a need turns into greed'. The prevention suggested was again higher living standards and education.
- Illegal Trade in Wildlife/Timber (Organized Crime) which is increasingly common and damaging the biodiversity is growing in value and intensity due to weapons; logistics; organised crimes. These trades are harder to prevent but can be overcome by the support of both changing livelihood and Militarized response.
- Post-Conflict Recovery often does more harm to biodiversity and ecosystems. The recovery results in the use of a lot of resources for short-term human needs which becomes more important at the moment than conservation as there is a lock of rule of law i.e. the incentive for unsustainable use and illegal trades

He talked about Economics as a key for DRR for armed conflict. In an economically balanced ecosystem people understands the value of conservation and protect but in an asymmetric economics people are forced to select between conservation (expensive and long term) and poaching (cheap and quick), which many times results in destruction to biodiversity. He also

talked about the current economic system which fails to value conservation and only values destruction. In order to raise awareness about conservation among people he emphasised on monetizing biodiversity and finding ways to enable those who love wildlife to pay for it.

Dr. Janki Andharia, the second panelist presented on the topic "Disaster Risk Reduction and Resource Conflict: Implications for Heritage Sites". The important points of her discussion were

- There is a need of multidisciplinary approach for DRR.
- 60% of world's population has 20% of world's resources.
- 60% of the Indian population is dependent on agriculture and allied activities.
- 80% of farmer pop owns 17% of total agricultural land.
- As per the world bank report resource conflict is one of the several destabilizing phenomena.
- resource paradox= limited resources
- research and policy need to work harder not only to pick up on the rationale of patronage systems or governance systems, but also on how political elites fit into larger systems of class and ethnicity, and how resources link to organized and petty crime.
- Showed a figure of resource-based conflict element that can be used as an analytical tool to analyse conflicts.
- Solutions are there to improve human health and longevity which is paradoxical as we do not care about nature/world.
- Disaster is a part of human life and can be controlled by co-relating cultural values and traditional practices with biodiversity conservation and DRR.
- Disciplinary boundaries need to be dissolved for management and conservation.
- Nature-cultural dualism interpenetrates and highly connected that need to be highlighted.
- Require systematic approaches to adequately understand physical and social processes and their interdependences.
- Social aspect of DRR pertains to human rights, social justice, local knowledge and experiences etc.
- There is a strong value base which scientists articulate.
- Interdependence of society, economy and the natural environment.
- Political pressure is often put to ignore social sciences.
- Work in a manner with an agenda where local people support your work e.g. China. Scientists should work in a manner where locals can understand.

- Include multiple type of expertise to increase credibility.
- Engage in collaborative knowledge production to increase legitimacy.
- Propose context-sensitive solution to increase relevance.

Dr. Lokesh Ohri, the third panelist talked on the Anthropological Aspects of DRR taking Nandadevi Biosphere Reserve as an example and the situation of people during the disasters. He emphasized on the implementation of Eco-cultural practices and also shared his experiences of Kedarnath Disaster. The summary points of his presentation are as follows:

- There are different ways of looking at disaster from the point of view of locals, scientists and politicians.
- The Kedarnath disaster was earlier thought to be a man-made disaster but later on termed as natural disaster.
- Considering the last flooding as direct evidence, construction must not be allowed along the river banks. Development projects like dam construction, road building etc should not be granted or allowed in the sensitive zones.
- In order to deal with disaster the cultural practices need to be kept in mind.
- Presentation to control the carrying capacity to make sure the local villagers get benefit and thus increase the local economy.
- EIA of the projects to be implemented through strict agencies to ensure that the man-made disaster do not occur.
- Natural defences are best defences against natural disasters and we should not intrude in natural defences.

Dr. Rahimatsah Amat, the final panelist presented on the topic “Overview of Transboundary Conservation”. Presenting his study he divided his presentation in five parts.

- In the first part he gave a brief introduction of IUCN, its objectives, commissions, strategies and definition of protected areas.
- Second part dealt with the connectivity and transboundary. He said that transboundary protected areas and connectivity conservation offer an opportunity to manage landscapes at different scales through alliances between governments and the civil society. Transboundary protected areas and conservation (at the national and subnational level) provide a great opportunity to enhance participatory conservation strategies across nations, meaningful at the landscape level. Transboundary cooperation is especially relevant when dealing with connectivity conservation; whereas connectivity

conservation is a practical and useful framework to achieve Aichi targets at the national and regional level. Connectivity conservation is a nature-based solution to climate change

- Connectivity conservation includes: interconnecting protected areas; working with people and authorities to sustainably manage natural and modified landscapes between protected areas; and working with people and authorities to help minimise the effects of climate change.
- The third part dealt with transboundary conservation. Transboundary conservation is a process of cooperation to achieve conservation goals across one or more international boundaries. A Transboundary Protected Area is a clearly defined geographical space that is comprised of protected areas that are ecologically connected across one or more international boundaries and is under some form of cooperation.
- Three types of TBC areas;

  -Type 1: Transboundary Protected Area- clearly defined geographical space that is comprised of protected areas that are ecologically connected across one or more international boundaries and is under some form of cooperation.

  -Type 2: Transboundary Conservation Landscape and/or Seascape- an ecologically connected area that sustains ecological processes and crosses one or more international boundaries, and which includes protected areas as well as multiple resource use areas, and is under some form of cooperation.

  -Type 3: Transboundary Migration Conservation Area- wildlife habitats that are necessary to sustain populations of migratory species and are under some form of cooperation.
- Transboundary conservation is a mechanism and an approach that can help us correct many of these mistakes; and in doing so, begin to address our increasing vulnerability and introduce resilience to the way we live; TBC enhances ecological functionality and therefore species survival –including human;
- Still there are some global challenges like human demographic pressure, diplomatic , military or border conflicts, climate change issues, disparity between neighbouring countries, food security etc.
- The fourth part presented the transboundary initiatives i.e. global initiatives that include Coral Triangle Initiative (CTI) and Heart of Borneo Initiative (HoBI), and in Asia e.g. China - India - Myanmar: HI-LIFE, the transboundary Landscape Initiative in the Far-eastern Himalaya; China - India - Nepal: Kailash Sacred Landscape; etc.

- The fifth part presented the IUCN WCPA Transboundary Conservation Specialist Group (TBC SG) (1997) which was formed to Promote awareness of the value of TBC; Promote effective governance structures to support management of TB areas; Encourage and advise in the establishment of new TB areas; Develop guidelines and standards; Coordinate a Global Transboundary Conservation Learning Network; and Strengthen information exchange and dissemination. Currently TBC SG has 250 members globally whereas 24 members are from Asia.
- Concluding his presentation he said that there is a need for a call of action to Develop TBC monitoring and evaluation tool to better measure and track benefit flows, as well as gauge effectiveness/performance; to develop a TBC database and mechanisms to keep it up to date; to use the 2015 TBC Guidelines to develop training courses for capacity development at all levels.

Dr. G.S.Rawat as co-chair shared his experiences of working in transboundary landscapes. He has been working in Kailash Landscape, Khangchendzonga landscape and highlands of far eastern Himalayas each of which is a transboundary landscape. He felt that the participation of government and administration has to be really participatory to protect landscapes.

- Giving the example of man-made disaster he highlighted the risk China is facing in far eastern Himalayas due to the shifting cultivation practices being followed at high rate in Myanmar.
- Illegal poaching of wild animals and plants e.g. caterpillar mushroom, in Kailash Sacred Landscape is an important point to think about.
- He proposed to designate the entire road of Kailash Sacred landscape as a world heritage in order to prevent these problems.
- Sundarbans is a successful example of WHS where conservation programs for tigers helping the ecosystem management and conservation in India and Bangladesh.

Dr. Ram Boojh talked about the ICOMOS & IUCN mission to inscribe Khangchendzona as WHS by next year. He told that Manas National park is an interesting transboundary conservation areas and now Royal Manas National Park has been nominated under tentative list of UNESCO; that India and Sri Lanka also wants to have a transboundary marine biosphere reserve and there is a convention for safeguarding heritage from armed

conflicts, insurgencies, poaching etc. The session was then made open for **questions by the participants**

Q 1: What are the different way to address human rehabilitation in WHS management plans.

Response: we need to recognise the aspect of recovery and the happenings. Also there is lot of literature available for post disaster management, dimensions of disaster mechanism and market policy embedded in post disaster management. Culture and creativity should be harnessed.

Q 2. What are the aspects of Transboundary Water Management e.g. Kosi river in Manas?? Why its not being discussed?

Response: There are two projects on transboundary water management by PEDRR available on website that can be accessed. There is also separate branch of studies that deals with transboundary water problems.

Q3.: Manas is recognised as WHS as well as Biosphere Reserve. Is there any processing happening to find the level of integration of these citations, asreporting becomes very tedious for different designations.

Response: UNESCO and IUCN have launched a study for checking the convention synergies and mechanism for harmonising this kind of report mechanism. The further problems like this can be discussed in upcoming UNESCO meetings. The National government must be open to say they have problems in nomination/citations and address these in the international forums.

Technical Session VI: Assessment of DRR in WHS of the Asia-Pacific region and developing an ecosystem-based DRR Toolkit (Interactive session with site managers)

Chair: **Mr. P. C. Tyagi, Scientist G, WII**

Co-Chair: **Dr Amit Mallick, Field Director, Periyar Tiger Reserve**

Lead Panelist : **Dr. Richard Milburn, King's College London**

Rapporteurs: **Mr Anukul Nath, Mr. Dhruv Verma**

1. OVERVIEW

The session was essentially an ice-breaking session in which a participatory learning technique was introduced for the site managers to start thinking about a strategic DRR plan. The participatory learning technique was in form of a card game wherein groups were assigned a certain amount of money to mazimise their natural resources such as widlife. The essential trade-offs such as poaching, natural disasters etc were also introduced to simulate the complexities that occur in the real world. The group with the maximum resources at the end of the game was declared a winner. The exercise was followed by an introduction to the questions that can help a manager in designing a DRR plan for the site.

2. RATIONALE

Planning a DRR toolkit is an interactive exercise that requires inputs from several resources and subjects.

3. OBJECTIVE

- To help the managers and management authorities of cultural and natural World Heritage properties to reduce the risks to these properties from natural and human made disasters
- To illustrate the main principles of Disaster Risk Management (DRM) for heritage and a methodology to identify, assess and mitigate disaster risks.

- To explain how to prepare a DRM plan based on this methodology.
- To demonstrate that heritage can play a positive role in reducing risks from disasters and so help to justify the conservation of World Heritage properties.
- To suggest how DRM plans for heritage properties can be integrated with national and regional disaster management strategies and plans.

4. EXPECTED OUTCOME

More sensitized site managers

5. DEAILED PANEL INPUTS

The Chair Mr. P.C. Tyagi and Co-Chair, Mr. Amit Mallick in their opening remarks introduced the topic and shared their own experiences of disaster management in Protected Areas. They then handed over the session to Dr Richard Milburn who initiated the card game. The participants were assigned to 7 groups in a random manner so that each country participant worked independently of each other. Each group was provided with a certain amount of card money to maximise their natural resources such as wildlife. The essential trade-offs such as poaching, natural disasters etc were also introduced to simulate the complexities that occur in the real world. The group with the maximum resources at the end of the game was declared a winner.

