2016 Asian ESP Conference :
Ecosystem Services for Nature Based Solutions

• Ansan-si, Republic of Korea
• 30 May~3 June 2016

Session S4: Natural World Heritage sites and their role in provisioning ES including disaster risk reduction & Climate change adaptation in the Asia-Pacific region.

June 3, 2016

Venue: Emerald Room, Erica Guest House, Hanyang University, Ansan-si, Republic of Korea

Organized by:

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

United Nations Educational, Scientific and Cultural Organization
UNESCO Category 2 Centre
World Natural Heritage Management and Training for Asia and the Pacific Region
भारतीय वन्यजीव संस्थान
Wildlife Institute of India
german cooperation
DEUTSCHE ZUSAMMENARBEIT
giz
ValuES

Contents

Background Note

World Natural Heritage Sites are places on Earth that have Outstanding Universal Value and therefore hold a special conservation need for entire humanity. These sites are considered precious for present and future generations hence they deserve collective efforts for conservation and management of such properties. While 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, the loss or deterioration of outstanding values for which the sites were inscribed on the World Heritage List can have negative socio-cultural and economic impacts. At the same time, the sites also directly or indirectly provide ecosystem services such that help in reducing disasters. 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.

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 (Eco-DRR). Natural World Heritage Sites exemplify this role by adding the dimension of traditional values, ecosystem integrity, and hence contribute immensely to this strategy.

Presently there are 64 Protected Areas inscribed as Natural and Mixed World Heritage sites by UNESCO in the Asia-Pacific region and several that are currently on the Tentative List. All of these hold immense potential to serve as benchmarks for provisioning of ecosystem services and Ecosystem based disaster risk reduction DRR in the world.

The UNESCO Category 2 Centre on World Natural Heritage Management and Training for the Asia-Pacific region at India (http://wii.gov.in/unesco_category2_centre) is a newly established centre which is located within internationally acclaimed Wildlife Institute of India, a centre of excellence in itself for biodiversity conservation in the Indian subcontinent.

In this regard , a session titled 'Natural Heritage Sites and their role in ecosystem Services provisioning, DRR and Climate Change Adaptation in the Asia-Pacific Region' was successfully conducted at the 2015 Asian ESP Conference : Ecosystem Services for Nature Based Solutions (http://www.espconference.org/asia2016#.V2M_b6JqJNU) on 3rd June, 2016.

The details of the workshop proceedings have been described in the following pages:

Workshop Format:

The workshop featured:

- Keynote speakers and experts working in this field.
- Panel Discussion held under the banner of World Heritage for inclusion of Eco-DRR as a policy initiative in future conservation/ management of sites.

Goals and objectives of the session were:

- To learn about the World Heritage Convention and its linkages with provisioning of Ecosystem Services, DRR and CCA in the Asia-Pacific Region.
- To interact and learn from listening to key experts in the field of world heritage and Eco-DRR and understand the linkages between the two.
- To Influence policy and action in their home countries for better management and protection of world heritage sites that also represent Protected Areas of Outstanding Universal Values.

Planned output / Deliverables:

- Better understanding of World Natural Heritage in Asia-Pacific Region as they are mostly Protected Areas of Outstanding Universal Values.
- Built partnerships and networks for future works in this field including Pilot Projects and joint publications.
- A suggested road map for Disaster Prevention in Asian Protected Areas (Including Iconic Natural and Cultural sites).

Acknowledgements:

The session organisers would like to thank Dr Vinod B.Mathur, Director Wildlife Institute of India and UNESCO C2C on Natural Heritage site management and training for the Asia-Pacific region for giving us the opportunity to participate and organize the session on the Centre's behalf. Dr. Alejandro von Bertrab T. of the Global Project ValuES: Methods for integrating ecosystem services into policy, planning, and practice and GIZ-India office is thanked for providing funding support to three of the participants to attend the conference and training sessions. The ESP conference organizers, especially Dr. Rudolf De Groot, Ms. Namue Lee and Ms. Martine van Weelden are thanked for including the session in the main programme and providing all the backgorund logistics support. Last but not the least, Ms. Kritikka Uniyal and Mr. Joe Tsela from India and all the other student volunteers from Ansan City, Korea are thanked for their round the clock support and help in organizing the event.

