WORLD ENVIRONMENT DAY
JUNE 2021

on the theme of
ECOSYSTEM RESTORATION

Celebrated by
PAKISTAN ENGINEERING CONGRESS

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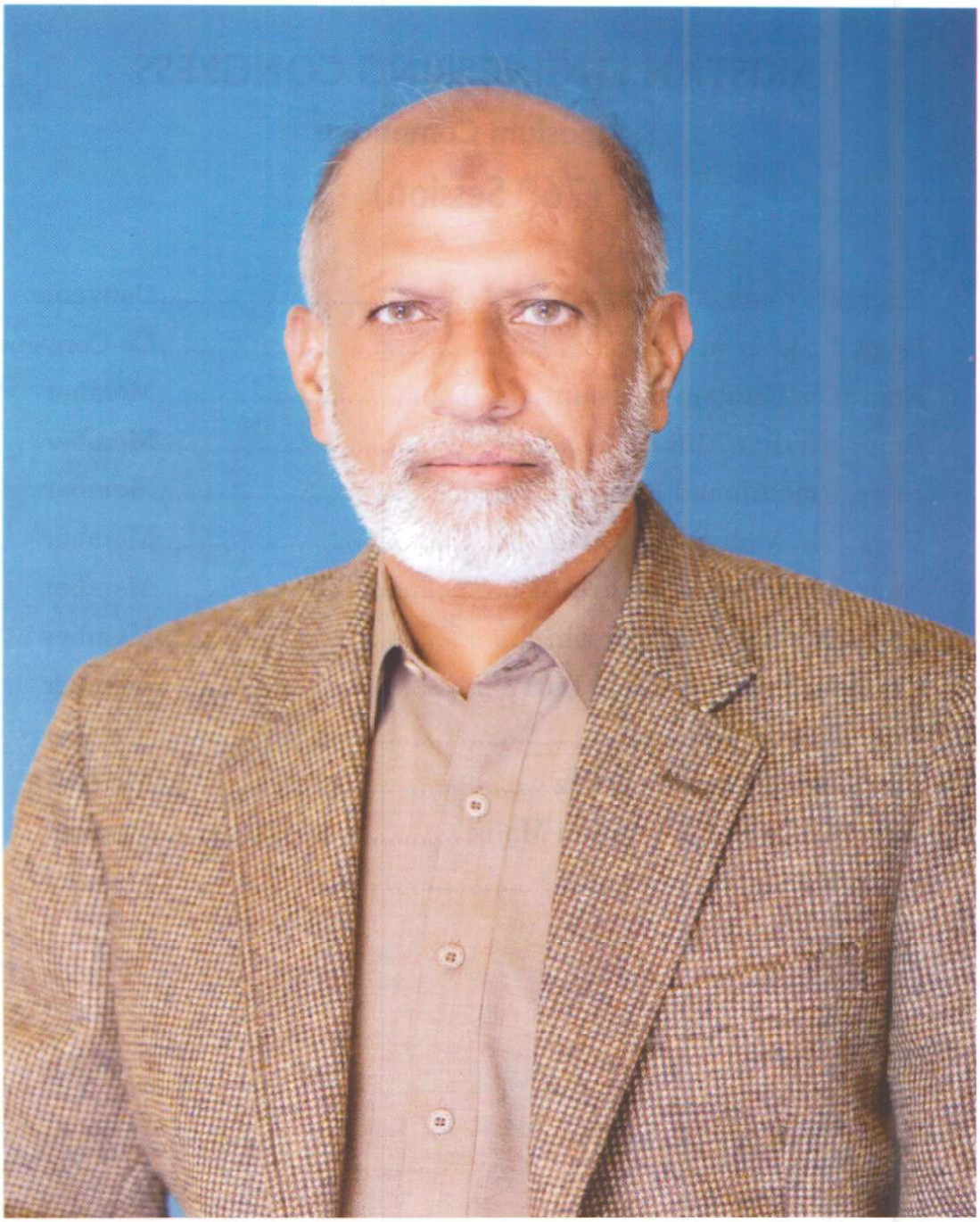
An introduction

I acquired the degrees of B.Sc. Civil Engg. and MSc in Hydraulics and Irrigation Engg. from University of Engineering and Technology Lahore in 1985 and 2001, respectively. I started my career from a consulting firm, then joined WAPDA as Junior Engineer and served there for a period of 16 months. Thereafter, joined Irrigation Department in 1987 and served the Deptt. till Feb. 2021 in various capacities and retired as Chief Engineer. Presently, I am working as freelance Consultants and imparting my input on ADB financed water sector projects.