The exercise was followed by an introduction to the questions that can help a manager in designing a DRR plan for the site by Mr. Jair Torres. The main content of his presentation focused on 9 main questions that would also be deliberated in detail in the intensive training sessions. The questions are as below :

1. What is Disaster Risk Management and why is it important?
2. What does a DRM plan consist of?
3. How do you get started?
4. How do you identify and assess disaster risks?
5. How can you prevent disaster risks or mitigate their impact?
6. How do you prepare for and respond to emergencies?
7. How do you recover and rehabilitate your property after a disaster?
8. How to implement, reassess and reappraise the DRM plan?
9. How integrate Eco-DRR in to sub-regional and regional level planning ?

CONCLUDING AND VALEDICTORY SESSION

Chief Guest : Dr. R.B.S.Rawat, IFS (retd.) former PCCF, Govt of Uttrakhand , India

Summary Presenter: Dr Sonali Ghosh, Scientist UNESCO C2C, WII

SUMMARY

The two day workshop ended with a valedictory session with Dr R.B.SRawat distributing completion certificates to students and visiting scholars. The next three days were now dedicated to intensive training of site managers on thematic areas.

An overview of the workshop was presented by Dr. Sonali Ghosh and a road map for the future course of action also discussed. It was stated that a total of 150 participants, from 10 countries (Bangladesh, Bhutan, Thailand, Malaysia, Sri Lanka, Vietnam, Nepal, Myanmar, Indonesia, India) that represented 25 designated and tentatively listed World Heritage Sites from the Asia-Pacific region took part in this workshop. More than 30 Resource Persons and experts in this field interacted with the participants. It is expected that the four *Sendai priorities of* Understanding disaster risk, Strengthening disaster risk governance to manage disaster risk, Investing in disaster risk reduction for resilience and Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction can be addressed by the end of the training session.

भारतीय वन्यजीव संस्थान
Wildlife Institute of India

International Workshop and Training on the Role of Natural World Heritage Sites in Disaster Risk Reduction
August 24-28, 2015

Organised by

UNESCO Category 2 Centre for World Natural Heritage Management & Training for Asia and the Pacific Region at Wildlife Institute of India, Dehradun

Training Proceedings

DRR Workshop – 26th August, 2015

1. Conserving World Natural Heritage: The Indian Experience

Dr. V.B. Mathur, Director, Wildlife Institute of India, Dehradun

The Director provided an overview of the natural World Heritage Sites in India and the process of their nomination. The Outstanding Universal Values of the sites along with their criteria were highlighted. It was also mentioned how the natural sites in India were vulnerable to disaster whether it was the mountain landscapes or the terrestrial sites or the potential coastal and marine location. Disasters would affect not only the natural attributes of the sites but also the local populations inhabiting in proximaty to these sites of high human density. Hence, it was emphasised about the need for disaster and climate change planning in the management of these sites .

In the discussion, Shri. Umananda Doley, Deputy Secretary in the Department of Cultural Affairs, Government of Assam raised the issue of Majuli, which is the largest river island of Assam having unique cultural value for the people living in Assam. Mr. Doley mentioned that three times ASI (Archaeological Survey of India) in coordination with Assam State Govt. failed to fulfil the criteria that UNESCO requires as a first step of "nomination dossier". There is a lack of coordination between union state parties (India) and state level (Assam) parties to work together. Recently, Centre handover the dossier preparation task to Assam State Government for further processing. However due to lack of advocacy and technical capability, the government agency dealing with the inscription procedure has slowed down the process. Furthermore, Dr. Mathur (UNESCO C2C) ensured Mr. Doley to have further discussion on promoting and nomination procedure of Majuli soon.

2. Understanding the Sendai Framework for Disaster Risk Reduction 2015-2030 - from a risk reduction to world heritage perspective

Dr. Sujit Mohanty, Regional Programme Officer, UNISDR Asia-Pacific, Bangkok

The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) is the first major agreement of the post-2015 development agenda, with seven targets and four priorities for action. It was endorsed by the UN General Assembly following the 2015 Third UN World Conference on Disaster Risk Reduction (WCDRR) with 187 member states.

The Sendai Framework is a 15-year; voluntary, non-binding agreement which recognizes that the State has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders.

The Sendai Framework is the successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. It is the outcome of stakeholder consultations initiated in March 2012 and inter-governmental negotiations held from July 2014 to March 2015, which were supported by the UNISDR upon the request of the UN General Assembly.

The scope of the Sendai Framework is to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors. The framework will apply to the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or manmade hazards as well as related environmental, technological and biological hazards and risks.

The expected outcome is "substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries".

The guiding principles of the framework revolve around responsibilities of stakeholders at all levels, i.e. from member state to local community.

Priority of Actions:

To achieve the goals of the framework, following ways for implementation are necessary especially for developing countries.

- To enhance provision of coordinated, sustained and adequate international support for disaster risk reduction and for the strengthening of their capacities.

- To enhance access to finance, environmentally sound technology, science and inclusive innovation, as well as knowledge and information-sharing through existing mechanism with international organisations.
- To promote the use and expansion of thematic platforms of cooperation, such as global technology pools and global systems to share know-how, innovation and research and ensure access to technology and information on disaster risk reduction.
- To incorporate disaster risk reduction measures into multilateral and bilateral development assistance programmes within and across all sectors related to urban development, poverty and climate change.

With respect to world heritage, prevention and pre-disaster plan is the best management practise. Inter-agencies coordination, mutual understanding on responsibilities and a sense of identity is essential to address disaster risk reduction in heritage sites.

In the discussion, Dr. J. Andharia mentioned about the issue of co-ordination between agencies like UN and DST. The decisions which are taken by the higher authorities and agencies at a broader level, implementing them in site specific practical situation is beyond the capacity of local communities. There is a huge gap in the framework dealing with fundamental issues and promoting it. Mr. Mohanty replied that though there was a gap in reaching the rural local community but the Sendai framework was driven by the member states keeping the broader picture in mind.

3. Remote Sensing and GIS for natural hazard assessment and DRR

Dr. Sameer Saran, Head Geo-informatics Division, Indian institute of Remote Sensing, Dehradun

Dr. Saran explained the role of space technology in natural hazard assessment and mitigation. The meaning of different terminology involved in disaster risk reduction like hazard, vulnerability, risk, disaster, etc was defined. Statistics show that the Indian subcontinent is prone to various types of natural disasters. ISRO, with the help of its various programme like Disaster Management Resource Programme (DMSP), National Database for Emergency Management, etc. is providing support at the time of disasters. He explained with the help of various case studies the role of space technology in providing support at the time of disasters like Cyclone Phalin, Uttarakhand Flash Floods-June 16, 2013, Cyclone Hudhud, etc. He showed the case study of MANU (Mapping of Neighborhood in Uttarakhand), a multi-institutional project initiated by DST after Uttarakhand Flash floods, through the analysis carried by IIRS under MANU project.

Dr. Andharia raised the concern that although data is freely available in open source, but there are only handful of experts who can access it. The technologies and software required to process the data are limited in both ways (manpower as well as laboratory). Besides, procedures for data sharing among the national and international institutes are not clear and processing of data takes tremendous time which ends with cluttered situation during emergency. Dr. Andharia also focused on the needs of community participatory GIS. Rural people need to be trained in basics of Geospatial Technology and Remote Sensing which will have a greater impact at the ground level.

4. Traditional DRR practices of the people of Uttarakhand

Dr. Piyoosh Rautela, Executive Director Uttrakhand Mitigation and Management Centre, Dehradun

The speaker described the natural hazards occurring in Uttarakhand and the traditional coping mechanisms of the indigenous people towards these hazards. Identifying the major hazards in Uttarakhand like earthquake, landslide, flood / flash flood, cloudburst, hailstorms, avalanche, drought and forest fire, he gave the examples of each event and the vulnerability of Uttarakhand towards these hazards.

For example **Earthquake:** The seismic map shows that Uttarakhand is located between the epicenters of two great earthquakes i.e. Bihar-Nepal earthquake of 15 January, 1934 (M=8.3) to its east and Kangra earthquake of 4 April, 1905 (M=8.5) to its west. Uttarakhand is also located between epicenters of 1905 and 1934 Great earthquakes. In Uttarakhand the earthquake epicenters are situated in the proximity of major tectonic boundaries.

Lack of awareness, unplanned growth, difficult approach, concentration of population, lack of land use/ debris disposal policy and non existence/ non compliance of regulations were identified as the major factors enhancing the vulnerability of this area.

He talked about the water scarcity in hills due to the exploitation of local streams and small water springs coming out of the hills. In order to cope up with this loss there are some traditional practices being followed by local people to conserve water. For example, traditional rrecharge pits such as Chaal / Khal, Sacred groves, Shallow dug well, Naula, at Champawat, Square stone lined stepped architecture and some deep aquifers like Deep dug well at Almora.

Traditional earthquake resistant houses of Yamuna Valley: these houses have witnessed the wrath of many earthquakes. These houses are constructed over firm ground, with exposed foundation which is dug till solid rock is reached over which tall buildings are constructed. These houses have special provision for joining stone and wood pieces.

In the end he provide solutions for drought management i.e. Development of drought resistant crop varieties, Landholding pattern, Mixed cropping (Barahnaja) and Crop rotation (Sari system).

Revival and improvisation upon the traditional practices have the potential of putting forth economically viable and acceptable solutions to vulnerability of the region.

5. Linking DRR with Socio-Economic Vulnerability/Development, with reference to World Heritage Sites

Dr. Janki Andharia and Ms. Priya Chavan, Jamsetji Tata School of Disaster Studies, Tata Institute of Social Sciences, Mumbai

Disaster Risk Management has three stages: before, during and after disasters. The preparedness activities to be undertaken before a disaster include risk assessment and prevention and mitigation measures for specific hazards. Creating an emergency team, an evaluation plan and procedures, warning systems and drills and temporary storage need to be undertaken before a disaster takes place. Risks to heritage sites are related not only to the site, but also extend to wider areas in which these sites are located engulfed by urbanization. There is a need to redefine heritage to move beyond prevalent 'site-centred' approach and look at the larger area. Further, there is a need to understand the inherent link of physical vulnerability of heritage to that resulting from social, economic and 'development' processes. What is required is an emphasis on understanding of the terms – hazard, risk and vulnerability and to recast them in the context of heritage conservation and DRR.

Destruction of heritage properties through disasters creates a serious loss for the national and local communities, not only because of the cultural importance of heritage assets but also for their socio-economic value. At the same time, studies have shown that protecting heritage promotes resilience since heritage contributes to social cohesion, sustainable development and psychological well being .The area of influence of the heritage site (natural or cultural) is dependent on it mainly for employment and resources (mostly in tribal belts) while also serving as a buffer for protecting the site, thus, creating a symbiotic relationship. Problems arise when there is overuse and over-extraction resulting in adverse effects. Thus it is necessary to understand the

- socio-economic structure in the area of influence of the site
- inherent risks and vulnerabilities of the site
- risks and vulnerabilities of the dependent population

One of the main challenges to the effectiveness of a DRR plan highlighted by Dr. Andharia is the lack of coordination between the site management systems for the particular heritage property and the organizational set-up, policies and procedures for disaster management in the city or region in which the property is located. Therefore the DRR plan for the heritage property should be integrated with the existing plan and procedures for site management.