Session Highlights:

(all presentations available on https://drive.google.com/folderview?id=0BwxtjBnv3GupRDV4bmZjTndYakE&usp=drive_web)

As a facilitator of the session, **Dr. Sonali Ghosh,** from UNESCO C2C, India in her opening remarks welcomed all participants and informed the gathering about the session outline which included discussion related to setting linkages between World Heritage Sites (WHS), Disaster Risk Reduction (DRR) and Ecosystem Services (ES), impact of hazards on WHS and Eco-DRR approach for WHS to help in mitigation. In her presentation she gave an overview of Natural World Heritage sites and their role in provisioning ES including disaster risk reduction & Climate change adaptation in the Asia-Pacific region. She described the concepts of World Heritage Convention, WHS and OUVs. OUV is any Cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. There are 10 Criteria for the assessment of OUVs. She also talked about disaster which is a serious disruption of a society which goes beyond local coping capacities and disaster risk which includes potential disaster losses. Later in her presentation she highlighted the role of ecosystems in DRR. Ecosystems can prevent or mitigate hazards by functioning as natural buffers. Ecosystems can also reduce vulnerability by supporting livelihoods – before, during and after disasters. Similarly, Natural World Heritage sites also play important role in pre and post disaster scenarios by maintaining ecosystem integrity and regulating local climate, assisting communities in coping with gradual change (such as in water supplies and agricultural productivity) through the maintenance of essential ecosystem services, including water regulation, pollination and control of soil erosion and serving as alternative source of resources following a disaster. In the end she talked about two approaches Eco-DRR and EbA and their multiple benefits. Eco-DRR is sustainable management, conservation and restoration of ecosystems to reduce disaster risk, with the aim to achieve sustainable and resilient development whereas EbA is a "new" approach, involving the use of biodiversity and ecosystem services through sustainable management, conservation and restoration of ecosystems, to help people adapt to the adverse effects of climate change (CBD, 2009).

Dr. Janki Andharia from Tata Institute of Social Sciences, Mumbai emphasized 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. She emphasized upon role of science and technology & policies in disaster risk reduction. She also described the concept of Traditional Ecological Knowledge (TEK). The need to invoke traditional knowledge comes perhaps from a humility that is known to humankind and that the danger of climate change is before us and many of the assumptions

on which policy makers based their decisions were false or were myopic in many ways. TEK helps us explore how local knowledge, community-based conservation and resilience interrelationships operate in social-ecological systems.

Ms. Rupa from UNESCO C2C, India, presented a case study of Sundarbans Forests in India and Bangladesh with study objective to assess the hazard vulnerability of Sundarbans World Heritage site using RS/GIS tools. She detected the mangrove change in Sundarbans for a period of 20 years from 1989 to 2009. For her study she used Landsat data of three different dates (i.e. 1989, 1999 and 2009) and did Normalized Difference Vegetation Index (NDVI) to calculate different vegetation classes for the area. A computable decrease has been found in dense forest class from 1989 to 1999 showing negative forest change for the time period. Whereas there is again an increase in dense forest class from 1999 to 2009 indicating positive forest change. It was found that re-growth of Mangroves has increased in the last 20 years and contributed to dense mangroves.Manual detection of forest area showed some mangrove forests, which were present in 1989, were completely submerged in water in 2009. In these times there were three big natural disaster happened, and they were Cyclonic Storm SIDR in 2007 and finally the big Cyclone AILA in 2009. The study highlighted the vulnerability of Natural World Heritage Sites to disasters, their ability to provide protection to adjoining areas especially habitation and are known to reduce economic losses and a dire need for incorporation of an Ecosystem Based DRR strategy into WHS management Plans.

