

MAGAZINE | VOL. 2 | ISSUE 3 | JUNE 2020

# HARNESSING NATURE

*World Environment Day 2020  
Special Issue*





## **HARNESSING NATURE MAGAZINE | Vol. 2 | Issue 3 | June 2020**

Official magazine of the IUCN CEM South Asia

Managing Editors: Deepu Sivadas, Shalini Dhyani, Oindrila Basu, Madhav Karki

Cover photo: Grassland Shola Matrix and associated species in the Western Ghats, India  
(Photo: Deepu Sivadas)

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# TIME FOR NATURE



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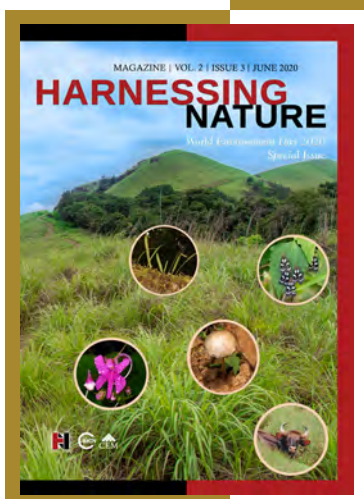
## *From the desk of Chair*

I should like to use this foreword to draw the reader's attention on the themes compiled in this special issue of *Harnessing Nature* (Volume 2, Issue 3) dedicated to the World Environment Day 2020 during these challenging global times. This is the official magazine of the South Asia regional network of members of the Commission on Ecosystem Management - International Union for the Conservation of Nature (IUCN CEM). CEM South Asia is a regional platform of global significance comprising experts, professionals and emerging leaders (young professionals) for contributing and sharing knowledge that is helping the enhancement and development of existing knowledge related to the concerns, challenges and prospects of ecosystem management and trans-boundary conservation efforts in the region.

This special issue focuses on the themes “Time for nature” and “celebrate biodiversity”. The magazine presents insights into diverse ecosystem services and the importance of nature and biodiversity of the region. As per approved IUCN programme 2017–2020 South Asia has been considered as a region that requires greatest conservation need among IUCN's eight Statutory Regions. South Asia region is home to diverse ecosystems under diverse protection categories such as Protected Areas; Trans-boundary Sacred & Biodiversity Landscapes and seascapes; Biosphere Reserves; Key Biodiversity Areas (KBAs). The region has many mega biodiversity hotspots, key wetlands and shares several hydro-geological features in important topographic regions and ecosystems. South Asia is home to many traditional and indigenous communities dwelling in remote as well as sensitive and fragile ecosystems. These communities have helped in shaping the conservation and management of natural resources of these sensitive and fragile ecosystems. Many of these sustainable practices are still relevant in this changing world.

I am delighted that my colleagues in South Asia have mobilized the vast and diverse knowledge, experience, and insights of CEM members in the region for putting together this magazine issue which is coming to your hands from the CEM South Asia Region. I congratulate Shalini, Madhav and Deepu along with the contributors of the magazine and editorial board for their efforts in bringing out this special issue.

*Angela Andrade*  
Chair, IUCN Commission on Ecosystem Management







# Commission on Ecosystem Management

A network of professionals whose mission is to act as a source of advice on the environmental, economic, social and cultural factors that affect natural resources and biological diversity.



**Angela Andrade**  
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*IUCN CEM*



**Madhav Karki**  
*Deputy Chair,*  
*IUCN CEM*



**Shalini Dhyani**  
*Regional Chair,*  
*IUCN CEM (South Asia)*



# Foreword

The theme for this year's World Environment Day is "Time for nature" and "celebrate biodiversity". The Global Assessment Report of the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services, IPBES released in June 2019 warned the global community that unprecedented "biodiversity loss presents an existential threat to human life". It said, "nearly a million species face extinction if we do not fundamentally change our relationship with the natural world". I am very pleased that WED, 2020 theme implies that time has come to take urgent action to save biodiversity at local, national, regional and global levels. The GA also reported "Virtually all indicators of biomes, ecosystems, species, varieties and breeds are negative" and that "most of the assessed categories of nature's vital contributions to people" are losing their ability to continue supplying vital ecosystem goods and services. Similarly, the Asia-Pacific Regional Report that I had the opportunity to co-chair found that "22% of all species and 25% of endemic species in the IUCN Red List are either extinct, extinct in the wild, critically endangered, or vulnerable". The largest number of species at risk was found in South Asia (19% of all and 45% of endemic). Roughly 1 in 3 species of freshwater fish species is threatened. The report also pointed out that countries were making good progress only in 4 out of 20 Aichi Biodiversity Targets (2011–20), moderate progress in 7 and poor progress in 6. So the countries will miss achieving most of the targets and goals.