I have track record of 35 years of working experience ranging from operation and maintenance of century old irrigation system to planning, designing, procurement and implementation of Mega projects of canal systems and Punjab barrages. Appreciations letters were issued by the Govt. in favor of mine on timely completion of projects on MR Link and BS Link Canals.

During the period 2007 to 2021 (Feb.), I served PMO-Punjab Barrages as Deputy Project Director & Head/Project Director performing role of Employer/Client as defined in the FIDIC documents of contracts. I have remained involved in preparation of feasibility and detailed design studies, project approval processes and procurement of consultants and contractors. I assisted Punjab Govt. during loan negotiations with the World Bank and ADB for barrage projects. Being core team member and Head of PMO Punjab Barrages managed implementation of Jinnah, New Khanki, Suleimani, Trimmu and Panjnad Barrages projects through various NCB, ICB works and Consultancies contracts. I got opportunities of getting local and foreign trainings in the fields of Procurement of goods, works and services, Alternate Dispute Boards, Project Cycle Management etc.

Besides my professional activities, I have been participating in the organizational activities of Pakistan Engineering Congress (Established in 1912) and in these days holding office of President Pakistan Engineering Congress for the 76th session.



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MAHMOOD AKHTAR CHEEMA

IUCN Country Representative

Keynote Speech

at World Environment Day Celebration Day 2021

celebration by Pakistan Engineering Congress

Theme: Ecosystem Restoration

Saturday 26th June 2021.

Representatives of the Government

Dignitaries,

Distinguished guests,

Assalam-o-allaikum and Good morning,

On behalf of IUCN and on my personal behalf I welcome you all to this celebration of the World Environment Day by the Pakistan Engineering Congress.

- I am thankful to Pakistan Engineering Council for organizing this event on occasion of the World Environment Day that is being celebrated all around the world and this event is continuation of these celebrations.
- This year's theme for the World Environment Day is '**Ecosystem Restoration**' which focuses on resetting our relation with nature.
- It is a matter of a great pride that for the first time Pakistan has hosted an International Day which demonstrates the leading capacity of Pakistan in the environmental affairs in the world.
- The World Environment Day event also marked the formal launch of the UN Decade on Ecosystem Restoration 2021 – 2030. As a host of the World Environment Day, Pakistan highlighted environmental issues and very effectively showcased country's own initiatives and its contribution to the global efforts to address climate change.
- The **UN Decade on Ecosystem Restoration 2021-2030**aims at reviving hundreds of millions of hectares, covering terrestrial as well as aquatic ecosystems and massively scaling up the restoration of degraded and destroyed ecosystems to fight the climate crisis, prevent the loss of a million species and enhance food security, water supply and livelihoods.
- The Government of Pakistan is fully committed to playing a leadership role in addressing the issue of climate change through its various mega initiatives

amongst them is the *10 Billion Tree Tsunami* initiative, which will restore and enhance over 1 million hectares of forest across the country.