Dr. Anil K. Bhardwaj, from Wildlife Institute of India in his presentation accentuated the Ecosystem Services of Periyar Tiger Reserve heritage site from India. Periyar Tiger Reserve (PTR) forms part of Periyar cluster of Western Ghats World heritage site of India. As a major source area of sub cluster, site has a range of conservation values in terms of biodiversity, landscape connectivity, catchment, socio-economic contributions and other cultural attributes. He recounted that PTR has been the source of a range of ecosystem services for the surrounding landscape covering both of Kerala and Tamilnadu including flow benefits, gene pool protection, provisioning of water to the adjoining districts, providing habitats and refused for wildlife, generation of employment for the local communities, water purifying services to nearby towns and districts as well as recreational values. The total monetory value of these prominent has been estimated to be about 500 million dollars. He explained that the current participatory approaches to the entire Periyar, Agasthyamalai landscape, appreciation of values of ecosystem services of PTR is an important challenge for evolving integrated approach for landscape conservation and supportive governance mechanism by involving different stakeholders. Ecotourism revolving around heritage values of PTR and other units of Western Ghats cluster could provide an important beginning for integrated management of the landscape. There is also a need to give prominence to the conservation values in terms of ecosystem services for this landscape in the overall planning of the state so as link conservation and development.

Dr. V. Clement Ben from Sahyadri Tiger Reserve, India in his presentation gave a brief introduction of Sahyadri Tiger Reserve which is part of the Western Ghats (Serial site) Natural World Heritage Site in India. He described its role in Disaster Risk Reduction and Climate Change Adaptation. The Sahyadri Tiger Reserve landscape provides space for overspill of water and attenuates flood situation since it houses the Koyna Dam and the Chandoli Dam. The forests on steep slopes stabilize soil and loose rock thereby preventing landslides. As the Sahyadri Tiger Reserve is managed as per the sanctioned Tiger Conservation Plan by the Government of India, the ban on grazing and trampling reduces the process of desertification. He also mentioned that in order to strengthen the resilience of the Sahyadri Tiger Reserve, aspects like Management Planning, assessment of threats, restoration plans, assessment of capacity needs, research and monitoring and management effectiveness evaluation are given utmost importance. The Sahyadri Tiger Reserve Management is planning to integrate the protected areas of Radhanagiri Wildlife Sanctuary and strengthen the corridor by proposing corridor management Plans.
Also the introduction of Conservancy fee for the resorts located in the buffer zone of the Tiger Reserve which is a mode of payment for the ecosystem services for water to incorporate protected area values into economy. Buffer zone extending to 465 sq km has been notified by the state to enhance protection standards for the tiger reserve. Various management interventions viz. maintenance of meadows, clearance of fire lines, soil and water conservation measures, strengthening of existing natural water holes and rehabilitation of people from the core zone are some of the activities executed in the Sahyadri Tiger Reserve which directly plays a pivotal role in Disaster Risk Reduction and Climate Change.

Dr. Osamu Saito from United National University, Japan then gave a presentation titled "Social-Ecological Restoration after the Great East Japan Earthquake (GEJE)". He talked about the designation of Sanriko Fukko National Park that was specially designated as a Protected Area as part of the post-GEJE Eco-DRR initiative in March 2013. Linkages between forests, villages, rivers and ocean and the ongoing renewal of such linkages is a major thematic focus of the national park. He emphasized on the importance of working in line with the Sanriku Geopark plan to communicate experiences of earthquakes/tsunami to future generations. He further explained that creating resilient societies that can respond to both sudden disasters (e.g. tsunamis, floods) and long-term changes in nature (e.g. climate change) are newly-emerging issues. Strengthening socio-ecological resilience (e.g. evacuation routes, disaster risk reduction training) is also important in addition to increasing physical resilience. Also utilization of natural resources and strengthening resilience through partnerships are key for creating resilient societies in the reconstruction process. He also gave a case study of Kesennuma Oshima Island which is a part of Sanriku Fukko National Park. After the GEJE, it was decided after consultation with the local communities that, at Tanakahama beach, a seawall of 3.9m would be reconstructed on the beach near the shoreline as it was before the GEJE. The local administrative authority bought affected land behind the seawall to establish forests that further aided in disaster prevention to the residential areas. Ministry of Environment Japan (MOEJ) has also developed a centre for Tanakahama nature experience programs promotion near the beach and an emergency