So what actions we can start taking. We do realise that among the policymakers as well as in general public discourse, there is more awareness of climate change than biodiversity. We need to make the public and policy and decision-makers aware that most critical impact of climate change on humanity will be through the impact on or loss of biodiversity since biodiversity provides the bread and butter or livelihoods to human beings. This will help the public to understand the value of biodiversity and policymakers in mainstreaming biodiversity targets into development targets. The IPBES reports also pointed out that biodiversity is decreasing more slowly in areas managed by indigenous peoples and local communities that tell us the importance of documenting, understanding and using indigenous and local knowledge and practices (ILKP) in promoting community-based conservation and management. There is also a role in how we value nature. The indigenous peoples in the Himalayan Mountains, especially in Nepal, Bhutan, NE India and the Western Ghats have preserved biocultural diversity not driven by financial incentives or legal requirements but by their high intrinsic values towards nature. This multiple conceptualisations of nature's value to humans should inspire and guide all us in our biodiversity conservation efforts. High cultural value is the key to sustainable biodiversity conservation. There is also a misconception that by increasing the protected areas, we minimise the loss of biodiversity. The reports found out that although countries are achieving 15% PA target on terrestrial biodiversity, biodiversity at species and ecosystem levels are still declining. So we need to conserve critical biodiversity areas and important bird areas. Let's hope that the post-2020 Biodiversity targets are more meaningful and achievable based on the lessons learned

from the 2011-20 targets.

In closing, I want to say that countries in the Asia-Pacific region, including South Asia, have made significant economic progress but at a high cost on biodiversity. The COVID 19 crisis is a stark reminder to all of us that poor understanding of the fundamental relationship between human and nature can create an existential challenge to human beings. Our region's biodiversity faces unprecedented threats, from rapid climate change and associated extreme events, unwise socio-economic change, glacial melting, sea-level rise, invasive alien species and increasing waste and pollution. Let's pledge on this Day that we all commit ourselves to protect, conserve, increase and sustainably use biodiversity and inspire others to do so. I wish you all a very stimulating, inspiring and motivating World Environment Day, 2020.

I hope the readers will enjoy and benefit from the information the Magazine provides. I urge you to please share your comments, suggestions, feelings and contribution for the next issue.

*Madhav Karki*  
*Deputy Chair, IUCN CEM & SA Focal Point*

## From the Editor's Desk

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### *Time for Nature: Let's acknowledge Nature's benefits to support our survival*

By [Shalini Dhyani](#)

*2020 is a year for urgency, ambition and action to address the crisis facing nature; it is also an opportunity to more fully incorporate nature-based solutions into global climate action—Inger Andersen*

It gives me immense pleasure and sense of gratitude to our all contributors, reviewers and editorial board who have helped us to compile and share the World Environment Day, 2020 special issue of IUCN Magazine cum Newsletter “Harnessing Nature” with all of you in IUCN, CEM S. Asia and beyond. In these tough times, it is very tough to put up such significant issues, and with the support of our CEM members, we have been able to keep showcasing good work that was possible. The special issue highlights the theme of World Environment Day, 2020 “Time for nature” and “celebrate biodiversity”. The theme is very well aligned to the fact that all countries and people have recognized in last few months more seriously that there is no other alternative or substitute to Nature, the biodiversity, that can ensure human wellbeing. I am happy that many regional members have participated to share the stories from their countries. We showcase the work carried out by our members in Nepal, India and Bhutan in this special issue.