- Recently, the Prime Minister of Pakistan launched the Protected Area Initiative to develop 15 model protected areas across the country to conserve over 7,300 sq km of land area, which is an important step towards the restoration of our unique ecosystems in the country. Pakistan is also blessed with a variety of ecosystems in the country.
- In the past, IUCN Pakistan had also been instrumental in getting notified a number of protected areas across Pakistan including the Astola Island declared as Pakistan's first Marine Protected Area. IUCN Pakistan facilitated the process of bringing together all the stakeholders that included: the federal Ministry of Climate Change; Government of Balochistan; Pakistan Navy; National Institute of Oceanography; WWF-Pakistan; Indus Earth Trust; and Sindh Forest and Wildlife Department. Further collaborative efforts are under way for bringing more areas under Protected Areas' regime for effective management of existing protected areas. In addition, IUCN Pakistan is planning to work closely with the Ministry of Climate Change and provinces to establish National Parks Service and green listing of the Protected Areas.
- In collaboration with the Forest and Wildlife Department, Government of Balochistan, IUCN Pakistan also initiated the process of designating the Juniper Forest Ecosystem as UNESCO's Man and the Biosphere Reserves. The designating process was led by IUCN Pakistan under its UNDP funded project titled: Mainstreaming Biodiversity Conservation into the Juniper Forest Ecosystem Production with UNESCO Pakistan's financial support under One UN Programme in consultation with all the stakeholders, local communities and other relevant government departments.
- IUCN's Business and Biodiversity Platform started off with its first chapter at the Port Qasim Area, in collaboration with top-notch private sector companies in Karachi for ecosystems restoration. It has in its short duration launched a million mangroves plantation initiative, engaged businesses to provide their feedback on environmental degradation in the PQA area with a view to environmental betterment, and carried out exposure visits. This is a promising initiative meant to encourage businesses to invest in ecosystems restoration and sustainable development.
- IUCN has been promoting Nature Based Solutions and follows its standards. The ongoing Covid-19 pandemic has made it clear that we are completely dependent on healthy and vibrant ecosystems for our health, water, food, medicines, clothes, fuel, shelter and energy and so on and so forth which is perfectly matches with this year's theme of ***"Ecosystem Restoration".***
- Every year, on June 05, we celebrate the day to renew our resolve and commitment to the betterment of the environment and nature, but this year it is even more important as it is the first ever opportunity for Pakistan being host of

the global event. I am confident that with this global commitment Pakistan will lead the world in the restoration of ecosystems by example.

- At a regional level Asia Protected Areas Partnership has been established which is a leading network to promote regional collaboration, best practices and innovative solutions for Asia protected areas.
- Healthy ecosystems and forests are at the forefront of reducing the effects of climate change. In respect of water, one benefit is forests' cooling effect on the environment produced through evapotranspiration and the provision of shade. The impacts of climate change may also be manifested in an increase in catastrophes such as floods, droughts and landslides – all of which may be influenced by forest cover. Moreover, large-scale deforestation can have an impact on precipitation patterns.
- We also need to adopt climate smart approaches to managing landscapes and seascapes —cropland, livestock, forests and fisheries that addresses the interlinked challenges of food security and accelerating climate change.
- Mangroves for the Future (MFF) an IUCN's regional initiative to promote investment in coastal ecosystem conservation for sustainable development. promoted an integrated ocean-wide approach to coastal management and to building the resilience of ecosystem-dependent coastal communities. The member countries included: Bangladesh, Cambodia, India, Indonesia, Maldives, Myanmar, Pakistan, Seychelles, Sri Lanka, Thailand and Viet Nam.
- Human beings as custodians of the earth need to create an atmosphere where all the living being can live here in a complete harmony and comfort and one of the ways to achieve it is through restoring ecosystems. Only healthy ecosystems can guarantee a healthy life style of humans being and other species on this earth. So, let us protect the interests of our future generations.

THANK YOU

Paper No. 124

ECOSYSTEM RESTORATION IN PAKISTAN
"A MEANS OF ATTAINING SOCIAL, ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY"

Sahibzad Khan, Nazia Akhtar, Mamoona

ECOSYSTEM RESTORATION IN PAKISTAN "A MEANS OF ATTAINING SOCIAL, ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY"

By:

Sahibzad Khan, Nazia Akhtar, Mamoona

1. Executive Summary

Ecological restoration, when executed efficiently in a sustainable manner, it will not only contribute towards the protection of biodiversity but also will improve human health and welfare improve food and water security, deliver goods, resources, and services, and financial affluence, along with climate change mitigation, resilience, and adaptation. This solutions-based method involves community, scientists, legislators, and stakeholders to overhaul ecological damage and reconstruct an improved association between people and the nature. Combined with conservation and sustainable practices, ecological restoration is capable enough to change local, regional, and global ecological situations from a state of constant degradation, to the one with constructive improvement. Pakistan has shown great improvements in their efforts to halt the issues of climate change and devastation of natural ecosystem during the tenure of incumbent leadership but still the country has a long way to go to achieve the sustainable development required since the country still lie in the rank of first seven countries most effected by the calamities of climate change.

