

Summary Report

AP-BON Working Group at 8th GEOSS Asia-Pacific Symposium (GEOSS-AP)

The WG of AP-BON was held as one of working group of the parallel session of 8th GEOSS (Global Earth Observation System of Systems) Asia-Pacific Symposium.

I . 8th GEOSS Asia-Pacific Symposium

Background and Objectives on 8th GEOSS Asia-Pacific Symposium are as follows:

The GEOSS Asia-Pacific Symposium is one important platform to further promote and advance GEOSS work. The previous seven GEOSS Asia-Pacific Symposium had reinforced GEO's impact within this region by expanding the participation in the first Ten-year Implementation Plan of GEOSS. With the increasing recognition to Earth Observation's critical role in the benefits of the world community and the emerging trend of Earth Observation (EO) development within Asia-Pacific region, it's the first time to hold the 8th GEOSS Asia-Pacific Symposium in China, which would be hosted by GEO Secretariat, China and Japan. Towards the next decade of GEOSS in Asia-Pacific Region, the Symposium will continue focusing on sharing Asia-Pacific's experiences in the implementation of GEOSS with the world, intensifying the multilateral cooperation within this region under GEOSS framework, exploring potential needs and efforts to initiate new action plans for the fulfillment of the GEOSS principles. The symposium's initial outcomes would be included in the new GEO Work Program.

The Symposium will further strength international networking within the region and support the preparation of the next 10-year implementation plan in Asia-Pacific based on the initial findings by reviewing existing activities, initiatives, experiences and the needs for GEOSS development. Each country will report on the progress made in implementing GEOSS since the last Asia-Pacific Symposium in Japan. Parallel sessions are being organized which focus on the following topics:

(Working Group)	(Topics)
WG1:	Asia-Pacific Major Natural Disaster Monitoring
WG2:	Asia-Pacific GEOSS Data Sharing and GCI Development
WG3:	Agriculture and Food Security (GEOGLAM)
WG4:	Asia-Pacific Biodiversity Observation Network (AP-BON)
WG5:	Asian Water Cycle Initiative (AWCI)
WG6:	Global Carbon Monitoring

II. AP-BON (WG4)

- Date and Time : 10 September, 2015 09:00-17:30
- Venue : WG4 conference room, Tiantan Hotel Beijing,
Tiyuguan Road, Chongwen District Beijing, China
- Co-Chairs : Dr. Tetsukazu Yahara (Kyushu University, Japan)
Dr. Keping Ma (Chinese Academy of Science, China)
Dr. Sheila Vergana (ASEAN Center for Biodiversity, Philippines)
- Participants : 35 participants from 9 countries and 1 international organization

<Background and Objectives >

Conservation and sustainable use of biodiversity and ecosystems have been of increasing interest in global societies. The failure of the 2010 biodiversity target, aiming at stopping biodiversity loss by 2010, resulted in developing 20 new biodiversity targets agreed in CBD COP10, now called Aichi Targets. This year (2015) is just a midway to achieve those targets by 2020. This year is also a notable year due to the following reasons. First, GEOSS 10-year implementation will end and new implementation is now being planned for the next decade. Second, IPBES regional assessment has started and approximately 100 biodiversity scientists of the Asia-Pacific region are invited to Lead Authors. Considering those advances in CBD, GEOSS and IPBES, we are going to discuss the following key issues of biodiversity observations in WG4.

<Summary of the Proceedings>

1. Opening session

1.1 Opening Address

- *Dr. Keping Ma (Sino BON, China)*

He welcomed all the participants as a host, and declared the opening of WG4 AP-BON.

- *Mr. Ryuji Nakayama (Biodiversity Center Japan, MOE, Japan)*

At first, he expressed the appreciation for the corporation of holding the WG. The management of biodiversity data is becoming more important for making the policy on biodiversity conservation. It is significant to provide adequate biodiversity information for policy-makers to make right decisions. We are here today to exchange views on the management of biodiversity information including how AP-BON contributes to IPBES and GEOSS, as well as our major achievements. In the end, he requested all the participants to clarify the new plan of AP-BON by next meeting.

1.2 Introduction from Co-chairs of AP-BON

- *Dr. Tetsukazu Yahara (Kyushu University, Japan)*

- *Dr. Sheila Vergana (ASEAN Center for Biodiversity, Philippines)*

- *Dr. Eun-Shik Kim (Kookmin University, Korea)*

2. Our major achievements in East Asia

2.1 Sino BON Structure and development

Dr. Keping Ma (Sino BON, China)

A careful consideration of biodiversity operation along with biodiversity informatics can produce results far richer than considering the threads separately from one another. With the support of the Ministry of Science and Technology this project, started in 2003, has collected 12 million specimens of plants, animals and minerals. Based on IUCN criteria, an animal red list and higher plants red list have also been officially released. The importance of digitizing information to explore the impact of climate change on species is also stressed.