We cannot assign only a day to Nature. It is our every day without Nature and biodiversity we cannot think of human survival. From food,

fibre, energy to medicine our entire day and life revolves around the benefits of Nature. S. Asia region with diverse countries of Bangladesh, Bhutan, India, Maldives, Nepal, Sri Lanka, in the last few months had experienced some of the very dark days and ever-increasing pandemic risks. As if it was not enough, the recent attack by locusts. Clouds of locusts invaded vast areas and distant states of India from the second week of April. After destroying millions of hectares of crop areas initially in Rajasthan, they further entered many states in India. This fast-growing locust swarm is now threatening and is expected to amplify into an agrarian disaster for the subcontinent. After cyclone Amphan hitting east coast in May, the cyclone Nisarg (or Nature as translated) hit west coast especially targeting Mumbai. Here it is imperative to mention the expected intensity of Amphan was reduced by the mangroves of Sunderbans after landfall, and the damage was not very severe, though, many local villages in the delta were devastated. While the loss of sparrow population and habitats were indicated towards increased risks of locusts, as sparrows may have fed on them and have reduced the loss; the loss of mangroves are related with



increasing damage to coastal areas.

It is high time we start integrating and mainstreaming conservation, protection and restoration of Nature not only in policies but also in practice and implementation. We should celebrate the importance of biodiversity and try to protect the remaining patches in natural as well as urban areas. It is indeed time for Nature, and if we are unable to reduce degradation, deforestation, species loss, illegal wild trade, maybe we will not be able to reduce the impacts of such severe pandemics. Nature has shown a great way to humanity. While people are trying to build immunity using traditional herbal medicines across the world, be it Ayurveda or Chinese medicine. The respect and acknowledgement to Nature for ensuring human health and wellbeing cannot be avoided or ignored. Increased wild foraging during lockdown provided food, medicine and other provisioning services to many. The psychological benefits to grow our food in our backyards and forage our food gave us a sense of belongingness and peace in these distressing times. Free movement and wildlife sightings were surprising and pleasant, and we hope we would be able to learn to live in harmony with Nature in the new normal. At the same time, there was much depressing news about increasing man-animal conflicts from the region, increased poaching and hunting. This pandemic has shared one big lesson to humanity, to leave wild animals in their habitats and let them live in peace with less and no transmission risks of zoonotic. I hope we will be able to give that due respect and acknowledgment to all living beings and by making sure that our generation next learn the benefits of living in the eco civilization.

Human civilization is facing wide-ranging challenges, from pressures on ecosystems to human wellbeing and rapid depletion of natural capital, resulting in an increased risk

of disasters and compromised food, water and energy security. Countries across the world are increasingly exposed to growing disaster risks due to loss of ecosystem services and emerging climate vulnerability. There has been tremendous advancement around the world in terms of conceptualization, research, implementation and policy uptake for Nature-based Solutions (NbS) to address and reduce the severity of disaster risk and climate vulnerability. There has been growing momentum in ongoing international policy dialogues to understand, include and facilitate the implementation of NbS and even for realizing the theme of World Environment Day 2020. Inger Andersen, Executive Director of the UNEP, stressed on the requirement of mainstreaming and localizing NbS for achieving the SDG and post 2020 biodiversity targets. Commission on Ecosystem Management being the pioneer in NbS can facilitate the way ahead for restoring the degraded and red-listed ecosystems (another pioneering effort of CEM to move ahead from species to ecosystem approach). There will be no superior time for all of us to come together to ensure our efforts in nature conservation. Be it climate action, disaster risk reduction or pandemic control none of them can be achieved without conserving biodiversity. There is a growing need to develop policies that stop the deforestation, degradation, fragmentation, unsustainable use and extinction of plant and animal species. Post-2020 biodiversity targets will revolve around biodiversity as it is the only cross-cutting theme for protecting the planet.

I thank our global Chair Dr Angela Andrade and Deputy Chair Dr Madhav Karki, our focal point to CEM global steering committee for their continual support.

While I wish you all very happy readings, I wish you all to stay safe..!!