2. Introduction

Ecosystem repair/restoration means supporting the retrieval of natural ecosystems that have been tarnished or battered, as well as conserving the ecosystems that are still undamaged. Healthier ecosystems having richer biodiversity serves great benefits for example more productive soils, higher yields of timber and fish, bigger sinks for greenhouse gases (Dailytimes). Many of the world's habitats have been severely degraded, posing a threat to ecological diversity and people's livelihoods. There is an increasing realisation that protecting critical areas alone would not be enough to preserve the earth's biological diversity. Ecological conservation has become a critical component of environmental management, despite the fact that it was previously overlooked (Joern, F., *etal.*, 2021). Given that many people now depend on degraded habitats to support their livelihoods, ecological restoration must take into account four factors (Khan, N. *etal.,* 2019). These components are essential for effective ecosystem management. Ecological restoration should achieve the following goals:

1. Increase biodiversity conservation
2. Enhance human well-being
3. Empower local residents

4. Boost ecosystem productivity.

As a result, ecosystem regeneration can be a key component of global conservation and sustainable development efforts. The intrinsic potential of ecological restoration to provide people with the opportunity to not only restore ecological damage, but also to improve the human condition, makes it particularly valuable. Restoration has clear conservation benefits. What is less obvious, but equally significant, is that ecological regeneration has also been able to revive economic prospects, revitalise common cultural traditions, and refocus local communities' expectations (Aronson, J *etal.*, 2020). The United Nations General Assembly declared 2021– 2030 as the United Nations Decade on Ecosystem Restoration on March 1, 2019, with Resolution 73/284. The UN Decade Strategy 2021-2030 aims to strike a divine balance between Nature's object and Man's subject. Pakistan, as one of the first seven countries to be affected by the effects of climate change, has a lot riding on this global strategy.

With its sister initiative of SDGs, the UN's Ecosystem Restoration Strategy will last a decade, ending in 2030. SDG 14 Life Below Water and SDG 15 Life on Land are also explicitly supported by the Strategy. If these two targets are met, it would have an effect on other SDG goals such as climate change (SDG 13), improving the wellbeing of communities in rural and urban areas (SDGs 3, 11), increasing clean water sources (SDG 6), and ensuring healthy food (SDG 2, 12).

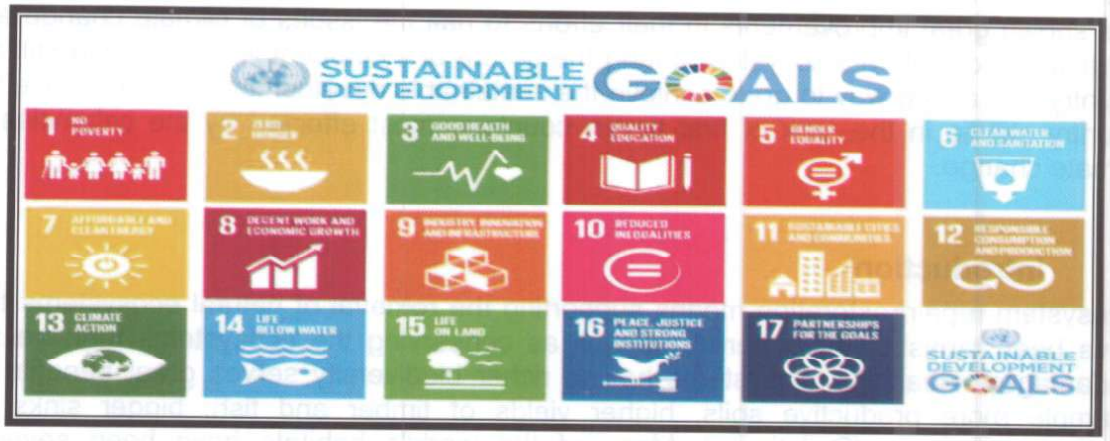


Figure-17: Goals of sustainable development (Source: https://sdgs.un.org/goals).

Public Awareness and Societal Mindsets, Political Will, and Technical Capacity are all identified as obstacles to achieving the strategy's objectives. Creating a participatory environmental restoration movement, promoting political support for the global movement, and catalysing research and development to build up technological capacity for ecosystem restoration are the three pathways devised to overcome these obstacles. The plan calls on world leaders to demonstrate their ability to protect the environment. This makes them more likely to change policies on a „fast and fair' basis, such as national investment policies, sectoral tax regimes, subsidies, market regulations, and other policies like land tenure and use, in order to mitigate the negative impact of such policies on the environment. The topic of ecosystem restoration will be included in the curricula, with the aim of educating children on ecosystem restoration for ten years by 2030 (Heid, L.D. *etal.,* 2021).