evacuation route to reduce tsunami risks. In the end he highlighted the key points for promoting Eco-DRR. He said that urban neighborhoods need to be relocated from tsunami-affected areas or subsided land and utilizing the vulnerable land for farming and restoring natural marshlands will strengthen regional resilience. The roles of ecosystems, including coastal wetlands and forests, in preventing and mitigating disaster risks in different parts of the world was discussed. Cooperation among various stakeholders, including government, private sector organizations, NPOs and citizens is important to realize societies in harmony with nature with strengthened resilience to respond to disasters.

Dr. Wooyeon Joo from National Institute of ecology, PR Korea submitted a presentation titled Ecosystem Services assessment from World Heritage sites in South Korea. S. Korea has 11 Cultural World Heritage Sites and one Natural World Heritage Site. The presentation gave examples from the Korean National Ecosystem Assessment wherein key ecosystem services of nature based tourism and recreation were mapped from Jeju Volcanic Island and Lava tubes, World Heritage Site. The enhanced economic benefits from recreational tourism as a cultural ecosystem service have been highlighted and it is expected that the same will help in aiding national policies in favour of greater protection to natural resources in fragile landscapes.

Panel Discussion

Dr. Madhav Karki, Executive Director of the Centre for Green Economy Development, Nepal initiated the panel discussion. He said that we all recognize the WHSs/PAs are under tremendous stress and we need to take out when we talk about preparing a roadmap for disaster prevention in our Protected Areas (PAs). Anthropogenic climate change also needs to be given importance. He suggested two points for action: The roadmap should be to effectively implementing the National Biodiversity Strategies and Action Plans (NBSAPs) to monitor how far the Aichi Targets have been achieved. Second, there is a need to maintain resiliency. There should be a single ministry dealing with issues related to DRR, CAA and Biodiversity. DRR and CCA should be an integrated approach. Emphasis should be given on local situation based adaptation and should be accepted universally. Vulnerability assessment should be done at species level and landscape level. Bring in science and technology for conservation and management. There is a need for Community and Ecosystem based resiliency.

Dr. Andrew Wyatt from IUCN Vietnam Greater Mekong project then made his remarks that there is a tight link between CCA, DRR and Biodiversity Conservation especially in case of coastal management. Indeed there is a need for single ministry dealing with DRR, CCA and Biodiversity Conservation. Remote Sensing and GIS are good and attractive methodologies for getting results in case of change detection in forests but they have their own drawbacks. For example in case of Mangrove Shrimp Areas it becomes very difficult to distinguish between natural forests and shrimp farms using RS and GIS. In case of TEK, there are some areas around the world which have short settlement history to utilize the ecological/geological knowledge. Therefore, more study need to be done on the deciding factors for TEK.

Mr. Tony Schiffings from WHT Malaysia mentioned that to develop a roadmap for disaster prevention is not a goal here as some disasters cannot be prevented. Therefore, it should be a roadmap to reduce disaster. This roadmap should be implemented in expanded area like Biosphere Reserves, National Parks etc. as a lot of biodiversity is being held in these areas. DRR approach needs to be more holistic.