2.2 Mapping 3D vegetation structure for biodiversity and habitat

Dr. Qinghua Guo (Sino BON, China)

The speaker introduced three important aspects of ecology influenced by the 3D structure of ecosystems: species distributions and abundance; species behavior and patterns of predation risk; and as the principal driver of diversity across different taxa. A series of case studies were introduced, including observing ecological diversity in the giant sequoia trees under changing climate.

2.3 Satellite tracking-based bird monitoring in Asia Pacific: recent progresses and Sino BON

Dr. Lei Cao (Sino BON, China)

This study identifies the need for long-term tracking and marketing projects to understand the reason for declining populations, as well as identifying population trends and major distribution sites of birds in Asia. The current national metrics show 114 new significant sites for water birds mapped along with the 260 from IBA.

2.4 A Proposal on Insect Monitoring Network in Asia

Dr. Chaodong Zhu (Sino BON, China)

The speaker proposed the establishment of a network monitoring insect diversity in Asia to focus especially on the effects of habitat fragmentation and insect species interaction and networks and their functions or consequences. Additionally, the effects of climate change and plant herbivores and predators must also have been taken into consideration. Currently, there are over 16 sampling methods, with data gathered by remote sensing, but it was strongly suggested that some data be gathered on the ground to verify the results from remote sensing.

2.5 Monitoring forest canopy biodiversity using airborne imaging spectroscopy and LiDAR at regional scale

Dr. Yuan Zeng (Institute of Remote Sensing and Digital Earth, CAS, China)

This presentation involves the intricate analysis of data which was collected at the Shennongjia Forest Natural Reserve in the Hubei Province of China in 2013. The next step involves enlarging the area of regional mapping of forest biodiversity.

2.6 K BON and now status

Dr. Chan-Ho PARK (K BON; NIBR, Korea)

The introduced the three working groups of K BON. The first group uses K BON monitoring application to focus primarily on fieldwork by civil scientists. Working Group 2 is a researcher group, developing a species distribution model from the advanced climate change. Working Group 3 is involved with international joint research and is currently training Japanese and Taiwanese

groups. The Working Groups are mainly targeting the adaptation of climate change and invasive aliens and monitoring other diversity changes.

2.7 Achievements and challenges of J BON

Dr. Reiichiro Ishii (J BON; RIHN, Japan)

The speaker characterized J BON as a network of researchers and NGO collaborating on research activities in order to enhance biodiversity observation activities in Japan — a “network of networks”. Strong connections with JAXA and NASA are also cited, as well as with other international organizations. J BON members, it was emphasized, are not only working for the research of biodiversity itself but also working for the “other side” for the policymaking.

3. Our major achievements in South East Asia

3.1 Biodiversity Monitoring Initiatives in the ASEAN Region

Dr. Sheila Vergara (ASEAN Center for Biodiversity, Philippines)

This presentation was on the progress of biodiversity observation in the ASEAN regions, facilitating cooperation and coordination in biodiversity work among the ASEAN member states. ACB’s projects include identifying areas where biodiversity observation has to happen; creating databases; working on invasive alien species; and the creation of an E-Library of 11,000 research articles from journals and publications, among other things.

3.2 Biodiversity Observation Network in Philippines

- Not attended –

3.3 Biodiversity Observation in the Tropical Rain Forest Indonesia

Dr. Dedy Darnaedi (Herbarium Bogoriense-LIPI, Indonesia)

This presentation took a historic look at the challenges facing researchers in Indonesia given the huge area and diversity of ecosystem types. A collaborative project in Java with Women’s University in Seoul resulted in a database of 3,800 plant types, with 70% identified. Mainstreaming biodiversity and ecosystem functions and services to policymaker was emphasized as forest cover loss, land degradation, forest fires, and species extinction continue in most islands of Indonesia.

4. Our major achievements in Central and South Asia

4.1 Botanical Diversity Monitoring in Kazakhstan

Dr. Liliya Dimyeva (Institute of Botany & Phytointroduction, Kazakhstan)

The structure of Institute of Botany & Phytointroduction includes the main botanical garden, branches to botanical gardens in different parts of Kazakhstan and a few laboratories. The main focus is on the development of plant collections in botanical garden, flora research, research of vegetation, economic botany, introduction of plants, fruit breeding and genetic fund of wild relative conservation, seed conservation and plant protection. In addition to a comprehensive analysis of medicinal flora and laboratory study on wild fruit selection, a seed gene bank for crop wild relatives was also established. A research study was also done on the impact of climate change on high altitude flora and vegetation in the Altai Mountains.

4.2 Earthquake impact on Nepal BON and recovery challenges

Dr. Mangal Man Shakya (Wildlife Watch Group, Nepal)

The earthquake of 2015 took the lives of 9,000 people and the total economic loss was calculated at \$7 billion. The speaker described the species protection paradigm in Nepal shifting from a focus on species to landscape, characterized by an emphasis on habitat and protected area management from 1970-2000. Following the earthquake, the restoration of green enterprises and the systematic impact assessment on the biodiversity are critically important. In addition to the Nepali government, several neighboring countries and organizations are collaborating to assist in the recovery efforts.