Global leaders, decision-makers, governments, marginalised people, thinkers, artists, women, poets, philosophers, singers, media figures, and youth will be mobilised to champion restoration. Youth can be extremely valuable as role models for change and as people who are well-represented in the media, especially social media. The UN and the FAO will establish a Digital Hub of Knowledge where big data on ecosystem conservation activities from all over the world will be processed. Similarly, the Strategy to strengthen states' technological capacity to achieve the UN Decade's strategic goals contains a lot of information. It identifies specific research and development programmes as well as other scientific adoptions that will help to increase capability. Other international agreements, commitments, and protocols will be followed in tandem with this approach. An Advisory Board will provide strategic support to the plan, which will be organised internationally by a Joint Core Team of UNEP and FAO. Different Task Forces will be established to create recommendations on cross-cutting themes to aid countries in implementing the Strategy's various activities (Truman, P.Y. and Mark W.S. 2019). A panel of ideologues from Humans in Nature will develop a value-based imperative to identify, patronise, and enjoy the benefits of ecosystem restoration. A Multi-Partner Trust Fund will be established to support projects focused on the three unique outcomes of the three pathways previously listed. A special task force dedicated to global finance mobilisation will be created. Government subsidy regimes, taxation schemes, national budgets, international financial agencies, multilateral development banks, national development banks, commercial banks, microfinance institutions, impact investments, philanthropic capital, local community investments, landowner commitments, and so on can all be used to mobilise finance.

3. Pakistan's commitment to ecological restoration till date

Forests, farmlands, villages, wetlands, and oceans can all be reclaimed, and conservation efforts can be initiated by almost everyone, from governments and development agencies to industries, neighbourhoods, and individuals. Since the causes of deterioration are numerous and diverse, they can have an effect on various scales. Ecosystem restoration not only protects but also improves the livelihoods of those who depend on them. It also aids in disease control and reduces the risk of natural disasters. Pakistan, like any other region, has long struggled with rising levels of environmental degradation, which costs the national economy billions of rupees each year. However, the incumbent government has taken a number of initiatives worth billions of rupees to restore ecosystems through nature-based salutations as part of Prime Minister Imran Khan's Clean Green Pakistan vision. Pakistan has shown a strong contribution to global efforts to restore the environment using natural solutions. This form of restoration would also aid in the achievement of many of the United Nations' Sustainable Development Goals (Khan, N. *etal.,* 2019).



Figure-2: change in natural landscape of Balloki in a year due to Billion Tree Tsunami project (Source: https://www.boredpanda.com).

Deforestation, desertification, soil degradation, sea level rise, raging forest fires, depleting fresh water resources, and melting glaciers are among the common human-caused environmental problems that countries around the world, mostly developing countries, are best at dealing with. Ecosystem conservation projects such as afforestation, rainwater harvesting and groundwater recharge, soil erosion stabilisation, smart agriculture programmes, and the implementation of renewable energy technologies and activities will all help to address these issues (Steven, J.C. 2019). Restoration may take several forms, such as actively planting or removing stresses to allow nature to recover on its own. Between now and 2030, the global community aims to restore 350 million hectares of degraded terrestrial and aquatic ecosystems through nature-based initiatives, including Pakistan's largest afforestation initiatives, the 10 Billion Tree Tsunami Programme and Protected Areas Initiative, and the Miyawaki technique- based Spring Tree Plantation Campaign, according to Pakistan's Ministry of Climate Change (Khan, N. *etal.,* 2019). Inger Andersen, Executive Director of the United Nations Environment Programme (UNEP), said the Prime Minister's Clean and Green Pakistan (CGP) initiative, which was launched in 2018, has gained global attention, and several countries are looking into replicating it to achieve their own environmental sustainability. Following the promising completion and nearly 100% achievement (Table.1) of the billion-tree agenda, Pakistan is now gearing up for the „Ten Billion Tree Tsunami' programme, another initiative aimed at combating desertification and water resource depletion in this water-scarce region, as well as achieving pro- poor and equitable growth for all. In one of the world's most ambitious afforestation campaigns, the government aims to extend and rebuild the country's forests over the course of five years with a "10 Billion Tree Tsunami." The campaign involves planting trees in urban environments such as schools, universities, public parks, and greenbelts, as well as restoring mangroves and forests.