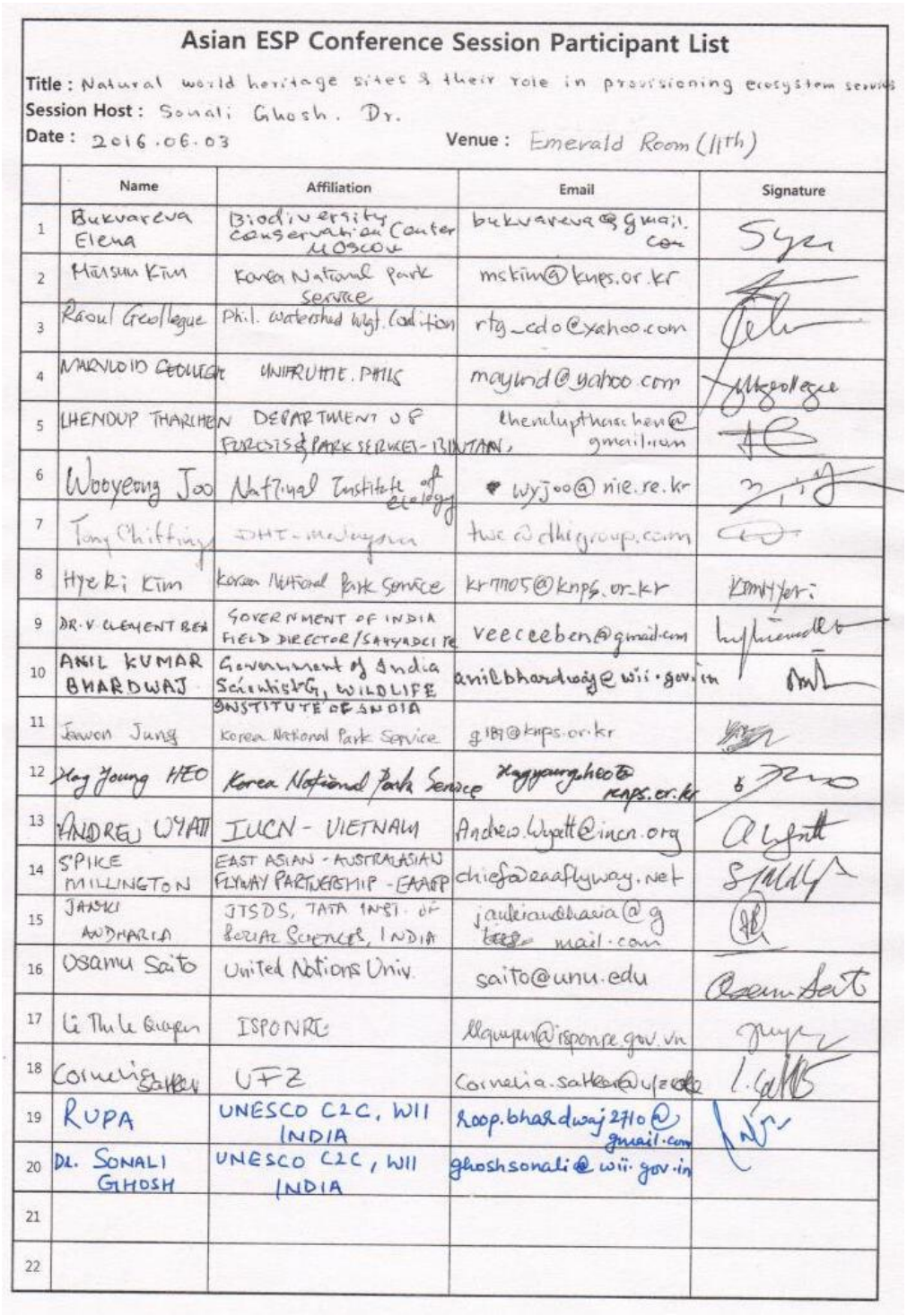
Mr. Spike Millington, Chief Executive of the East Asian–Australasian Flyway Partnership in his remarks urged us to think on what is special about WHS that makes this subject so interesting and relevant? It is about their OUV and what we stand to lose from negative impacts from potential disasters and CC impacts. Because these values are outstanding and universal, impacts on them will have a significant effect on our global natural heritage in way that other sites may not. If we look at the Great Barrier Reef, for example, it is being severely impacted from CC impacts resulting in loss through bleaching of a significant part of the site, and the site is under threat from proposed port and mining activities, which may multiply CC impacts and/or result in other cumulative effects. This is turn will be reflecting it the ecosystem services that the site provides – one obvious case being the dip in tourism revenues. Once this kind of vicious cycle of reduced ability to provide key services goes into effect it can be very difficult to reverse.
The second point would then be about the need for long-term planning of sites. Sites are not static but dynamic, notably in the face of external changes including climate change, so management needs to take a longer-term perspective (indeed the OUV may itself shift in response to these changes). For example, the East-Australasian Flyways Partnership project is interested in designating Yellow Sea intertidal areas as a World Heritage site. Although habitat loss through reclamation is currently the most pressing threat, over time sea-level rise is likely to play a major role in inundating some areas. So site selection and management needs to consider the potential for sites to "migrate" inland in the face of sea-level rise. For some sites this will not be possible because hard infrastructure (sea walls, urban areas) immediately back up the intertidal mudflats. Other areas with relatively undeveloped areas immediately inland from the mudflats may be more sustainable in the long-term. Particularly for CC adaptation, range shifts for ecological communities and species may be inevitable. It is therefore important to study and understand the impact of shifting boundaries and subsequent management of sites to retain its OUV.