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DRR Workshop Summary – 27th August

Communicating Disasters: DRR, Media & World Natural Heritage Sites

Ms. Prerna Bindra, Trustee, Bagh, New Delhi

The talk was dedicated to the overarching theme to explore the full potential of the role of the media in Disaster Risk Reduction. The communication process and getting the message across to the larger audience can act as a trigger to influence change in public opinion. Awareness among masses can be an instrumental change which can initiate better policy. For example, an expose on the scale of trade of tiger, snow leopard and leopard skins in a national daily created uproar in the country, leading to the ban on export of animal skins. Ms. Bindra put stress on man-made disasters through development activities in the form of mining, construction of dams, building of roads, etc. as well as human settlements on fragile landscape and change in land use. The human-induced assault included unregulated, unsafe and unplanned infrastructure development along local rivers, including the development of a large number of hydropower projects built in the fragile zone without holistic upstream-downstream linkages. Highlighting the importance of natural barrier to control damage caused by Tsunami, there was less damage in the regions of Pichavaram, Muthupet and Point Calimere Sanctuary in Tamil Nadu which were shielded with dense mangroves, than in areas where mangroves had been cleared or were absent. Furthermore, it was observed that the areas with better mangrove cover were less affected by Cyclone in the Sundarban World Heritage Site. The speaker also raised the issue of oil-spills in Sundarban, mining in Kudremukh National Park of Western Ghats, armed conflict in Manas World Heritage Site and flood-cum-road mortality of wild-animals in Kaziranga World Heritage Site. Ms. Bindra linked disaster with the crisis of apathy, accountability, politics and, discrimination.

Ms. Bindra summarised her talk with the important notion that all World Heritage Sites should have communication experts for their promotion and sharing information on various issues on time to masses and engagement with the media should be part of management strategy of the sites.

Armed Conflicts in World Heritage Sites and Peace-building for DRR

Dr. Richard Milburn, King's College, London

Armed conflicts have both direct and indirect impact on biodiversity, species extinction, loss of forest cover, environmental degradation, adverse effect on tourism and other livelihood programmes for the local community. Therefore, identifying risk of armed conflict

and key principles for conservation best practice during conflict and post conflict is necessary for the site managers of WHS. Dr. Milburn focused on identifying risk of conflict, conflict conservation best practice, and post-conflict best practice through pre-planning, collaboration with security, relief and humanitarian organizations. Regarding key principles of conflict conservation best practice includes presence of quality junior staff, secure and flexible funding base, collaboration with humanitarian and security sector together with conservation NGOs and continuous monitoring of conflict impacts. Whereas post-conflict best practice incorporates collaborating with security, accept some environmental harm and relocating refugee camps away from world heritage sites. Besides that Dr. Milburn also put key emphasis on ecological development around WHS and providing economic benefits for local community population, while also mainstreaming WHS conservation into DRR/development/security planning.

Development of an ecosystem-based DRR toolkit, including assessment, for WHS : Preliminary Considerations

Mr. Jair Torres and Ms. Margerita Fanchiotti, UNESCO Paris

Most of the challenges occur during reporting disaster in a site due to overlapping of multiple designations at administrative level and understanding their role in reporting. Besides, it is a time consuming process. However, experience and knowledge sharing with local community with potential cooperative actions can strengthen the reporting process. Mr. Torres discussed the key objectives mentioned in UNESCO's Resource Manual "Managing Disaster Risk for World Heritage"

- To help the managers and management authorities of cultural and natural World Heritage properties to reduce the risks to these properties from natural and human made disasters
- To illustrate the main principles of Disaster Risk Management (DRM) for heritage and a methodology to identify, assess and mitigate disaster risks.
- To explain how to prepare a DRM plan based on this methodology.
- To demonstrate that heritage can play a positive role in reducing risks from disasters and so help to justify the conservation of World Heritage properties.
- To suggest how DRM plans for heritage properties can be integrated with national and regional disaster management strategies and plans.

1. How do you identify and assess disaster risks?

- What kind of information do you need to identify disaster risks to your property?
- How do you analyse the factors that may cause disaster risks to your property?
- How can you evaluate disaster risks and prioritize risk reduction measures / strategies?

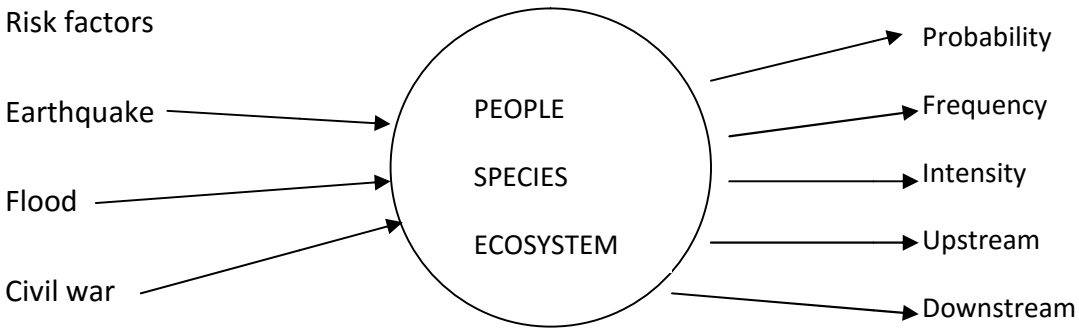
OUV (Outstanding Universal Value) needs to be assessed to identify disaster risks to your property.

Risk factors	**Species**				
	Rhino	**Elephant**	**PH**	**Tiger**	**WB**
Extinction	YES				
Genetic pollution					YES
Poaching	YES	YES		YES	
Urbanization		YES			
Landuse change		YES			
Biological threats	YES	YES	YES	YES	YES
Civil disorder war	YES	YES	YES	YES	YES

Risk Factors	**Ecosystems**					
	R2	**GL**	**WL**	**TR**	**Hills**	**M**
Landslide					YES	YES
GLOF						YES
AVLCH					YES	YES
CB	YES	YES	YES	YES	YES	YES
FF	YES	YES	YES	YES	YES	
Floods		YES	YES	YES		
Fires		YES		YES	YES	YES
Drought	YES	YES	YES	YES		
Earthquake	YES	YES	YES	YES	YES	YES
Erosion	YES	YES	YES	YES	YES	
Infrastructure	YES	YES	YES	YES	YES	YES
Industrialization	YES	YES	YES	YES	YES	YES

COMMON RISK FACTORS	
MANMADE	**NATURAL**
Genetic Pollution	Landuse
Poaching	GLOF
Biological	Biological
Civil Disorder War	AVALNCH
Landuse change	CB
Infrastructure	FF
Industrialization	Floods
Fire	Earthquake
	Drought
	Fire
	Erosion

RISKS & VULNERABILITY



KAZIRANGA WHS AND MANAS WHS					
EARTHQUAKE		**FLOOD**		**CIVIL**	
P (E)	Med/ Low	P (E)	Very high	P (E)	High
Frequency	Low/ Med	Frequency	Annual	Frequency	Medium
INT	Low/ Med	INT	Low/ Med/ High	INT	Low
DS	Change of River course	DS	Erosion (-ve)	DS	Logging
	Ecosystem damages		Loss of species (-ve)		Degradation

	Landslides		Ecosystem enrichment (+ve)		Poaching
US	River course change		Fish culture (+ve)		Trade=Species dwindle= extinction
	Erosion				

INFORMATION GATHERING

- Risk hazard zonation mapping
- Historical records of past disaster events
- Baseline data collection
- Terrestrial, hydro, geo, ecosystem maps, resource mapping
- Socio-economic survey of communities – RRA/ PRA
- Management plan

2. How can you prevent disaster risks or mitigate their impact?

IN CASE OF NATURAL DISASTER

For this activity, Group 5 picked up Ujung Kulon National Park, Indonesia as their site to portray their question. Javan Rhinoceros is endemic to this site and comes under endangered according to Red List IUCN. It is also mentioned in Appendix 1 of CITES that this species is debarred from trade. Its population is very small i.e. less than 50 individuals.

In 1883, a natural disaster i.e. Krakatoa eruption which was followed by Tsunami.

- What measures can you adopt to prevent or mitigate disaster risks?

- How can you make sure that risk prevention and mitigation measures do not have an unintended impact on the heritage values of your property?

- How can traditional knowledge systems for disaster mitigation help protect your property from disasters? Can you integrate these into the plan?

  - Sea water becomes warmer
  - Fishes wash ashore
  - Animals move away from coastal

IN CASE OF MANMADE DISASTER - WILDFIRE

- What measures can you adopt to prevent or mitigate disaster risks?
  - Fire Risk Measurement
    - Indicator GREEN → no risk of fire
    - Indicator YELLOW → potential of fire
    - Indicator RED → high potential of fire
  - Establish Fire Fighting Team Together with Community (HR, equipment, etc)
  - Awarness among Community

- How can you make sure that risk prevention and mitigation measures do not have an unintended impact on the heritage values of your property?
  - Continous checking for open burning
  - Continous rehersal of fire fighting

- How can traditional knowledge systems for disaster mitigation help protect your property from disasters? Can you integrate these into the plan?

Traditional fire breaking :

- Planting intercrop
- Establish Bund

3. How do you prepare for and respond to emergencies?

- What risks might be encountered during the first 72 hours after the disaster?
  - Panic
  - Loss of connectivity
  - Loss of communication
  - Shortage of food, fodder, medicines, clothing, shelter, water
  - Mob violence
  - Increase in causalities
  - Diseases
  - Re-occurrence of the event

- What should be the roles and responsibilities of the emergency response team members in your property?
  - Rescue support
  - Transport
  - Deploying Paramedics
  - Trauma care
  - Food & Civil supplies
  - Managing relief camps
  - Shelter management
  - Rehabilitation to safer place
  - Logistics arrangement
  - Wildlife rescue

- What can you do to improve emergency preparedness in your property?
  - Introducing use of latest technology (GIS, GPS, etc):
  - Good communications (satellite phone)
  - Weather forecasting system
  - Infrastructure & logistics arrangement
  - Mock Drills & trainings
  - Distribution of works
  - Medical preparedness
  - Crisis fund
  - Food storage

- Emergency Operation Center
- Early warning system
- Care for differently abled person
- SOP - standard operating procedure

- How can your property contribute positively to the emergency response?

4. How do you recover and rehabilitate your property after a disaster?

Ans: SAGARMATHA NATIONAL PARK, NEPAL (WHS)
Estb. – 1976
Area – 124400 ha.
Gazetted – 1978
WHS – 1979

1. Land barren – 69% (Above 5000 meters)
2. Grazing land – 28%
3. Forest land – 03%

Lets us assume that earthquake occurred in Sagarmatha National Park, Nepal.

- What new risks might your property be exposed to after a disaster?

DAMAGED – Park offices and trails/roads
NEW RISKS – 1. Theft & unsustainable use of natural resources and poaching
2. Loss in tourism & revenue
3. Loss of community support
4. Loss of trust

- What are the essential questions when assessing damage to your property?
  - Access – transportation and communication
  - Tourism facility
  - Loss of biodiversity
  - Community livelihood

- What measures will help ensure that the long-term recovery process is sustainable?
  - Renovation – Park buildings
  - Community livelihood
  - Natural regeneration
  - Finance

- How can heritage property play a more proactive role in post-disaster recovery and rehabilitation?
  - Employ locals
  - Awareness/ publicity
  - Natural regeneration
  - Reconstruction of tourism spots

5. How to implement, reassess and reappraise the DRM plan?

- How do you implement and monitor the DRM plan for your property?
  - Collaboration (local community/ Las/ Donors)
  - Co-ordination (Intra/ Inter- ministries/ agencies)
  - Mechanism (tools/ techniques – strategies)

- How do you train and build local capacity for implementing and monitoring the plan?
  - Awareness education
  - Training/ assessments
  - Practices
  - Technology

6. How integrate Eco-DRR?

- What are the linkages between human and natural systems?
  - Pollination in Mustard seed cultivation
  - Water Dependent cropping/ catchment areas for downstream. Perhaps drinking water

- Why do ecosystems matter to DRR?
  - Provide the habitat for the pollinators/insects, it regulates water cycle etc.