Sr. No.	Name of Scheme	Activity	Target	Achievement	% age
1	Ten Billion Tree Tsunami Project	Afforestation along Canalside Plantation	947.00 Av. Miles	947.00 Av. Miles	100%
2		Afforestation compact plantation through canal water.	340.50 Acres	340.50 Acres	100%
3.		Afforestation Chak Plantation through Peter Engines (Flow Irrigation)	486 Acres	486 Acres	100%
4.		Raising of Potted Nursery	25.46 Lacs	25.46 Lacs	100%
5.		Raising of Bed Nursery	23.00 Acres	23.00 Acres	100%

Table-1: According to the Pakistan Forestry Outlook 2019, the total green area in the country is 4.34 million hectares which makes it 5.01% (Forest Department Pakistan).

Pakistan has established the Eco-System Restoration Fund to support nature-based climate change solutions, easing the transition to environmentally-resilient initiatives such as afforestation and biodiversity conservation. In addition, 15 model protected areas are being created across the country to preserve over 7,300 square kilometres of land, resulting in the creation of over 5,500 green jobs.

4. What Pakistan can do further: a way forward

1: Pakistan must provide an institutional framework to carry out the United Nations' strategic objectives. The topic of environment and climate change has devolved to the point that a synergized solution, as requested by the subject of environment and climate change, is seriously jeopardised. The institutions have oscillated poles apart from the core as a result of devolution, and this disbranching has already resulted in significant differences in policy and institutional covenants.

2: The environment and climate change are viewed by stereotypical public sector institutes with vastly inadequate technical and technological capabilities. Despite the fact that the National Climate Change Policy of 2012 still gives the centre the authority to unite the provinces, little to no action has been taken by the centre in this regard. The Pakistan Climate Change Authority, Climate Change Council, and Climate Change Fund were all promised in the 2017 Climate Change Act, but they have yet to be fully implemented. To demonstrate responsiveness to global action-sets, a National Plan for Ecosystem Restoration and subnational plans at every provincial level focused on the UN Decade Strategy must be hatched quickly.

3: Public private partnership needs to be promoted to cater the financial constraints faced by the country to kickstart the required pace of restoration. Also, the subject of environmental studies and basics of ecosystem restoration should be added in national curriculum so that the new generation understands the perils of degrading environment.

4: Biological corridors can be built alongside economic corridors, as in the case of the China-Pakistan Economic Corridor (CPEC) (Ramsha, M. and Umer, K. 2019). The Asian Development Bank (ADB) has shown that targeted initiatives like the Biodiversity Conservation Corridor Initiative (BCI) and the Core Environment Program (CEP) are successful in preserving environmental quality and conservation. However, sustained monitoring and evaluation, private sector execution partnerships, the deployment of low carbon emitting and polluting freight fleets, and the promotion of renewable resources (biofuels) will assist Pakistan in conserving its biodiversity through resource management and ecosystem restoration by involving the private sector. Similarly, programmes like the Core Environment Program and Biodiversity Conservation Initiative (CEPBCI) designed by other societies to create capacity through coherence between growth and the environment (e.g., tourism, climate change, institutional support, and an integrated spatial and strategic approach) continue to be successful in resolving environmental degradation issues (ADB, 2011). These plans are still viable for establishing green corridors. Pakistan must also follow policies that ensure the protection of human settlements and include hazardous waste management, such as healthy and sustainable agricultural and rural growth to improve farmers' roles. There is also a pressing need to mobilise labour unions in order to ensure that environmentally sound equipment is transferred. Furthermore, public awareness programmes and new alliances will assist Pakistan in achieving environmental equity while also advancing economically (SADC, 1997). Similarly, a Biological Conservation Complex modelled after Bhutan's model will help to protect national parks and wildlife sanctuaries across Pakistan (MoA, 2004). Furthermore, the Mesoamerican Biological Corridor (MBC), which protects biodiversity sites while also promoting socioeconomic development (Miller, Chang, & Johnson, 2001), could aid Pakistan in reducing natural resource exploitation and poverty. Projects such as the Nicaragua Atlantic Biological Corridor Project (1997–2005), the Honduras Biodiversity in Priority Areas Project (1997–2005), and the Panama Atlantic Mesoamerican Biological Corridor Project (1998–2005), Costa Rica's Ecomarkets Project (2000–06) and Mexico's Mesoamerican Biological Corridor Project (2000–09) were all sponsored by the World Bank in this regard and showed promise in terms of strengthening regulations to mitigate the negative effects of growth (Brown et al., 2014). All of these projects have the potential to be successful models for Pakistan, as they allow for both industrial expansion and biodiversity conservation, and they are focused on internationally recognised green growth initiatives. Such projects have the ability to mitigate Pakistan's negative and irreversible long-term environmental impacts.