Conclusion

The session highlighted the role of Protected Areas (including Natural World Heritage Sites) as an Ecosystem-based DRR strategy that can readily be incorporated in the planning and management of natural resource in Asia. At the same time World Heritage Sites are more vulnerable to disasters because of the uniqueness that they preserve in terms of the OUV . Linkages with other regional goals as laid out by SDGs, Sendai Framework for Action and the Aichi targets were also discussed and it is expected that DRR strategies will find a prominent place in the road map for action that emerged from the Asian ESP-Conference.

Annexure 1

List of Participants



Asian ESP Conference Session Participant List

Title : Natural world heritage sites & their role in provisioning ecosystem servic
Session Host : Sonali Ghosh. Dr.
Date : 2016.06.03 **Venue :** Emerald Room (11th)

	Name	Affiliation	Email	Signature
1	Bukvareva Elena	Biodiversity conservation Center MOSCOW	bukvareva@gmail.com	
2	Mirsun Kim	Korea National Park Service	mskim@knps.or.kr	
3	Raoul Geollegue	Phil. watershed Mgt. Coalition	rtg_cdo@yahoo.com	
4	MARYLOU GEOLLEGUE	UNIFRUITTE. PHILS	maylord@yahoo.com	
5	LHENDUP THARCHEN	DEPARTMENT OF FORESTS & PARK SERVICES - BHUTAN.	lhendupthartchen@gmail.com	
6	Wooyeong Joo	National Institute of ecology	wyjoo@nie.re.kr	
7	Tony Chitting	DHI - Malaysia	twc@dhigroup.com	
8	Hyeki Kim	Korea National Park Service	kk11105@knps.or.kr	
9	DR. V CLEMENT BEN	GOVERNMENT OF INDIA FIELD DIRECTOR/SANYADCI TE	veeceeben@gmail.com	
10	ANIL KUMAR BHARDWAJ	Government of India Scientist-G, WILDLIFE INSTITUTE OF INDIA	anilbhardwaj@wii.gov.in	
11	Jaewon Jung	Korea National Park Service	g189@knps.or.kr	
12	Hag Young HEO	Korea National Park Service	Haggyoung.heo@knps.or.kr	
13	ANDREW WYATT	IUCN - VIETNAM	Andrew.Wyatt@iucn.org	
14	SPIKE MILLINGTON	EAST ASIAN - AUSTRALASIAN FLYWAY PARTNERSHIP - EAAFP	chief@eaaflyway.net	
15	JANKI ANDHARIA	JTSDS, TATA INST. OF SOCIAL SCIENCES, INDIA	jankiandharia@gmail.com	
16	Osamu Saito	United Nations Univ.	saito@unu.edu	
17	Li Thu Le Quyen	ISPONRE	llquyen@isponre.gov.vn	
18	Cornelia Sattler	UFZ	Cornelia.sattler@ufz.de	
19	RUPA	UNESCO C2C, WII INDIA	Roop.bhardwaj2710@gmail.com	
20	DR. SONALI GHOSH	UNESCO C2C, WII INDIA	ghoshsonali@wii.gov.in	
21				
22				