- How can ecosystem concerns be integrated into disaster management? Why?
  - To reduce the impact of disaster can be minimized with the inclusion of Ecosystem concerns. (Guwahati & Mumbai examples)

- How the loss of biodiversity could impact the Heritage property?
  - The Rhino population wiped out because of man-made disaster and habitat degradation. Lot of efforts and resources required to get back the World heritage status. Poaching, lack of interest of the community towards Manas were the main challenges.

- IRV 2020 mission took almost a decade to reintroduce the Rhino population in Manas and its still struggling.

- How the Soil erosion -off-site effects could impact the Heritage property?
  - The effect of Soil erosion can be impactful as it will deposited in the site

- What are the connections between ecosystem management, development planning and disaster risk management?
- From which sources would you collect your ecosystem data?
  - **Secondary data-** Publications (Journals/ Archives), Herbarium & Natural History Museum
  - **Primary sources-** FGD, Field discussion, Drone, satellite, field work monitoring etc.

- What is needed to implement Eco-DRR Tools?
  - Governance structures where there are clearly defined roles and function for all for taking proper decision of approving any developmental plan in order to reduce the impact of disaster (e.g. Clearance during Planning approval of Dam etc.).

- Which type of investments in DRR - engineered or ecological infrastructure (or perhaps a combination)?
  - River Bank erosion is there and need interventions like plantations in the riverbank side for prevention of further damages

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Date: 24 August, 2015

Inaugural Session: Felicitation of Chief Guest Mr. Kamal Kishore (Member, NDMA) by Dr. V. B. Mathur (Director, Wildlife Institute of India)

Inaugural Session: Opening remarks by Dr. Ram Boojh (UNESCO-New Delhi)

Technical Session I: Talk by Mr. Ashwin Bhouraskar (FAO, Italy)

Technical Session III: Intervention by Mr. M.K. Yadav (Director, Kaziranga National Park and World Heritage Site)

Date: 25 August, 2015

Technical Session IV: Talk by Mr. Jair Torres
(UNESCO-Paris)

Technical Session IV: Workshop Participants

Technical Session V: Talk by Dr. Lokesh Ohri
(INTACH-Reach)

Technical Session VI: Game on Park Management
facilitated by Dr. Richard Milburn,
(Kings College, London)

Date: 26 August, 2015

Talk by Dr. V.B. Mathur (Director, WII)

Workshop Participants

Talk by Mr. Sujit Mohanty (UNISDR)

Group Activity for Participants

Date: 27 August, 2015

Talk by Ms. Prerna Bindra on
Media and Communication

Intervention by Mr. S.S. Rasaily
(Director, Nanda Devi National Park)

Comments by Dr. Sonali Ghosh
(Scientist-F, UNESCO C2C, WII)

Introduction of individual sites by participants

Field Visit Report

Visit to Guru Ram Rai Darbar
[26th August, 2015 (Wednesday)]

Introduction

On the morning of 26th August, 2015, the participants of DRR workshop were accompanied by 3 members from UNESCO Category 2 Centre (Dr. Sonali Ghosh – Scientist F, Chitiz Joshi – Assistant Technical Officer and Persis Farooqy – World Heritage Assistant) were taken to Guru Ram Rai Darbar as local heritage site visit. This visit was planned to introduce the history of Dehradun and its relevance with culture of India.

Site - Guru Ram Rai Darbar

Described in the local lore as "a monument of friendship", built by Aurangzeb in honour of his friend, the *udasin fakir,* Shri Guru Ram Rai. A unique example of Mughal-Sikh-Pahari cultural heritage, the general layout of Guru Ram Rai's mausoleum and the adjoining garden is similar to the other mausoleums built by the Mughals. According to Cunningham, the design of the Guru's *samadhi* appears to have been inspired by Jahangir's Tomb at Sikandara, Lahore. Both the gardens, the one surrounding the monument and the one adjoining, are strikingly Mughal in their layout, representing the Charbagh concept.

The story of the friendship between the Guru and the Mughal Emperor is interesting, and is part of the Sikh-Mughal folklore. Alamgir Aurangzeb, who was a devout Sunni Muslim, had immense faith in the mystic powers of the Sufi Fakirs, and when he was told about the mystic powers of the Sikh Gurus, sent for the sixth Sikh Guru Har Rai with the message that he should present himself in the Mughal Durbar. Guru Har Rai, instead, sent Guru Ram Rai to the Delhi Durbar with instructions that he should state matters of fact before the Badshah.

According to "Mahima Prakash", the sacred book of the followers of the Guru, Aurangzeb was so impressed by the mystic powers of the Guru, that he bestowed on him the title of "Qamil Fakir", and granted him village Khera-Chandrawal near Majnu-ka-Tila in Delhi. It is said that Guru Ram Rai exhibited his mystic powers on seventy-two occasions in Delhi. On one occasion the Guru produced a three-legged goat. This particular incident and many others about the friendship between the two is depicted in the beautiful mural paintings made by the masters of the Pahari (or mountain) School in the Durbar Sahib complex, built by the later Mahants or head priests of Guru Ram Rai's udasin parampara.

Guru Ram Rai thus came to the valley in 1675 A.D. and to help his friend, Aurangzeb issued an order to Raja Fateh Shah of Garhwal to accommodate him. The Raja welcomed the Guru and granted him seven villages in the Doon Valley. And this is how the camp or dera of Guru Ram Rai came to be established in the Doon Valley, and the town that evolved around it began to be called Dehra.

In the monument, we also saw specimens of the Garhwal School of Painting. It is one of the lesser-known schools of Pahari-Rajput Paintings. The Garhwal School traces its origins to the Mughal Durbar; though some scholars believe that there was a tradition of painting in the courts of the Garhwal Kings earlier as well.

In 1658, when the exiled Mughal Prince Sulaiman Sheikh, the son of Prince Dara Shikoh, sought refuge in Srinagar-Garhwal escaping his uncle Aurangzeb, two major painters accompanied him. These were the father and son, Shyam Das Tomar and Har Das Tomar. Raja Prithvi Shah ruled Garhwal and he provided asylum to Prince Sulaiman Sheikh. Though, later, his nephew who succeeded him, betrayed Sulaiman to Aurangzeb, he kept the two painters at his court in Srinagar and they were appointed Tasvirdars in the royal Chitrashala.

Barrister Mukandi Lal and Ananda K. Coomaraswamy are credited with discovering the Garhwal School of Painting. Barrister Mukandi Lal was of the opinion that the Garhwal School is much older than the Mughal period, and it traces its origin to the Parmar Rajputs.

Later, the Garhwal School had close interaction with the Basholi and Kangra Schools, as the royal families of the hills were related through marriage, and paintings were always a significant part of the daughter's dowry. The speciality of the Garhwal School lay in depicting human figures, especially that of the nayikas. The depiction of vegetation here is not as concentrated as in the Kangra and Basholi miniatures. Ananda Coomaraswamy considered Garhwal School to be the carrier of the Ajanta tradition when it came to depicting the beauty of the nayikas.

Field VIsit

Pic 1. Dr. Lokesh Ohri talking about different art forms curved on the walls of Guru Ram Rai Durbar

Pic 2. Group picture with all the participants

Pic 3. View of Guru Ram Rai Darbar

Pic 4. Murals craved on the wall of Darbar

Visit to Forest Research Institute (FRI) Campus
[27th August, 2015 (Thursday)]

An exposure visit to The Forest Research Institute of India (FRI) was organized for the participants which is one of the most reputed and globally acclaimed institutes for research in forestry and associated fields. The institute is under the Indian Council of Forestry Research and Education (ICFRE) which is an apex body in the national forestry research system. It has been undertaking development of forestry research through need based planning, promoting, conducting and coordinating research, education and extension covering all aspects of forestry. The visit to the institute was organized for all the participants and site level managers as it would be a good learning experience about research and development initiatives being taken in FRI.

In FRI, there are 15 divisions that are dedicated to Forest, Environment, Climate Change and Wood Science disciplines. Major areas of action are Conservation of biodiversity; Production, certification and supply of quality seeds of fuel, fodder and timber species; social forestry/ agro-forestry; Conservation and eco-restoration of ecologically fragile and disturbed areas; development of technology for reclamation of wastelands; geomorphological studies on skeletal and sodic soils; development of technology for eco-friendly preservatives, etc.

The institute campus also hosts Indira Gandhi National Forest Academy (IGNFA) which imparts knowledge and skills to the professional foresters (Indian Forest Services and State Forest Services) and helps them to develop competence for managing the country forest and wildlife resources on a sustainable basis. It conducts various training programs at different professional level to strengthen professional efficiency.

Apart from the research and policy-making activities, FRI is also renowned for its rich history and architecture. The institute was established in 1906 as Imperial Forest Research Institute by the British administration. The architecture of the main building is styled in Greek-Roman form by C.G. Blomfield, the building is a National Heritage which was inaugurated in 1929. The F.R.I. with its majestic building also houses a botanical museum, entomological museum, arboretum, etc. as well for a wide variety of tourists. Its history is virtually synonymous with the evolution and development of scientific forestry, not only in India but over the entire sub-continent. It has been fostering research and education in forestry and environment tremendously and has made its significant mark in the environment field.

Field Visit

Pic 1. Dr. Bhandari, FRI interacting with participants

Pic 2. FRI main building

Pic 3. DRR workshop participants in FRI

Pic 4. Group picture with all the participants

ITINERARY

27th August, 2015
1530 hrs : Departure from WII, Dehradun
2300 hrs : Reached NIPFP, New Delhi
28th August 2015
0600 hrs : Departure from New Delhi to Agra
1200 hrs : Mehtab Bagh, Taj Mahal, Agra
1430 hrs : Keoladeo National Park, Bharatpur
1730 hrs : Departure from Bharatpur to New Delhi
29th August 2015
1000 hrs : Departure from New Delhi to Dehradun

Introduction

During the International Workshop on The Role of World Natural Heritage Sites in Disaster Risk Reduction (DRR) from 24th-27th August, 2015, a trip to Mehtab Bagh, Taj Mahal, Agra and Keoladeo National Park, Bharatpur was scheduled on the last day of the workshop. Our journey started on 26th August, 2015 at 1530 hrs from Wildlife Institute of India, Chandrabani, Dehradun. There were two institute buses to accommodate all the participants. The stay was confirmed at NIPFP (National Institute of Public Finance and Policy), Satsang Vihar Marg, New Delhi. On the next day, the same buses with its respective guests will travel to both the above mentioned sites.

Sites – Mehtab Bagh, Taj Mahal, Agra

Mehtab Bagh is the garden complex situated on the opposite bank of the Taj Mahal. It is also known as the 'Moonlight Garden'. The site is associated with the myth of black Taj, but the excavation revealed a huge octagonal tank furnished with 25 fountains, a small tank and a baradari on the east.

