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(II)
UN Ecosystem Restoration Decade 2021-2030: Opportunities and Challenges

The livelihoods of millions of people are under threat, demanding the immediate restoration to make a sound and sustainable ecosystems and mitigating climate change for a secure future. The degradation of the natural system is having a catastrophic impact on all type of life and its components. The degradation of land and marine ecosystems affects 3.2 billion people globally, with a financial loss of about 10 per cent of the annual GGP (Global Gross Product) related to species losses and ecosystem services. Presently, 2 billion ha of land, including large areas of grassland, cropland, woodland, and forest areas, has been seriously degraded, reducing productivity, adversely affecting ecosystem functioning, and resulting in the loss of biodiversity and water resources. In these circumstances, the declaration of 2021–2030 as the "Ecological Restoration" decade by the United Nations General Assembly in March 2019 has given relief to environmentalists and policymakers for framing better strategies towards the rehabilitation of degraded lands globally. More than 115 countries have pledged to reduce degradation or rehabilitate 1 billion hectares of land by 2030. The United Nations estimated that the revival of 350 million hectares of degraded land during the decade will achieve USD 9 trillion in ecological system functioning and have the potential to extract an additional 13–26 gigatonnes of greenhouse gases.

Agenda of UNCCD to Restore Degraded lands

According to Food and Agriculture Organization (FAO), sustainable food systems are key in addressing different challenges for structuring a sustainable future. The United Nations Environment Program will be the global core group that sets the environmental agenda and fosters the coherent execution of the environmental magnitude of sustainable development, serving as an authoritative protagonist for a safer environment.

Goals

The UN Decade has the overarching goal of preventing, halting, and changing the degradation of ecosystems globally. The objective of the UN Decade is peace and prosperous life on Earth, assuring the restoration of the relationship between humans and nature and that of future generations. In that sense, the organization is working to increase the area of healthy ecosystems, by halting fragmentation, controlling ecosystem loss and preventing degradation. The goals of the UN Decade's Strategy are,

Goal 1: Intensification of holistic approaches to combat and alter ecosystem degradation

Goal 2: Increase the knowledge of the multiple benefits of ecosystem restoration.

Goal 3: Apply understanding of ecosystem restoration in education systems, public and private sector governing.

A concerted global effort is required to accomplish the targets of ecological restoration. The UN working group has established five task forces to guide and accelerate the global land restoration movement beginning in 2020.

Best practices

The core group ensures technical support for ecological restoration initiatives globally. For this, a FAO-led task force will be generated to prepare guiding principles and gather information on best practices in land restoration and traditional knowledge globally. It will address the dispersal of restoration understanding during the decade.

Finance

The Finance Task Force, mentored by the World Bank, facilitates guidance to overhaul subsidies for ecosystem restoration in a proper manner; and combats economic forces and vested interests leading to ecosystem degradation. It will further provide incentives to public and corporate investors for investing in land restoration, including public goods.

Monitoring

In order to circumvent over burdens, the UN core group will work on surviving data reporting systems within pertinent international frameworks, conventions, and strategies. An FAO-led Monitoring Task Force, assisted by over 270 experts from various organizations, will help identify the best options for monitoring progress and also work on updating information gaps.

Science

The Task Force will provide relevant scientific reference to the UN core group. It will gather information on all types of ecosystem rehabilitation based on

meticulous facts. Further, it will also help to resolve scientific queries that might arise during the execution of the UN-DER draft. Finally, the group will provide guidance to UNEP, FAO and all anxious partners.

Youth

Youth can play an important role in environmental restoration. Over the next ten years, the United Nations Major Group for Children and Youth (UNMGCY) will facilitate the involvement of advocates and land restoration initiatives selected among the youth, along with a wide range of informal and formal youth groups.

Opportunities

The UN Decade on Ecosystem Restoration will ensure that there is an opportunity to transform food production and fulfill the needs of the population. This can be achieved through land and water management that has the potential to halt degradation and restore degraded ecosystems. The restoration of landscapes and farming could help to reinstall a healthy and stable state, provide efficient services, sustainably produce goods, and support livelihoods. Rescuing the ecological system could help resolve one third of the total climate mitigation by the year 2030, along with restraining the risk of mass species extinctions and pandemics. The Global Partnership interventions, which have an integrated, flexible, and effective approach to forest and landscape rehabilitation, are already bringing gains for both livelihoods and the environment, from coastal mangroves and mountain ranges to freshwater wetlands and exclusively cultivated agrarian zones. The approach applied at various scales, provides a gateway to engage and benefit everyone, from national governments and investors to civil society groups and individuals.

Investment Opportunities

To meet climate, biological diversity and land degradation targets, ecosystem restoration and terrestrial conservation require USD 300 billion (Ding *et al*., 2018) or more than USD 350 billion per year. The funds obtained from public and private bodies not only ensure communities secure land tenure, but also promote local investment in restoration. These may be revived on the basis of payments for ecosystem services or in response to voluntary environmental performance.

