

**OUR SOLUTIONS ARE IN NATURE****Laxmi Rawat**Plant Pathology Division, College of Forestry, Ranichauri, VCSG Uttarakhand University  
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A quote attributed to Albert Einstein, which goes like this: -

***“We cannot solve our problems with the same level of thinking that created them”.***

***Let me stretch that ahead and propose that not only our solutions are in nature, but the nature is the solution, and it is our final resort of solace.***

Biological diversity is often understood in terms of the wide variety of plants, animals, and microorganisms; however, it also includes genetic differences within each species — for example, between varieties of crops and breeds of livestock and the variety of ecosystems and multiple kinds of interactions among their members (humans, plants, and animals). It refers to genetic variation, ecosystem variation, species variation (number of species) within an area, biome, or planet. Biodiversity is vital in several ways including promoting the aesthetic value of the natural environment, contribution to our material well-being through utilitarian values. Biodiversity in whole is the life support system and organisms depend on it for the air to breathe, the food to eat, and the water to drink.

Despite the benefits from biodiversity, today's threats to species and ecosystems are increasing day by day with an alarming rate and virtually all of them have been caused by human mismanagement of biological resources often stimulated by imprudent economic policies, pollution, and in-addition to climate change. The loss of biodiversity is a significant issue for scientists and policymakers and the topic is finding its way into living rooms and classrooms.



Species are becoming extinct at the fastest rate known in geological history and most of these extinctions have been tied to human activity. To ensure intra and intergenerational equity, it is important to conserve biodiversity. Some of the existing measures of biodiversity conservation include reforestation, zoological gardens, botanical gardens, national parks, biosphere reserves, germplasm banks and adoption of breeding techniques, tissue culture techniques, social forestry to minimize stress on the exploitation of natural resources.

**The resources of biodiversity are the bedrock of human civilizations. Even though humans have made strides in science and technology, but our dependence on sound ecosystems for day to day needs and survival cannot be denied. We are solely dependent upon nature for food, oxygen, water, clothing, energy, shelter etc. An establishment fact is that the loss of biodiversity will automatically mean hazard to humans.**

Currently, when the world has been brought to a grinding halt by COVID-19, the most recent pandemic outbreak, has forced us to rethink the protective role that biodiversity plays in the future of humankind, since its many advantages result in one fundamental benefit i.e., protection from infectious diseases. The loss of biodiversity could expand zoo-noses i.e., transmission of diseases from animals to humans, on the other hand, if we keep biodiversity intact, it offers excellent tools to fight against pandemics like those caused by coronavirus. Human pressure on biodiversity increases the risk of infectious disease as when an ecosystem is disturbed; its species diversity declines while the abundance of “opportunistic” species increases. Biodiversity and human infectious diseases are complexly linked. In addition to COVID-19, there are many examples of zoonotic diseases that have caused human health crises such as avian influenza, sudden acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and Human Immunodeficiency Virus (HIV).

Human activities like Land-use change (agricultural expansion, logging, infrastructure development etc.) and wildlife exploitation are major cause of increasing disease risk by bringing people and domestic animal populations near pathogen-carrying wildlife.

The global metastrategy seems to turn everything from nature into profit. Although the indices like GDPs, per capita income, average age etc., might show an upward trend but questions remain like starvation, poverty, inequality, unhealthy and stressful lifestyle,



homelessness, loneliness, state of inner peace and happiness are achieving catastrophic proportion.

*There is need to rethink and re-examine our relationships to the natural world. One thing is certain: despite all our technological advances, we are completely dependent on healthy and vibrant ecosystems for our water, food, medicines, clothes, fuel, shelter and energy, just to name a few. The Subject “Our Solutions are in nature” emphasizes hope, solidarity, and the importance of working together at all levels to build a future of life in harmony with nature.*

Man by his behaviour (greed, benefit, instant pleasure...) increasing entropy of environment and pushing the ecosystem into chaos (disintegration) and destroying the dynamic balance (Self organization on chaos edge). In the planet, so many afforestation practices have afforested by a single species, and their productivity is high. However, their facilitation to any disturbance, for example, diseases, have given us bad lessons. **We should follow the natural rule.** Natural-based solution for urban forest greening, biological rehabilitation of degraded ecosystem in fact is to make diversified ecosystem just after the original natural biodiversity.

I will just say that everything in nature is connected, if a piece is removed, a little, unperceptible destabilization is created, until by the continuous removal of pieces, the system fails and falls. *Each organism has its own role in ecological cycle, so it is important to each environment to conserve biodiversity.*

As the contemporary has been named as “Anthropocene” on the geological time scale, the changes in biodiversity have come under study at the genetic level, species level and ecosystem levels. Scientific community is working on the ecological consequences of biodiversity loss. Over exploitation of natural resources, Habitat loss, Alteration in ecosystem and Anthropological interventions etc are the factors which broadly threaten the biodiversity.

The IUCN (International Union for Conservation of Nature) has formulated the concept of **Nature based solutions** (NBS) which are defined as the actions to protect, sustainably manage, and restore natural or modified ecosystems, which address societal challenges like



climate change effectively and adaptively, which simultaneously providing human well being and biodiversity benefits.

The principles of Natural based solutions that have been proposed are:- embracing nature conservation norms & principles, their lone and integrated implementations, site-specific natural and cultural contexts that include traditional, local and scientific knowledge, promote transparency and social benefits in a fair and equitable way, understanding the maintenance of biological & cultural diversity & the ability of ecosystem to evolve over time, area-based conservation, ecosystem-based management, overall design of policies and measures /actions to address a specific challenge etc.

The Natural based solutions (NBS) are a relatively new concept and still being in the process of being framed, there is a need to cogitate more the understanding of the concept and confirm the principles upon which NBS is based, in order to move towards an operational framework that can guide applications of NBS.

Biological diversity resources are the pillars upon which we build civilization. There is need to rethink and re-examine our relationships to the natural world. Biodiversity provides harmony of chaos in nature. There is a growing recognition that biological diversity is a global asset of tremendous value to future generations.

Biodiversity in general means stability and resilience to disturbance. There is a growing gratitude that biological diversity is a global asset of remarkable value to future generations.

*Conclusively, we must protect what is left with us and as the global lockdown has made earth purify its lungs, it is the best opportunity to capitalize on. The theme “Our Solutions are in nature” underscores the significance of global fraternity and conglomeration of efforts to build a life of harmony with nature.*