Field Visit

Pic 1. DDR Participants with UNESCO C2C team

Pic 2. Taj Mahal, Agra

Pic 3. DDR Participants with UNESCO C2C team

Pic 4. UNESCO C2C team for field visit

Sites – Keoladeo National Park, Bharatpur

After visiting the Taj Mahal in Agra, The participants were escorted to the Keoladeo National Park, a UNESCO World Heritage site is located in the state of Rajasthan. It is the smallest World Natural Heritage Site of India with an area of 2873 ha. It is an important wintering ground of Palaearctic migratory waterfowl and is renowned for its large congregation of non-migratory resident breeding birds. Since, it was the monsoon period in the area there were a lot of resident and migratory bird species in the national park. Forest officials along with local tour guides were also present to give an overview of the park and nesting birds. According to the officials, the park is a green wildlife oasis situated within a populated human-dominated landscape, some 375 bird species and a diverse array of other life forms have been recorded. The park is also home to various ecosystems like grasslands, woodlands, woodland swamps and wetlands. The site was developed in a natural depression wetland and the area declared a national park in 1982. The park was the only known wintering site of the central population of the critically endangered Siberian Crane. It also serves as a wintering area for other globally threatened species such as the Greater Spotted Eagle and Imperial Eagle. During the breeding season, the most spectacular heronry in the region is formed by 15 species of herons, ibis, cormorants, spoonbills and storks, wherein a well-flooded year over 20,000 birds nest.

Plate 4

Pic 1: Visitor Information Board

Pic 2: Participants watching birds

Pic 3: Heronry in KNP

Pic 4: Participants interacting with Park officials

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REPORT ON
STAKEHOLDER CONSULTATIONS ON PROPOSED FAO-MANAS PROJECT, "CONSERVING BIODIVERSITY AND ECOSYSTEM SERVICES IN MANAS BIOSPHERE RESERVE, ASSAM FOR REGIONAL RURAL DEVELOPMENT AND DISASTER RISK REDUCTION"

Project Brief

India has experienced significant growth over the last few decades. However, this has come at a significant cost to natural habitats, biodiversity and the various ecosystem services (ES) and DRR (Disaster Risk Reduction) benefits that they provide. Regional development, rural poverty reduction, disaster risk reduction (DRR) and climate change adaptation will continue to depend upon these ES. Research shows that wildlife biodiversity, particularly apex predator species, found mainly in nature reserves, play a major role in regulating ES at large geographic scales. However, because the value of biodiversity and ES have not been fully appreciated, including in India, the investments to conserve them have not been adequate.

Manas Biosphere Reserve (MBR) in Assam is likely furnishing numerous important ES for development and DRR in the larger region, according to government, research institution and NGO stakeholders. These are hydrology regulation, flood mitigation, soil erosion control, genetic resources and many others. Small, poor producers depend on them for income and food security, and they are critical for cities and industry as well. Yet in the last decades, due to the civil conflict, poaching and forest encroachment, biodiversity and ecosystem integrity in MBR have declined, negatively affecting the ES it provides. Protection has improved since the conflict's end, but key species populations remain low and funding is insufficient for protection, ecosystem restoration and sustainable livelihoods. As the MBR constitutes a large portion of BTAD and the districts in it are poorer, sustainable economic development in the future will be key.

The proposed programme, and its main coordinating agencies, the Food and Agriculture Organization of the UN (FAO) and the Wildlife Institute of India (WII) of the Ministry of Environment, Forest and Climate Change, seek to address these issues by pursuing the following goal: To develop in partnership with national and state government institutions a science- and economics-based understanding of the Ecosystem Services that MBR's wildlife biodiversity provides for agricultural development, poverty reduction and disaster mitigation at regional level; build social awareness of these services and the need to maintain them; implement measures for improved biodiversity protection and environmentally sustainable livelihoods in MBR in order to enhance the ES the reserve provides, and explore mechanisms to support sustainability. The programme will have the following components:

1. Holding inception workshops with programme stakeholders to receive inputs, hear lessons from similar initiatives; and focus the scope

2. Valuing the key ES Manas provides (e.g. water, flood and soil erosion control, genetic resources, and ecotourism) to downstream areas for economic growth, rural development and disaster mitigation; building the capacity of national and state government staff in assessing Ecosystem Services.

3. Determining the role that biodiversity, particularly keystone species, play in providing Ecosystem Services through scientific research.

4. Increasing social awareness in Assam of Ecosystem Services from Manas and support for conservation through culturally-oriented social communication.

5. Developing environmentally sustainable and improved livelihoods for Manas communities to restore biodiversity and ecosystems, and organizing increased state and community protection of key species, and exploring funding mechanisms to sustain these initiatives.

The total budget of the programme will amount to approximately USD 6 million, and the duration will be about 6 years.

The coordinating organizations, FAO and WII, are interested in receiving the inputs of national and state level organizations on the programme proposal, and are seeking the partnership of other agencies, such as the NDMA and various state-level institutions, for implementation and funding.

STAKEHOLDER CONSULTATION 1

Session II (Parallel event): First Stakeholder consultation on the FAO-MANAS PROJECT

Date: 24.08.2015

Venue: Board Room, Wildlife Institute of India

List of Participants : placed as Annexure

The Session was chaired by Shri O.P.Pandey, PCCF (Wildlife), Govt of Assam and co-chaired by Dr A.K.Roy. Principal Secretary, BTC Govt of Assam. At the onset Mr Ashwin Bhouraskar, from FAO gave an overview of the project titled Conserving Biodiversity & Ecosystem Services for Regional DRR and Rural Development in Manas Biosphere Reserve, Assam. He emphasized that the pre-project consultation was aimed at presenting the

programme design and receive feedback and ideas for further development including exploring the possibility for funding & implementation partnerships.

Dr S.P.Singh and Dr Sarala Khaling appreciated the concern for Manas and emphasized that a pilot project may be initiated to review the past inputs and lessons learnt, including to identify the gaps that may be addressed especially for community development and linkages with biodiversity.

Ms. Nandita Hazarika mentioned that currently implementing agencies for ecosystem protection and DRR are working in silos and there is a need to work in tandem and also connect the linkages. A small project to understand and zero in on the key ecosystem services that the area provides could be first piloted to clearly define the objectives.

Dr Richard Milburn suggested the idea to link ecosystem services and community benefits to fair trade mechanisms and gave the example of how Starbucks coffee was currently procuring a certain amount of its raw materials from the rainforest alliance that works on the sustainability of such plantations in the tropical region. He also emphasized on the role of armed conflict as a potential source for man-made disasters that need to be addressed in policy and management issues of Natural world heritage sites such as Manas.

Dr Y.V. Jhala and Dr Bivash Pandav were of the opinion that elephants and other mega-herbivores such as Rhinos, elpehants and wild buffaloes were more important in maintaining ecosystem dynamics in the *Terai* landscape and likely to impact grasslands. They should be considered as a key species while addressing the issue of ecosystem benefits from grassland areas.

Mr. A. Swargiary, mentioned that post-conflict since 2005, the focus of the Manas management has been to restore certain critical areas such as the Core area (Manas National Park) to its past glory. The tiger Reserve has a very large buffer which now needs the attention and innovative approaches for management.

Mr Kamal Kishore, suggested for an evidence-based project as the DRR practitioners were systematically collecting data at the local level and a this could be useful for future documentation. He also suggested to simplify the language of such documentation so that it can reach to a greater audience including the local people, managers and policy makers alike.

Dr Ram Boojh welcomed the idea of the project and emphasized that Biosphere Reserves was another area of focus for UNESCO.

Dr Janaki Andharia , Mr MK. Yadava and Mr Kripaljyoti Mazumdar stressed on the long term perspective and the strategies for skill and enterprise development that leads to a stake on conservation by the local people.

Dr A.K.Roy assured full support of BTC Govt and welcomed the idea of alternative livelihood support and transboundary initiatives through this project. Mr Tenzin Wangchuk, seconded the view to take up active transboundary management and suggested to include paramilitary such as Sashastra Seema Bal (SSB) into future discussions.

Dr V.B.Mathur cited the Indian Institute of Forest Management Study that had recently evaluated the ecosystem service benefits of certain tiger reserves in India and which could serve as an important reference point for this project.

Mr O.P. Pandey said that the term Ecosystem Services and DRR may not be well defined by the masses but they most certainly understand the overall changing patterns in climate and the reasons thereof. He also stressed on the need to create awareness and livelihood support for communities to feel a sense of ownership towards the conservation of species and Protected Areas.

The Summary outputs of this consultation meeting are as follows:

- Review past initiatives and projects in Manas and similar landscapes for lessons learnt and identifying the gaps.
- Evaluate various Ecosystem functions and benefits within Manas biosphere reserve and arrive at 2-3 key biodiversity ecosystem services that can be addressed by the project.
- Use a watershed-approach for management, especially in buffer areas of the Biosphere Reserve.
- Outreach, awareness and capacity development to be integrated as a key project component.
- Address the issue of man-made disasters such as armed conflict.
- Alternative livelihood support initiatives to be integrated with the existing mechanism and the gaps only may be addressed by the new projects.

Parallel Stakeholder Consultation on FAO-Manas Biosphere Reserve Project

Monday, 24th August, 2015; W.I.I., Dehradun

	Name	Signature
1.	Dr. A.K.Roy, Principal Secretary, BTC	
2.	Mr. A.Swargiary, CHD Forests BTC	
3.	Mr. Ashwin Bhouraskar, FAO	
4.	Dr Janki Andharia, TISS-Mumbai	
5.	Mr. Kamal Kishore, Member NDMA	
6.	Mr. Kripaljyoti Mazumdar, ASDMA	
7.	Ms. Mridusmita Bora, ASDMA	
8.	Ms. Nandita Hazarika, ASDMA	
9.	Mr. O.P.Pandey, CWLW, Assam	
10.	Dr Ram Boojh, UNESCO	
11.	Dr. Richard Milburn, King's College London	
12.	Dr. S.P.Singh, ICFRE	
13.	Dr. Sarala Khaling, ATREE	
14.	Dr. Shirish A.Ravan, UN-SPIDER	
15.	Mr. Tenzin Wangchuk, Field Director, Royal Manas National Park	
16.	Dr. V.B.Mathur, Director WII	
17.	Dr Y.V.Jhala, Scientist G WII	
18.	Dr Asha Rajvanshi, Scientist G WII	
19.	Dr G.S. Rawat, Scientist G WII	
20.	Mr Qamar Quershi, Scientist G WII	
21.	Dr Bivash Pandav, Scientist E WII	Bivash Pandav
22.	Dr Sonali Ghosh, Scientist F WII-C2C	
23.	Mr Niraj Kakati, Technical Officer WII-C2C	
24.	Ms. Rupa (Rapporteur)	
25.	Ms. Persis (Rapporteur)	
26.	M.K. Yadav	
27.	Ms. Urvana Menon	
28.	MS Margherita Fraudiotti	
29.	Ms. Laura Haiskanen	

STAKEHOLDER CONSULTATION 2

Date: 01.09.2015

Venue: NEDFI Conference Hall, Guwahati, India

List of Participants: placed as Annexure

Assam State Disaster Management Authority

भारतीय वन्यजीव संस्थान
Wildlife Institute of India

Assam Forest Department

UNESCO Category 2 Centre
World Natural Heritage Management and Training for Asia and the Pacific Region

PROGRAMME SCHEDULE

10.00- 10.30 h	Arrival of Participants and Registration
10.30-11.00 h	Welcome and felicitations of Chief Guest, Mr V.K.Pipersenia, IAS Chief Secretary, Govt of Assam and Guest of Honour, Mr. Kampa Borgayary, Deputy Chief, Govt of BTC
11.00-11.30 h	Presentation on the Project: Conserving Wildlife Biodiversity and Ecosystems Services for Regional Rural Development and Disaster Risk Reduction—Manas Biosphere Reserve, Assam, India *Presented by* Ashwin Bhouraskar, FAO Niraj Kakati, UNESCO C2C and KripalJyoti Mazumdar, ASDMA
11.30-11.45 h	Address by Chief Guest Address by Guest of Honour
11.45-11.50 h	Vote of Thanks-ASDMA and C2C
11.50-12.00	Tea Break
12.00- 2.00	Presentation and comments from the field (What would you like to see the project achieve? Is anything missing from it?) What are the lessons learnt and best practices elsewhere? *Facilitator*—Dr. Sonali Ghosh, UNESCO C2C
2.00- 3.00	Lunch Break
3:00-3.30	Closing Comments from ASDMA

Introduction

As a follow-up to the consultation workshop on FAO-supported workshop on Manas Biosphere Reserve, Assam that was held in Dehradun on 24th August, 2015, a second stakeholder consultation was undertaken in Guwahati, Assam on 1st September, 2015. The workshop was organised by the UNESCO Category 2 Centre (C2C) on World Natural Heritage management and Training for Asia and the Pacific Region, Wildlife Institute of India, Dehradun in collaboration with the Assam State Disaster Management Authority (ASDMA), Guwahati and supported by the Food and Agriculture Organisation (FAO- India Office), New Delhi.