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**Shalini Dhyani, Ph. D,** is Senior Scientist with CSIR – National Environmental Engineering Research Institute (NEERI), Nagpur, India and South Asia Regional Chair of IUCN Commission on Ecosystem Management

## Land-Use Transformation from Muck to Eco-Park: An Initiative of Tata Steel to align with COP14 UNCCD Delhi Declaration

By [Hishmi Jamil Husain](#)

Tata Steel operations constantly address environmental sustainability, and its developmental activities have focused on improving the green cover in the area and better water management. In recognition of this fact, Tata Steel has always adopted effective measures in improving its processes, invested in breakthrough technology and developed products and services that diminish negative consequences in the environmental performance of the product cycle. In line with its environmental responsibility, Tata Steel has rehabilitated Jugsalai Muck Dump (JMD), Jamshedpur, an artificial mound of coal cinders, spread loosely packed over an area of 2,50,000 sq m. to an environmentally acceptable state. The dump is approx. 133–180 m above MSL, having varied slopes, terraces. The dumping has yielded a high level of undulation, and the site is devoid of organic matters sustainable for vegetative growth. This dump has posed environmental, safety and health hazards to the people of Jamshedpur.

The overall objective of the eco-restoration was to convert the Jugsalai Muck Dump (JMD) into a landscape that is safe, sustainable and compatible with any other natural hillocks in the

vicinity of Jamshedpur. Other objectives were to check the possible atmospheric pollution due to mixing of fine dust particles in the atmosphere during summer and developing effective drainage system in the Muck Dump area for harvesting rainwater and store in a lined water reservoir to prevent the leaching of the coal cinder into the natural groundwater aquifers.

The Jugsalai Muck Dump was formed over the years by dumping of cinder and slag mainly consisting of iron & coal residues from the steel plant and power plant generated from Tata Steel Plant at Jamshedpur. The composition of the dump is predominantly 64.24% of sand content and 35.76% of silt content. The above characteristics reveal that the site is devoid of any organic matter and therefore, cannot support any sustainable biological growth in normal conditions.

Due to sandy soil texture, there was a high probability of ash and cinder being washed off from the dump slope into nearby water bodies during heavy rains. Fire hazard was also anticipated as the dump was formed with the stacking of ash and cinders of unburnt coal which when exposed to air could result in



JMD before rehabilitation on April 2004



JMD after rehabilitation on October 2018





Rehabilitated Jugsalai Muck Dump © H. J. Husain

spontaneous combustion, especially in the peak summer. This posed severe health and safety hazards, especially for those who engaged in illegal collection of unburnt coal particles from the dump. The temperature of the majority of the dump area due to the burning of the half-burned coal was around 50–70°C, which was a huge challenge for growing plants.

Considering the soil conditions and characteristics of the JMD, a comprehensive rehabilitation plan has been implemented for slope stabilization and vegetative growth for biological reclamation of the muck dump.

To have a sustainable green cover, a soil texture was created to enhance water retention, provide better aeration, improve physical and biological conditions of soil, and promote the development of root system which also gave strength to dump soil stabilization. Ameliorated conditions cannot be achieved by simple conventional means of good earth and manure. For this, a growing media in the slurry form of minimum 5 cm thickness, with a ratio of neo-peat (50%), topsoil (30%) and manure with micronutrients (20%) before and after laying of

the geotextile coir mat was adopted which was followed by plantation of grass and shrubs.

The whole objective was to create environmentally safe and sustainable 'Green Cover' and suitable 'Geo Green Blanketing' to protect side slopes, prevent soil erosion and resulted dust generation while adding aesthetic value to the Steel City of Jamshedpur has achieved only through the concept of a sustainable environment-friendly methodology for eco-restoration of the Jugsalai Muck Dump area for biological reclamation with vegetative

plantation.

JMD is helping in achieving the objective of UNCCD to achieve Land Degradation Neutrality by arresting the soil erosion. Solar



Water Body to contain Rain Water © H. J. Husain

Energy is also being harnessed at the Park for irrigation and lighting. JMD is now developed as an eco-park and has enhanced the biodiversity in the area, minimizing the environmental impact of a dump area.

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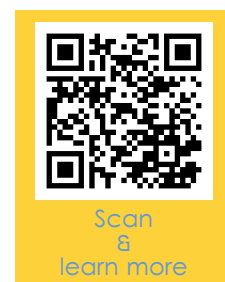
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