4.3 Indian National programme on mapping plant resources of biorich areas of the country

Dr. Ganeshaiiah K N (University of Agricultural Sciences, India)

The speaker identified four global biodiversity hotspots in India, shared with other countries, which the government needs to map. The national program was launched with three goals: to quantify and map the populations of the plant resources; to develop region specific databases; and develop sustainable harvesting regimes for the entire country for these resources. The presenter discussed in detail the results of the Team Western Ghats, the types of databases drawn up as well as the discovery of a new form of plant life.

4.4 Biodiversity Monitoring in the SDG era: A Note from Bangladesh

Dr. Haseeb Md (IUCN, Bangladesh Country Office, Bangladesh)

Although only 150,000 square kilometers in size, Bangladesh is extremely diverse as pertains to plant and animal life, and has yet to complete a biodiversity inventory. The speaker reported the challenges facing biodiversity conservation environmental management (including poverty and natural disasters) and initiatives to monitor biodiversity and establish conservation projects. Ecosystem-based inventory mapping and projects involving the local communities are being initiated on an increasingly wide scale, providing new opportunities.

5. Contribution to the global activity of GEO

5.1 GEO BON and EBVs

Dr. Jörg Freyhof (GEO BON, Germany)

The speaker introduced outline of GEO BON and encourage more people who monitor biodiversity to join GEO BON. He said that key question driving GEO BON are, what is changing, why it is changing and what is the impacts. He went on explaining the nature of EBV and development of EBVs. He provided a specific example of monitoring sparrows and emphasizes the importance of EBV's development in a global scale. He explained the current activities of BONs and loose connection between BONs and GEO BON and suggested a strategy to build more ideal relationship between BONs and GEO BON from now on and introduced BON in a BOX as a useful toolbox. Lastly he stressed the importance of BONs to share data and make information openly accessible to GEO BON and explained that that will lead the products of BONs become more globally known and for BONs enabling to promote their products through GEO BON's website.

5.2 Contribution to GEO Strategic Plan 2016-2025 and post GEOSS implementation

Dr. Hiroyuki Muraoka (GEOSS IPWG; Gifu University, Japan)

The speaker mentioned the importance of communications among observation communities and stakeholders as well as the increase of the number of constant observation sites. The observations need to focus on ecosystem functions and services. He also pointed out that it is important to analyze and integrate the changes and scenarios to apply the results to biodiversity, including agriculture. The users such as scientists, citizens and decision makers should collaborate and engage themselves to deal with the challenges of ecologic systems and biodiversity.

6. Contribution to the IPBES regional assessment

6.1 Advance in the IPBES regional assessment

Dr. Tetsukazu Yahara (Kyushu University, Japan)

The speaker explained the overall progress of IPBES Regional Assessment. He touched on features, its challenges and its roll. He stressed that the concept of IBES is to assess not only nature but also social ecology in relation to nature. He stated that there are many good authors and very good data that can contribute to fill such a gap. However, he explained the fact that many of them were not published yet, and he proposed the need of additional publication that can be useful and can be adopted by policy makers.

7. General discussion and Closing

Discussion

Dr. Ma: Regarding the project key items; eight (8) items, I'd like to proposed to delete the last word i.e. "sustainability" of "the ecosystem sustainability". Because "the services" is better than "ecosystem sustainability".

Dr. Yahara: Yes, I have questions to this. I have been discussing this thing with so many people. The services are the key elements of the fraction or very important point if we focus on the biodiversity and ecosystem. But we had achieved this solution that is to have biodiversity and ecosystem sustainability. So, I have to say it is quite difficult to change the wording right know.

Closing

Dr. Tetsukazu Yahara and Dr. Keping Ma of co-chairs wrapped up each presentation of WG4 AP-BON today, and summarized as follows:

Thank you very much for your comprehensive discussion and comment on this advance session. Although it is not so easy to summarize this WG4 session and its progress, we think we made a great progress since 2008/2009. Because when I first joined GEO and the biodiversity might not be a main stream of GEO at that time. After that, the program of biodiversity has got more and more social locations, and now, in the next strategic plan of GEO biodiversity, namely coming 10-year implementation, it is quite important for us to make further efforts to go ahead with the biodiversity issues. So, the secretary of Japan; Ministry of Environment Biodiversity Center is taking much stronger leadership and we should contribute to it globally.

Secondary, we have tried to make network certificates by the new product oriented approach. So, we; Sino-BON already has published data in two volumes. Therefore, our activity is to put importance to work together and to publish the data and researches. We need to collaborate to develop relationship with others. In this sense, for example, there is a lot of division service in India.

Finally, getting funds for concept development by policy makers is very important as well as our concept of goal and working policy. The project to develop networks for data sharing and data inter-linkage in Asia are very interesting science developments.

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