Welcome and Felicitation

Dr. Sonali Ghosh, Scientist-F, UNESCO C2C-WII welcomed all the participants and provided the background to the workshop and to the proposed project on Conserving Biodiversity and Ecosystem Services in Manas Biosphere Reserve, Assam. The Chief Guest, Mr. V. K. Pippersenia (Chief Secretary, Government of Assam), Guest of Honour, Mr. Kampa Borgoyari (Deputy Chief and Executive Member-Forests, Bodoland Territorial Council, Assam) and other invited dignitaries from Civil Administration, Forest Department and ASDMA were felicitated with traditional scarf and bouquet. It was followed by a round of introductions by all participants at the workshop.

Project Presentation

Mr. Ashwin Bhouraskar, FAO Rome, introduced his affiliated organisation and shared with the participants about the genesis of this project initiative. He mentioned about his previous trip to Assam in 2014 and the informal meetings with key Government and Forest Department stakeholders to better understand the ground realities and feasibility of such a project. Following his remarks, details of the proposed project was presented by Mr. Niraj Kakati, Technical Officer, UNESCO C2C- WII. Basic components of the project were shared with the participants, which included stakeholder consultations, assessing ecosystem services in Manas, role of biodiversity in maintaining ecosystem services, social awareness and livelihood activities. Specifically, the presentation dwelt on the concept of ecosystem services and Eco-DRR to underline its increasing importance in the global policy framework.

Comments and Discussion

Mr. Davinder Singh, Addl. Chief Secretary (Forests), Govt. of Assam opined that protecting wildlife will be a challenge without the cooperation of local communities and suggested that there should be a strategy for introducing livelihood programmes in Manas. Other Protected

Areas in Assam may also be considered for such a project. Regarding DRR, Mr. Singh recommended focussing on restoring catchment damage to control floods downstream.

Dr. Sarala Khaling, Regional Director-Eastern Himalayas/Northeast, ATREE Gangtok mentioned that there are a plethora of ecosystem services, hence, it is advisable to focus on three to four key services relevant to Manas such as water, pollination, biodiversity, etc. She highlighted the importance of the agri-based landscape and role of wetlands in furnishing ecosystem services around Manas. Dr. Khaling brought attention to the social and economic costs of the local communities and issues such as Human-Wildlife Conflict which are now being termed as Ecosystem Disservice. She suggested that wider stakeholder groups like industry, road, etc. should also be included in this discussion.

Ms. Shalini Sharma, Asst. Professor, TISS Guwahati stated that presently Ecosystem Services are primarily evaluated on an economic basis. However, such evaluation should also include vulnerability assessment and viability of alternative livelihoods for people directly dependent on these services. She stated that rather than only quantitative assessment, we should combine human well-being and justice based on historical past. For this purpose, it is recommended that oral history studies should be undertaken to document Ecosystem Services in Manas.

Mr. Rupak Kr. Mazumdar, Deputy Commissioner, Chirang, Bodoland Territorial Administrative Districts, Assam mentioned that there have been attempts to explore livelihood options in conflict-prone area of Manas. He suggested that the Border Area Development Programme of the Government of India can be used to streamline development activities in the region. He also mentioned about the Forest Rights Act, 2006 and how land was being utilised by the population for productive activities in several areas.

Mr. O. P. Pandey, Principal Chief Conservator of Forests (Wildlife) and Chief Wildlife Warden, Government of Assam observed that there were several problems faced by Manas and the population inhabiting the region. These include social, economic, political, security, ecological and other related issues of challenge. Hence, he suggested that the project should focus on 'problem reduction' rather than 'disaster-risk reduction' alone. Further, he too felt that specific key ecosystem services of Manas should be targeted rather than many such services.

Mr. Partha Pratim Das, Tourism Advisor to Deputy Chief of Bodoland Territorial Council, Assam pointed out that the major portion of the territorial landmass of BTC was covered by the Manas landscape. Hence, the people and communities residing in this region were the biggest stakeholders who were central to any schemes and activities for this area. Therefore, economic measures are of utmost importance for development and for this

purpose, ecotourism can play a significant role in this landscape endowed with rich natural resources.

Mr. V.K. Pippersenia, Chief Secretary, Government of Assam provided the keynote address stating that the benefits of ecosystem services outweigh the costs. There is a disjoint between people who contribute to securing ecosystem services and those who take benefit from these services. Based on his experience, he explained disaster through the phrase – 'Cut trees, invite disaster'! He opined that Assam's problems arose from disrespect for forests and natural habitat. He underlined the interrelatedness between forests and human life, while urging the Forest Department to play a more active role. Mr. Pippersenia held the view that the proposed project should be a model for other Protected Areas as well. However, it is needed to simplify the concept of the project and democratise the language so that it is understood by the wider stakeholders. It is important to disseminate the knowledge generated by the project in the public domain through various media and this should be shared regularly rather than waiting only for the final report. The study should lead to understanding the factors that impact on forests and measures to address them. In particular, alternative livelihoods should be explored for the local communities and develop their stake in such a project. The project should provide recommendations for various government departments.

Mr. Kampa Borgoyari, Deputy Chief and Executive Member-Forests, Bodoland Territorial Council, Assam was the plenary speaker who reiterated the importance of ecosystem services while underlining the geographical attributes of the Manas landscape as being associated with the Himalayan foothills just as the Assam State is considered to be plains in the Brahmaputra valley. Yet, the region around Manas is still a predominantly agri-based economy. From the conservation perspective, he mentioned that that while the Manas National Park lies at the core of the Manas landscape, protection measures are particularly important for the buffer areas which constitute 70% of the landscape. Hence, there are required different policies for the core and buffer areas. Mr. Borgayari emphasised that any project in this area should include provision for utilising the services of local community volunteers and local NGOs who have been associated with conservation, ecotourism and livelihood activities in the Manas landscape over the last decade or so. He expects that the proposed project should support conservation in Manas as well as empower the stakeholders through knowledge generation and livelihood options.

Several participants present at the consultation shared their views and opinions during the discussion. Mr. Rajual Islari of the United Forest Conservation Network, a conglomeration of local community NGOs in the BTC, gave an overview of their activities and engagement in Manas over the past 10 years. Ms. Namita Brahma of Aaranyak spoke about skill

development and alternative livelihood support to the local communities. Dr. Anupam Sharma of WWF India highlighted the transboundary character of Manas and how Manas is providing ecosystem service by buffering the adverse effects of upstream pressure through Bhutan and India. Mr. Sanatan Deka talked about the importance of non-conventional sources of energy which would have beneficial effects in the forest fringe villages. Mr. D. D. Boro, Assistant Conservator of Forests, Manas Tiger Project shared with the audience about the values and challenges of Manas World Heritage Site. Mr. J. C. Johari of the Assam State Biodiversity Board informed about the need for documenting biological resources in the area through formation of Biodiversity Management Committees and also for incorporating Access and Benefit Sharing principles which would favour the local communities. The Deputy Commissioners representing the BTC Districts across Manas informed about potential for synergy with government schemes such as Mahatma Gandhi National Rural Employment Guarantee programme (MGNREGA) and Border Area Development Programme (BADP). ASDMA informed about a livelihood scoping study for the area to develop a baseline for socio-economic conditions.

Conclusion

As part of Closing Comments, Ms. Nandita Hazarika, Deputy Director and State Project Coordinator , Assam State Disaster Management Authority emphasised that a smaller core group and learning points from these consultations should be considered for future discussions. It is important that a base document on ecosystem services in Manas should be prepared which can then be shared with the wider stakeholders and to influence policy and decision makers. The project should have focussed, implementable and reachable targets.

Mr. O. P. Pandey, PCCF (Wildlife) and Chief Wildlife Warden, Government of Assam, who chaired the closing session of the consultation, concluded that while there are problems in Manas, it also provides opportunities for constructive intervention. For economic upliftment, it is necessary to develop skills and establish market linkages for people and products of the rgion. There is a need to assess not just the existing ecosystem services but also the lost service,s so that we can better understand its value and devise measures for its conservation.

Assam State Disaster Management Authority

भारतीय वन्यजीव संस्थान
Wildlife Institute of India

Assam Forest Department

UNESCO Category 2 Centre

Stakeholder Consultation Workshop for Project on Conserving Biodiversity & Ecosystem Services in Manas Biosphere Reserve, Assam for Regional Rural Development & Disaster Risk Reduction.

Tuesday September 1, 2015
Guwahati, Assam

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41	K. Borgayari	Dy. Chief, BTC		
42	V.K. Pippersenia	Chief Secy, Govt. of Assam.		
43	A. Swargowari	CMD (Forests), BTC.		
44	D.D. BORO	ACF, Manas Tiger Project.		
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STAKEHOLDER CONSULTATION 3

Date: 2nd and 3rd September, 2015

Venue: MUSA Jungle Lodge, Bansbari, Manas and Katajhar Village Eco-Development Committee, Manas

List of Participants : placed as Annexure

Introduction

The Guwahati consultation was immediately followed by another consultation onsite at Manas National Park on 2nd and 3rd September, 2014. This programme was chaired by Mr. Kampa Borgoyari (Deputy Chief and Executive Member-Forests, Bodoland Territorial Council, Assam), while other participants included Mr. A. K. Roy (Principal Secretary, Bodoland Territorial Council, Assam), Mr. A. Swargowari, (Council Head of Department-Forests, Bodoland Territorial Council, Assam), Park officials from Manas National Park and local village headman and representatives from the fringe villages around Manas.

Project Presentation

Mr. Ashwin Bhouraskar, FAO Rome, shared the rationale and components of the proposed project with the gathered audience, which was translated in local language for the benefit of the community representatives.

Comments and Discussion

The open house discussion was facilitated by Mr. D. D. Boro, Assistant Conservator of Forests, Manas Tiger Project. The village representatives were asked basic questions in order to acquire their feedback of the situation on the ground. Several reasons were provided by the people for forest dependence and degradation around Manas. Major reasons included security situation, poor governance, lack of scientific knowledge /technical knowhow on agriculture, lack of alternative livelihood support, etc. which have resulted in a vicious circle of poverty and forest dependence of the rural population.