Annexure 2

Program Schedule

DAY /Time	30 May Mon.	31 May Tue.	1 June Wed.	2 June Thur.	3 June Fri.
08:00	**Registration Training**	**Registration**	**Registration** *(day passes)*	**Field Trips**	**Registration** *(day passes)*
09:00	**Training** on IES by GIZ: German Development Cooperation *(2 days: Monday & Tuesday)*	**Opening & Cultural Performance**	**Opening & Keynotes** Dr. Kim Chong-Chun & Beria Leimona		**Parallel Sessions:** ***B:*** *7,8* ***S:*** *2, 4* ***T:*** *7* *(with flexible coffee break around 10:30)*
09:30					
10:00		**Welcome addresses**	**Parallel Sessions:** ***B:*** *1, 2, 4* ***O:*** *1, 6* ***T:*** *2, 3, 6, 8* *(starting after coffee break)*		
10:30		**Keynotes** Prof. Robert Costanza & Dr. Jae Chun Choe			
11:15		**Networking day:** Poster sessions Presentations by ESP country representatives			
12:30	**Lunch**	**Lunch**	**Lunch**		**Lunch**
13:30	**Training** *(continued)*	**Asia ESP Member Forum I** *(in plenary)*	**Parallel Sessions:** ***B:*** *1, 5* ***O:*** *1, 3, 5* ***S:*** *3* ***T:*** *1, 5, 6* *(with flexible coffee break around 15:30)*		**Keynote** Madhav B. Karki, Ph.D. *(14:00)*
14:30	**Training continues on Tuesday**	**Poster session** *(continued)* **Ecosystem Services Market** "Nature's Gift" **Youth Event** **Exhibitions** *(with flexible coffee break around 15:30)*			**Asia ESP Member Forum II** Workshop Results & Panel Discussion : "Way Forward" Recommendations
15:30					**Closing session** - Next Asian ESP Conference -Fund-delivery ceremony - Poster Award
16:00		**National Network meetings** & KESNet Member Forum *(in parallel)*			**16:30 DEPARTURE**
17:30	**Pre-conference Registration** (16:00-18:00)	**Break**	**17:00 Departure DMZ**		
18:00		**Welcome Reception**			

Annexure 3

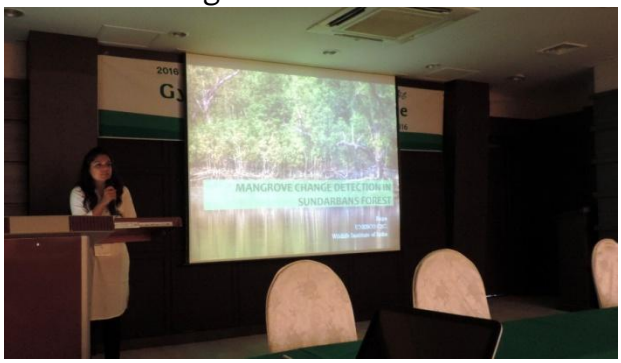

WELCOME
Session S4: Natural World Heritage sites and their role in provisioning ES including disaster risk reduction & Climate change adaptation in the Asia-Pacific region.
June 3, 2016
Venue: Emerald Room, 11th Floor
United Nations Educational, Scientific and Cultural Organization
UNESCO Category 2 Centre
भारतीय वन्यजीव संस्थान
Wildlife Institute of India
german cooperation
giz
ValuES
2016 Asian ESP Conference :
Ecosystem Services for Nature Based Solutions
• Ansan-si, Republic of Korea
• 30 May~3 June 2016

Annexure 4

Photos from the Session

Dr. Madhav Karki, Co-Chair IPBES-AP region initiating the Panel Discussion

Dr. Osamu Saitu from UNU presenting in session



Ms. Rupa from UNESCO C2C presenting in session

Mr Lhendhup Tharchen, Park Director Jigme Dorji National Park, Bhutan taking part in discussion