5: Continuous evaluation of ongoing and previously achieved restoration projects along with monitoring of climate variability factors needs to be done to devise the future plans so that country could deliver efficiently and productively on the agenda of restored ecosystem by the year 2030 (Abhilash. P.C. 2021).

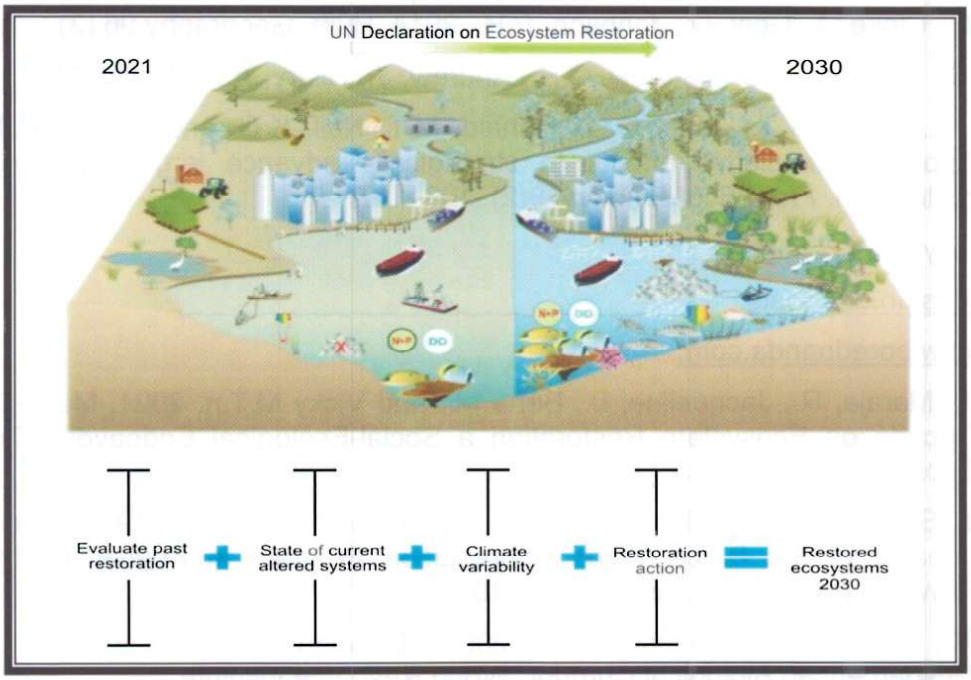


Figure-3: The elements required continuous monitoring to attain the restoration successfully by the end of this decade.

5. Conclusion

In 2020, the earth faced several disasters, including a pandemic, and the conservation of nature is critical to our planet's and humanity's existence in the modern world. The United Nations Decade on Habitat Conservation aims to accelerate the restoration of endangered habitats in order to combat climate change, avoid the extinction of a million animals, and improve food security. According to UN Environment Programme projections, such ecosystem conservation activities could produce $9 trillion in ecosystem services and remove 13 to 26 gigatons of greenhouse gases from the atmosphere. The economic benefits of such interventions exceed ten times the cost of investment, whereas inaction is at least three times more costly than ecosystem restoration. To become a nation who is sustainable and responsible towards environment, it is imperative for us to look for solutions of environmental issues that are not only economical, ecologically sound and are capable to improve the overall quality of life.

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