As regards the question on previous successful schemes that the villages had benefitted from, the people mentioned irrigation schemes in particular localities, LPG domestic gas provision and occasional material support for warding away crop depredating elephants in the fringe villages of the forest area.

During the village open discussion at Katajhar Eco-Development Committee, a fringe village of Manas National Park on 3rd September, 2015, the inhabitants highlighted their vulnerability to changing river course while also pointing out the various services that they received from the river waters in the form of driftwood for fuelwood requirements and irrigation for crop fields. It was also pointed out by the villagers for their needs of thatch and tin for roofing purposes, community hall for meetings and social gathering, and measures for preventive measures as well as compensation for crop depredation by elephants.

Conclusion

In his closing remarks, the Chairperson, Mr. Kampa Borgayari reiterated his support for the proposed project in Manas. In particular, he stressed on local communities as the primary beneficiary for any proposed project which will also aid biodiversity conservation and forest protection. He suggested schemes for improving agriculture productivity such as use of available technology, introduction of high value cash crop, etc. He further committed to supporting the local population with LPG connections which would help to reduce their dependence on fuelwood from the forest. The Chairperson exhorted the people living in the fringe villages of Manas to act as responsible citizens to maintain the natural resources of the region and enhance their knowledge of the ecosystem services which they are securing as well as benefitting from.

UNESCO Category 2 Centre
World Natural Heritage Management and Training for Asia and the Pacific Region

STAKEHOLDER CONSULTATION WORKSHOP ON MANAS BIOSPHERE RESERVE PROJECT – WEDNESDAY, 02 SEPTEMBER 2015
MANAS NATIONAL PARK.

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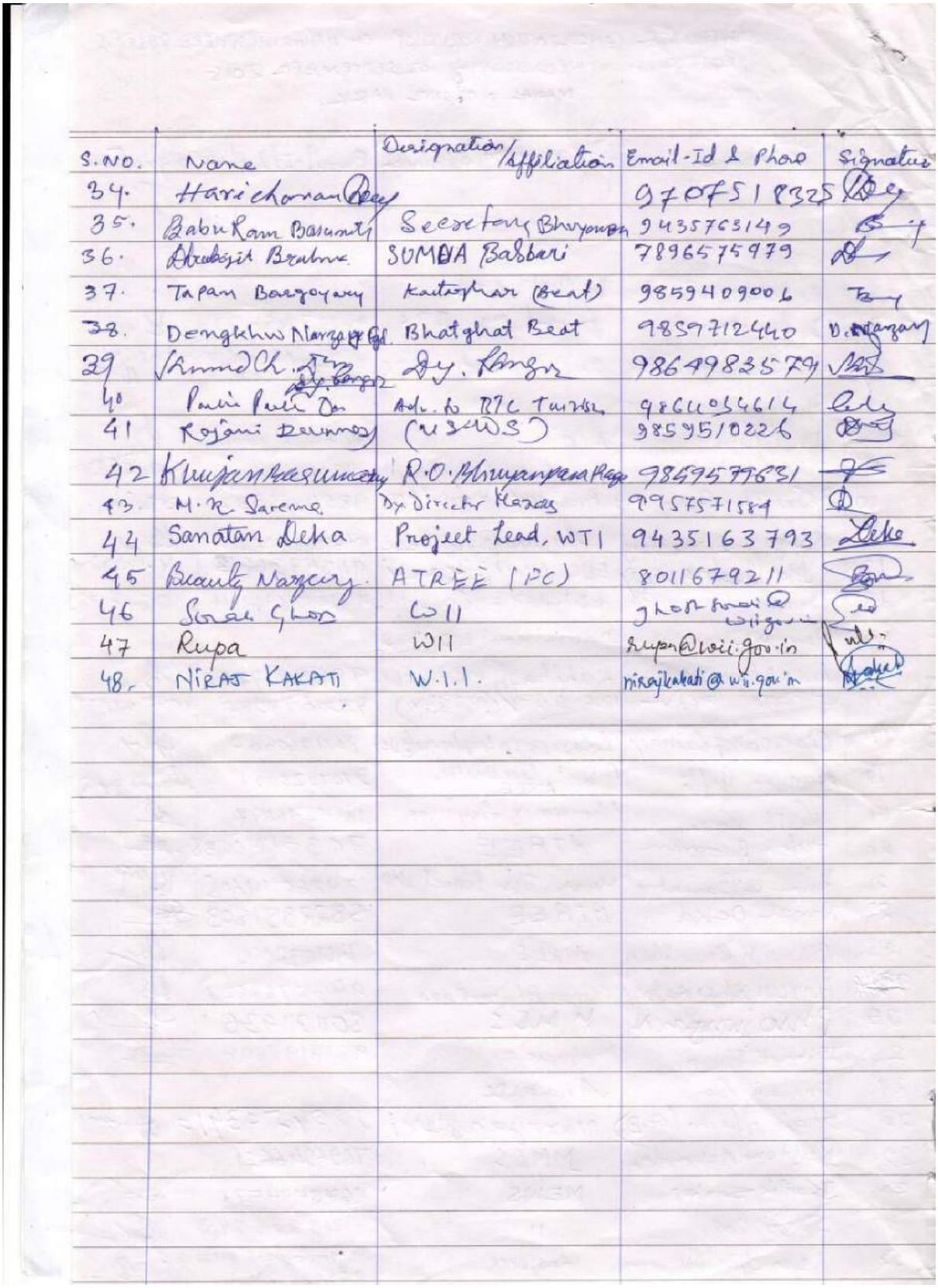

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Stakeholder Consultations on Proposed Project: Conserving Biodiversity & Ecosystem Services in Manas Biosphere Reserve, Assam

Dehradun

FAO Meeting in Dehradun-1

FAO Meeting in Dehradun-2

FAO Meeting in Dehradun-3

FAO Meeting in Dehradun-4

Guwahati

FAO Meeting in Guwahati-1

FAO Meeting in Guwahati -2

FAO Meeting in Guwahati -3

FAO Meeting in Guwahati -4

Manas Biosphere Reserve

Field Directorate, Manas Tiger Project, Barpeta Road

National Highway route to Manas

Stakeholder Consultation, Bansbari, Manas-1

Stakeholder Consultation, Bansbari, Manas-2

Manas Biosphere Reserve

Interaction with Mr. Kampa Borgayari, Dy. Chief BTC

Discussion with Manas Park Officials

Village consultation, Katajhar

Village consultation, Rajabil

Manas Biosphere Reserve

River flooding & siltation

Predominant paddy cultivation

Banks of the swollen Manas-Beki River

Rhino sighting

Media Reports

Media Coverage related to Disaster Risk Reduction-WHS Workshop (24th – 28th August, 2015)

S. No	Date	Details of the Newspaper	Headline	Website Link
1.	25th August, 2015	Hindustan Times	80% buildings in India unsafe: Expert	PDF attached below as Annexure 1
.2.	25th August, 2015	Amar Ujala	Apda se bachne ki raah dikhaega bharat	PDF attached below as Annexure 2
3.	28th August, 2015	The Tribune	Heritage Sites a shelter for Wildlife says, WII Director	http://epaper.tribuneindia.com/574105/Dehradun-Edition/DE_28_August_2015#page/3/1
4.	29th August, 2015	The Tribune	Heritage Sites in Peril; no policy to lessen damage	http://epaper.tribuneindia.com/531122/Dehradun-Edition/DE_29_June_2015#page/3/1
5.	22nd August, 2015	The Pioneer	Workshop on Heritage Sites disaster risk from August 24	http://icppl.in/pdfs/22Aug2015Dun.pdf
6.	25th August, 2015	The Pioneer	Huge progress in Disaster Risk Reduction: Kishore	http://icppl.in/pdfs/25Aug2015Dun.pdf
7	2nd Sept 2015	UN-SPIDER Website	UN-SPIDER issues the Role of World Natural Heritage and Sites in Disaster Risk Reduction in a workshop in India	http://www.un-spider.org/news-and-events/news/un-spider-issues-role-world-natural-heritage-and-sites-disaster-risk-reduction

Annexure 1

Hindustan Times

HINDUSTAN TIMES – 25 AUGUST 2015

80% buildings in India unsafe: Expert

Mihi Sharma Sahni

Participants at the workshop on the role of world heritage sites in disaster risk reduction in Dehradun on Monday. HT PHOTO

Over 7,00,000 people have lost their lives, over 1.4 million have been injured and about 23 million have been made homeless as a result of disasters. Overall, more than 1.5 billion people have been affected by disasters

VB MATHUR, director, Wildlife Institute of India

'Disasters displaced 144m people'

HT Correspondent

DEHRADUN: As many as 144 million people were displaced by disasters around the globe between 2009 and 2012, said VB Mathur, director Wildlife Institute of India (WII).

Mathur was addressing the inaugural session of the two-day "International workshop on the role of Natural World Heritage Site (WHS) in Disaster Risk Reduction (DRR)" which started here on Monday. He said the frequency and intensity of disasters are increasing, affecting sustainable development initiatives.

"In the last decade, disasters have continued to take a heavy toll and, as a result, the well-being and safety of persons, communities and countries as a whole has been affected."

"Over 7,00,000 people have lost their lives, over 1.4 million have been injured and about 23 million have been made homeless as a result of disasters. Overall, more than 1.5 billion people have been affected by disasters in various ways, with women, children and people in vulnerable situations disproportionately affected. In addition, between 2008 and 2012, 144 million people have been displaced by disasters," Mathur said.

Ram Boojh from UNESCO India also talked about fragility of the ecosystem and frequency of disasters. He said that through dedicated efforts, several lives could be saved. He said the workshop aims at studying the role of natural world heritage sites in mitigating disaster risks. Kamal Kishore, member National Disaster Management Authority also talked about need for a network to overcome natural disasters.

"This is the first workshop after United Nations Education, Scientific and Cultural Organisation made WII a centre of management and training for Asia Pacific Region last year.

Annexure 2

Amar Ujala

अमर उजाला - 25 अगस्त 2015

प्राकृतिक विश्व धरोहरों के लिए यूनेस्को ने देहरादून में खोला पहला केंद्र

आपदा से बचने की राह दिखाएगा भारत

रजा शास्त्री

आपदा जोखिम घटाने में भारत बनेगा 'विश्व गुरू'

एशिया पैसिफिक के 50 देशों के विज्ञानी लेंगे ज्ञान

5 को केंद्र से लगाई मोहर, 18 करोड़ मिले

एक्सक्लूसिव अमर उजाला

नदियों के किनारे से हटा लें निर्माण

केदारनाथ आपदा पर फिल्म देख रो पड़े

प्राकृतिक धरोहर घटाती हैं आपदा जोखिम

आपदा के जोखिमों से बचाव के संबंध में अंतरराष्ट्रीय कार्यशाला

अमर उजाला ब्यूरो

तबाही के बाद पुनर्वास में भी आती हैं काम

वन्य जीव संस्थान में सेमिनार का पहला दिन

The Tribune dated 28th August, 2015

Heritage sites a shelter for wildlife, says WII Director

TRIBUNE NEWS SERVICE

DEHRADUN, AUGUST 27

Director of the Wildlife Institute of India (WII) Dr VB Mathur has said natural heritage plays a significant role in balancing the natural cycle and acts as an protective shelter to wildlife.