Issues and problems

In appropriate agricultural practices, deforestation, and urbanization are altering the ecosystem functioning. Land degradation alone could reduce global food productivity by 12 or even 30 per cent by 2040 (Noel *et al*., 2015; Kopittke *et al*., 2019). An average of 122 million hectares of forests are affected by pests, diseases, drought, fires, invasive species, and climate change events annually (IUFRO, 2018), affecting nearly 1.75 billion forest dwellers.

Freshwater bodies account for one-third to 10% of vertebrate and other described species on Earth (CBD, 2020). Freshwater ecosystems provide food, drinking water, water for agriculture and industry, and aid in the transportation of goods (Funge-Smith and Bennet, 2019). Forests and water are interlinked, and nearly 75 per cent of the world's freshwater is derived from forested watersheds (FAO, 2019). Water consumption has been increased by 600% over the last millennium (Wada *et al*., 2016), and demand is expected to rise by 20–33% by the mid-21st century (Burek *et al*., 2016). The ecological degradation of freshwater is resulting in scarcity to half a billion people year round (Mekonnen and Hoekstra, 2016).

Mountain ecosystems account for nearly 50 per cent of biodiversity (UN, 2020a), support the livelihoods of communities, and provide ecosystem services (CBD, 2007). The mountain ecosystems provide for the freshwater needs of nearly half the global population (CBD, 2007; UNEP, Grid-Arendal, 2020). They feed plant species that produce 80% of the world's food (UN, 2020b). The rapid exploitation of mountain ecology is causing threats to crop production, (Romeo *et al*., 2020) and food security. Nearly 178 million people residing in mountain areas exposed to progressive ecological degradation are threatened by food insecurity (FAO and UNCCD, 2019).

The ocean, which accounts for nearly 90 per cent of the world's life (UNESCO, 2017) and 50–80 per cent of the oxygen (NOAA, 2020) is under severe threat. International shipping, accounting for 80 per cent of global trade (UNCTAD, 2018) coupled with acidification and a rise in water temperature, are affecting the productivity and lifecycle of marine organisms (FAO, 2020). The coral reefs are under severe threat due to bleaching and acidification and are expected to disappear by the end of this century (UNEP, 2017). According to an estimate, 40 per cent of the global population lives within 100 kilometers of the coast (UN, 2017), putting coastlines at risk. Coastal development and conversion to aquaculture are two of the significant causes of the reduction of 20 per cent of the world's mangroves (Friess *et al*., 2019; UNEP, 2014).

Urbanization is a key development sector in the global economy (Zhang, 2016). Urban areas generate nearly 80 per cent of the global GDP (UN Habitat, 2020), and escalate trade and commerce, (Zhang, 2016; UN Habitat, 2020). Well-managed cities with clean air and water, food, and climate regulation can play a significant role in social, economic, and infrastructural development. The "green building" concept assures a sustainable ecosystem services and functioning.

Global Challenges

The world's leaders recognized the need to intensify restoration efforts in 2011 by backing the world's largest restoration initiative. The New York Declaration on Forests called for the restoration of an additional 200 million hectares by 2030, a target

incorporated into the Bonn Challenge. It also outlined other ambitious goals, including eliminating deforestation from agricultural commodity supply chains and strengthening forest governance. The restoration of ecosystems is thus a challenging task for the global environmental community. Although cutting GHG emissions and halting the average global temperature increase below 2°C is most significant, there is still a need for nature-based solutions such as restoration (Griscom *et al*., 2019). Degradation is exerting a serious pressure on socio-cultural aspects of indigenous communities (UNEP, 2019) causing impacts on their health (Solomon *et al*., 2016; Landrigan *et al*., 2017). Ecosystem conservation, sustainable management, and restoration can act as vital instruments in people's adjustment to climate change and are thus prioritized as part of an overall revamping strategy (Kapos *et al*., 2019). Ecosystem restoration is significant in reducing climate-related hazards, such as soil erosion, flooding, and landslides. Forest restoration on slopes minimizes soil and water erosion resulting from intense rainfall, enhances shading and evaporative cooling, and benefits both rural and urban environments. Restoration of urban green spaces, helps maintain air temperatures by 4 °C compared to less vegetated regions (Gago *et al*., 2013).

Humans are a part of nature. The ecosystems provide many of the services, like food, water, raw materials, clean air and a stable climate. However, the continuous pressure on ecosystem functioning is causing land degradation and desertification, which result in natural disasters. All ecosystems are suffering from degradation affecting the functioning of another. In any case, these local losses are reducing ecosystems' ability to regulate climate, with potentially disastrous global consequences. Thus, there is a need to recreate a balanced relationship with the ecosystems. Ecological restoration is significant in ensuring food security, halting biodiversity loss and mitigating climate change. The UN Decade on Ecosystem Restoration aims to catalyze a movement among governments and non-government sectors at all levels. The restoration is a continuous process happening at multiple scales around river valleys, forests, backyard plots, parks and is globally benefitting various ecosystems. Thus, every human has to actively play its role and get involved in restoring the lost Mother Nature.

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