**Deserts, droughts and determination**

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While the people of Pakistan are yet again braving severe heatwaves, the theme of this year’s World Environment Day (which falls today) – ‘Land Restoration, Desertification, and Drought Resilience’ – is not just a call to action but a dire warning.

Experts predict that by next year, nearly three-quarters of the world’s population may be affected by drought. For Pakistan, the situation isn’t just alarming; it’s a full-blown crisis. Land degradation here is advancing at an alarming rate, threatening the livelihoods and food security of millions. In 2018 alone, economic losses from heatwaves amounted to approximately $9.5 billion. This stark reality demands immediate, decisive action to restore our landscapes and build resilience against future environmental challenges.

Desertification in Pakistan is a multifaceted issue driven by various factors. The country’s arid and semi-arid climate exacerbates the situation, but human activities significantly contribute to the problem. The primary culprits include deforestation and vegetation loss, with forest cover at a mere 3-4 per cent of the total landmass, far below the required 20-25 per cent.

Deforestation exposes the soil to wind and water erosion and contributes to global warming. Overgrazing and livestock pressure, particularly unregulated grazing, have devastated ecosystems, reducing soil fertility and increasing erosion. Water erosion, intensified by erratic rains, flash floods, and melting snow in the Indus Basin, causes significant soil erosion and sedimentation, decreasing the efficiency and lifespan of reservoirs.

Wind erosion affects around 3-5 million hectares, particularly in Punjab, Sindh, and Balochistan. It is not just an environmental issue but a health and pollution problem. Periodic droughts and floods result in significant vegetation loss and soil degradation. Droughts hamper groundwater recharge, while floods wash away fertile topsoil and crops.

The 2014-2017 drought in Pakistan led to a significant loss of livestock, with an estimated 2.2 million people and 7.2 million heads of livestock affected, causing severe food insecurity and economic losses. Inappropriate irrigation practices lead to water logging and salinity in Punjab, Sindh, and Balochistan, rendering once-fertile land barren. Water logging and salinity affect around 11 million hectares, exacerbating land degradation.

The combination of increasing population pressure and land mismanagement exacerbates desertification, reducing land productivity and escalating rural poverty. The lack of institutional capacity and information gaps impede effective measures against desertification, with inadequate drainage and insufficient watershed protection compounding the problem.

Pakistan has made some efforts to address these issues through reforestation and sustainable land management practices. By 2022, approximately 5.5 billion trees had been planted under the Billion Tree Tsunami Afforestation Project, with an independent audit by WWF-Pakistan finding a 75-85 per cent tree survival rate. These efforts did improve biodiversity and soil health to some extent, with new plant species emerging and the recovery of vanished species.

However, land restoration and drought resilience in Pakistan face significant challenges. Inadequate institutional capacity, with no single organization responsible for coordinating and monitoring land use, has hindered the effectiveness of different piecemeal initiatives taken by authorities.

Water scarcity and frequent droughts have severely impacted restoration success, particularly in arid and semi-arid regions. Poor irrigation practices have led to water logging and salinity, further exacerbating land degradation. Unsustainable livestock grazing has degraded ecosystems, reducing soil fertility and increasing erosion. Lack of community engagement and ownership has led to insufficient long-term commitment, while insufficient funding and resources have limited the scale and effectiveness of restoration projects.

Moreover, policy inconsistency has been a significant roadblock in tackling these issues. For instance, the disconnect between federal and provincial policies often leads to fragmented efforts. The National Climate Change Policy 2021 emphasizes sustainable land management and afforestation, but its implementation is hampered by provincial reluctance or inability to allocate adequate resources. Another example is the conflicting land-use policies – the expanding population and unplanned urbanization have brought us to a point where we will soon face a critical decision: whether to use land for housing or for cultivating crops to ensure food security.

The complex agroecological and socio-economic structure of Pakistan makes it challenging to develop effective strategies that address the unique needs of different regions. Furthermore, inadequate monitoring and evaluation mechanisms have hindered the assessment of project impacts and effectiveness. Climate change and natural disasters, such as floods and landslides, have further complicated restoration efforts by disrupting project implementation and exacerbating land degradation.

On the one hand, the floods of 2022 displaced 33 million people, illustrating the escalating impact of climate-induced disasters. On the other hand, Pakistan is among 23 countries facing drought emergencies over 2020-2022, according to the ‘Global Land Outlook’ report released by the United Nations. The country has become the 15th most water-stressed nation and is predicted to become water-scarce by 2035. Water scarcity has already increased by 15 per cent due to heatwaves, affecting over 50 per cent of the population.

To overcome these challenges, a comprehensive and multi-faceted approach is necessary. Strengthening institutional capacity by establishing a dedicated organization for coordinating land restoration efforts can enhance effectiveness.

Addressing water scarcity through improved water management practices and investing in drought-resistant crops can mitigate the impact of droughts on restoration projects. Enhancing irrigation practices to prevent water logging and salinity, and promoting sustainable grazing practices can protect ecosystems. Engaging local communities in restoration projects to foster ownership and commitment, and ensuring adequate funding and resources through international cooperation and effective climate financing are crucial.

Updating Pakistan’s agroecological zoning and developing region-specific strategies that consider the diverse agroecological and socio-economic contexts of Pakistan can improve the relevance and impact of restoration efforts. Implementing robust monitoring and evaluation systems can ensure continuous assessment and improvement of projects. Finally, integrating climate change adaptation and disaster risk reduction into restoration planning can enhance resilience against future environmental challenges.

The battle against desertification and drought is not just an environmental issue; it is a fight for our very survival. If we do not act now, Pakistan faces a future where vast tracts of land become barren wastelands, food security is irreparably compromised, and entire communities are displaced. The economic toll could be catastrophic. Our rivers could run dry, our soils could turn to dust, and our children’s futures could be defined by scarcity and struggle.

However, there is hope. We possess the knowledge, the technology, and the capacity to turn the tide. By embracing sustainable practices, investing in innovative technologies, and fostering a culture of environmental stewardship, we can restore our land and build resilience. Communities can be empowered to adopt sustainable agricultural practices, and federal, provincial, and local governments can enact policies that prioritize land restoration and climate resilience. International cooperation and effective climate financing can provide the necessary support to scale these efforts.

Imagine a Pakistan where once-degraded lands are now fertile and lush, supporting diverse ecosystems and abundant crops. A country where water resources are managed efficiently, air quality is breathable, and communities are resilient to the impacts of climate change. This vision is within our reach, but it requires immediate, unified action. Let us act with urgency and determination to safeguard our environment, our economy, and our future. Together, we can ensure a thriving, resilient Pakistan for generations to come.

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