Mathur was addressing a week-long international workshop titled 'The role of World Natural Heritage Sites in Disaster Risk Reduction' organised by the Unesco Category 2 Centre on World Natural Heritage Management and Training for Asia and the Pacific region held in Dehradun today.

Mathur referred to the importance of natural heritage sites and said the world heritage properties too were exposed to natural disaster such flood, tsunami and drought and manmade disasters such forest fires, armed conflicts and industrial accidents. "We need to create awareness about the need to integrate special concern for world heritage properties into national disaster reduction policies and develop an action plan for disaster risk reduction in world heritage management plans," he said.

Earlier, Dr Sonali Ghosh from the Unesco Category 2 Centre said there were 59 natural and 11 mixed world heritage sites in the Asia-Pacific region. Several of these sites were virtually defenceless with respect to potential disasters, and communities worldwide were not exploiting the full potential of their heritage that they had maintained over the centuries and were thus essential towards prevention and mitigation of disasters, she added.

Around 150 participants, including more than 30 resource persons, from Bangladesh, Bhutan, Thailand, Malaysia, Sri Lanka, Vietnam, Nepal, Myanmar, Indonesia, and India are participating in the workshop.

The Tribune dated 29th August, 2015

Heritage sites in peril; no policy to lessen damage

JOTIRMAY THAPLIYAL

DEHRADUN, JUNE 28

The natural catastrophe in Uttarakhand in 2013 and the recent Nepal earthquake, which saw unprecedented death and destruction, has certainly exposed the vulnerability of heritage sites.

The Valley of Flowers in Chamoli district, which is a Unesco world heritage site, bore the brunt in the disaster. The Dharahara tower in Nepal, too, met the same fate. However, there have been little efforts towards devising a strategy to minimise damage to the heritage sites, particularly structures that are more than a century-old.

The Dharahara tower in Nepal; and (right) The Valley of Flowers

UNDER THREAT

- The Valley of Flowers in Chamoli district, which is a Unesco world heritage site, bore the brunt of the natural disaster in 2013. The Dharahara tower in Nepal, too, met the same fate.
- There have been little efforts towards devising a strategy to minimise damage to heritage sites, particularly structures that are more than a century-old. The present disaster preparedness and response mechanism policies do not have any plan for heritage sites.

Most of the heritage sites are virtually defenceless to potential natural disasters like floods and earthquakes and even forest fires. The present disaster preparedness and response mechanism policies do not have any plan for heritage sites.

Several key bridges were washed away and trekking routes were demolished in the Valley of Flowers during the Kedarnath deluge. The normalcy is still to be resorted even two years of the calamity.

Girish Joshi, a disaster management expert, said, "These old constructions have in them wisdom of our forefathers, who were wise enough to resort to the best of techniques and material to ensure that the structures are safe and sound. However, with the passage of time these structures certainly need an action plan to safeguard them from potential natural threats", Joshi points out.

He said the sudden collapse of the Dharahara tower, the most famous tourist destination in Nepal, was unimaginable as it had withstood several other earthquakes. However, the recent one proved detrimental to its existence.

A Unesco Centre for World Natural Heritage Management and Training for Asia-Pacific region here in Dehradun has been working for the conservation of heritage conservation in Asia and Pacific region. Director of the centre Vinod Mathur underlines the need for the inclusion of world heritage sites in national disaster reduction policies and calls for the development of an action plan for disaster risk reduction in world heritage management plans. "World heritage properties do not have any established policy, plan or process for managing vis-à-vis reducing risks associated with potential disasters", he added.

Hariraj Singh, a disaster management consultant, admits that heritage structures need special work plan for conservation which should also include the aspect of risk reduction to disasters. "There have been a rise in the incidents of climate change induced natural disasters across the globe. Special measures to safeguard heritage sites from disasters are needed to be taken on a priority basis", he added.

The Pioneer dated 22nd August, 2015

Workshop on heritage sites, disaster risk from August 24

PNS ■ DEHRADUN

Experts from India and abroad will attend an international workshop and training on disaster risk reduction and world natural heritage sites in Asia and the Pacific region in Dehradun. The international workshop and training will be held from August 24 to 28 at the Unesco Category 2 Centre on World Natural Heritage Management and Training for Asia and the Pacific Region, Wildlife Institute of India.

According to Unesco C2C on Natural World Heritage Sites for the Asia-Pacific, the revised strategy for risk reduction at world heritage properties as formulated in 2007, the UN-Hyogo Framework For Action- Priority 4 and the UN World Conference on Disaster Risk Reduction in Sendai, Japan recognise the role of protected areas as an instrument for ecosystem-based adaptation to disasters and climate change. Natural world heritage sites exemplify this role by adding the dimension of traditional values, ecosystem integrity, and hence contribute immensely to this strategy. There are 59 Natural and 11 mixed World Heritage Sites in the Asia-Pacific. The thematic training and workshop is intended to provide a platform to site managers and multi-disciplinary experts for training and work out on a possible action plan for disaster preparedness through the medium of World Heritage Sites in the Asia-Pacific region. The training for on-site managers will be conducted from August 24 to 26 followed by a two-day workshop and brainstorming session.

The main objectives of the training workshop in Dehradun are to identify and assess natural and man-made disaster risks at World Heritage properties in the Asia-Pacific Region; raise awareness about the need to integrate special concern for natural and mixed World Heritage properties into national disaster reduction policies and develop an action plan for disaster risk reduction in world heritage management plans and to carry out training for managers of natural and mixed World Heritage properties in disaster risk reduction and adaptation strategies.

On the inaugural day of the workshop, National Disaster Management Authority member Kamal Kishore will be the chief guest while the ADG (Wildlife) Vinod Ranjan will be the guest of honour. Margherita Fanchiotti from UNESCO Paris will deliver the keynote address. Technical sessions will focus on defining and identification of disasters in World Natural Heritage sites of the Asia-Pacific, strategies for risk reduction, sharing experiences and best practices, linking ecosystem services, disaster risk reduction and World Heritage from an evaluative perspective and other issues.

This international workshop is expected to result in preparation and launch of a customised training manual, training compendium and protocols for site managers in the Asia-Pacific to deal with disaster risk. Site-specific deliberations and documentation of disaster-risk preparedness shall be brought out as an action plan for disaster risk reduction and World Heritage sites in the region.

The Pioneer dated 25th August, 2015

Heritage sites a shelter for wildlife, says WII Director

TRIBUNE NEWS SERVICE

DEHRADUN, AUGUST 27

Director of the Wildlife Institute of India (WII) Dr VB Mathur has said natural heritage plays a significant role in balancing the natural cycle and acts as an protective shelter to wildlife.

Mathur was addressing a week-long international workshop titled 'The role of World Natural Heritage Sites in Disaster Risk Reduction' organised by the Unesco Category 2 Centre on World Natural Heritage Management and Training for Asia and the Pacific region held in Dehradun today.

Mathur referred to the importance of natural heritage sites and said the world heritage properties too were exposed to natural disaster such flood, tsunami and drought and manmade disasters such forest fires, armed conflicts and industrial accidents. "We need to create awareness about the need to integrate special concern for world heritage properties into national disaster reduction policies and develop an action plan for disaster risk reduction in world heritage management plans," he said.

Earlier, Dr Sonali Ghosh from the Unesco Category 2 Centre said there were 59 natural and 11 mixed world heritage sites in the Asia-Pacific region. Several of these sites were virtually defenceless with respect to potential disasters, and communities worldwide were not exploiting the full potential of their heritage that they had maintained over the centuries and were thus essential towards prevention and mitigation of disasters, she added.

Around 150 participants, including more than 30 resource persons, from Bangladesh, Bhutan, Thailand, Malaysia, Sri Lanka, Vietnam, Nepal, Myanmar, Indonesia, and India are participating in the workshop.

Annexure 3

UN-SPIDER issues the Role of World Natural Heritage and Sites in Disaster Risk Reduction in a workshop in India

Shirish Ravan of UN-SPIDER speaking on "Role of earth observation in maitaining health of natural heritage sites"

The International Workshop on the Role of World Natural Heritage (WHS) Sites inDisaster Risk Reduction (DRR) was organised by UNESCO Category 2 Centre (C2C) World Natural Heritage Management and Training for Asia and the Pacific Region based at Wildlife Institute of India. The event was performed in Dehradun city on 24 and 25 August. The main objectives of the workshop were:

· To identify and assess Natural and man-made disaster risks at World Heritage properties in the Asia-Pacific Region,

· To raise awareness about the need to integrate special concern for Natural and Mixed World Heritage properties into national disaster reduction policies and develop an Action plan for Disaster Risk Reduction in World Heritage Management plans;

· Carry out training for managers of natural and mixed World Heritage properties in disaster Risk Reduction and adaptation strategies.

Shirish Ravan, head of UN-SPIDER Beijing Office participated in the workshop as a panellist from the first technical session on “Defining and identification of Disasters in World Natural Heritage Sites of the Asia-Pacific”, and introduced concepts ofEcosystem based Disaster Risk Reduction (Eco-DRR), Ecosystem based Adaptation (EbA) and the role of earth observation. Ravan also tackled DRR in World Natural Heritage Sites in Asia and the Pacific Region: Sharing experiences and best practices, as a Chair of this second technical session.

Publishing Date: 02/09/2015

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CONCLUSION -ROAD MAP FOR THE FUTURE

The revised Strategy for Risk Reduction at World Heritage Properties as formulated in 2007, The UN-Hyogo Framework for Action Priority 4 and the UN World Conference WCDRR in Sendai, Japan recognise the role of Protected Areas as an instrument for ecosystem-based adaptation to Disaster Risk Reduction (DRR). Natural World Heritage Sites exemplify this role by adding the dimension of traditional values, ecosystem integrity, and hence contribute immensely to this strategy. In furtherance of the above theme, an intensive workshop and training programme was organised from 24th - 28th August at the UNESCO C2C on World Natural Heritage Management and Training for Asia and the Pacific Region, Dehradun, India (website:http://www.wii.gov.in/unesco_category2_centre) . The overall objective of the workshop was to strengthen and build capacity of key stakeholders associated with World Natural Heritage Sites in the Asia- Pacific Region. The workshop was attended by over 150 participants from 10 countries (Nepal, India, Bhutan, Thailand, Myanmar, Malaysia, Myanmar, Sri Lanka, Vietnam and Indonesia). Over 25 World Heritage sites were represented by site managers, scientists, NGO representatives, students and researchers. The major outcome of the workshop and training has been a more sensitised team of site managers, policy makers and practitioners who now recognise the need to integrate and understand the two way linkage between DRR and natural heritage. A comprehensive network of site managers and documentation has been compiled which shall guide further studies and capacity building initiatives of the UNESCO C2C in the Asia-Pacific region. It is expected that the four Sendai priorities of Understanding disaster risk, Strengthening disaster risk governance to manage disaster risk, Investing in disaster risk reduction for resilience and Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction have been adequately addressed by the end of the training session. The road map that is currently being designed will include the objectives as follows:

- Promote Ecosystem-based Disaster Risk Reduction as part of Increasing resilience of Natural World Heritage Sites in the world.
- To influence policies in the post-sendai world and include Natural World Heritage Sites and their DRR capabilities in the guidance framework.
- To take up a comprehensive DRR-Toolkit designing and implementation with pilot studies in Natural World Heritage Sites in the Asia-Pacific Region.

- To arrive at a strategic framework for capacity development of multiple stakeholders including local communities for addressing DRR in Natural world heritage management and conservation.

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