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GCC States' Initial Steps to Combat Desertification

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The Gulf Cooperation Countries (GCC) are getting more outspoken on environmental issues and after successful hosting Climate talks COP28 in Dubai which was a major success for region in climate diplomacy, Saudi Arabia will be hosting the Conference of the Parties (UNCCD COP16) in Riyadh in December 2024, which seeks to enhance cooperation between the 197 countries that are party to the United Nations Convention to Combat Desertification and search for practical solutions in rehabilitating degraded land to reduce drought.

This is a very important issue for Saudi Arabia and the GCC countries as a whole. Land degradation and desertification continue to be one of the most significant environmental challenges in the region, with some countries suffering nearly 100% desertification according to the UN Environment Programme (UNEP).

The Gulf region exhibits a wide variety of landforms and habitats. It consists of mountains, steppes, marshes, coastal plains, dunes, alpinas, and deserts and is characterized by extreme climatic conditions in the form of long, hot, and dry summers with short, cool, and only lightly wet winters, with rainfall as little as 50 mm or less. However, according to climatic patterns, it is normal for the region to witness flash rain every few years, where large amounts of precipitation occur in one day, wreaking havoc on infrastructure and agriculture. In general, unreliable rainfall and infertile soil makes the major land uses, viz. agriculture, range management, and forestry marginal in nature.

With its increase in population, the demand on land and water resources in the Gulf region has exceeded their carrying capacity resulting in intensification of land degradation and desertification. Following the discovery of oil in the early 1930s, the countries in the region experienced drastic socio-economic and environmental changes, particularly during the last four-five decades, which further catalysed the land degradation process.

Vegetation degradation is the overriding factor of land degradation and an important consequence of it is biodiversity loss. In addition, urbanization, industrialization, and agricultural development, along with unregulated grazing and hunting have resulted in a significant loss of biodiversity of the region.

Land Use Patterns in GCC Countries

Arable land and permanent crops constitute only 1.63% of the total land area of 257 million hectares (ha) in the GCC countries. Small and fragmented agricultural holdings are a characteristic of the region and utilisation of such fragmented holdings is seldom economically feasible. Therefore, such small-sized agricultural holdings are often left fallow and are subjected to land degradation. Arable farming activities include production of cereals, fruits, and vegetables, of which vegetables and date palms are most significant.

A substantial area of 171.50m ha (66.67%) is under permanent pasture and has traditionally been the backbone of the region's livestock production and development. The rangelands are characterised by low plant density and productivity. However, there is no denying that rangelands



are prime resources as far as livestock rearing and maintenance of biodiversity are concerned and are the most significant form of vegetation cover in the region.

Forests and woodlands constitute only 1.8m ha, which is quite inconsequential as far as the total land area of the region is concerned. Natural forests, constituting about 1.57m ha, are located in the southern highlands of Saudi Arabia, the UAE, and Oman. The forests of the region are mainly used for fuelwood and fodder collection, yet their preservation is also critical to prevent further land degradation and desertification.

Pressure and Forces Driving Land Degradation

Desertification is further exacerbated by global climate change. Climate change effects worsen the availability of already scarce water resources, and increased temperatures (due to climate change) lead inevitably to more desertification.

In addition, one of the main drivers of environmental pressure in the region is rapid urbanization and industrialization, accompanied by mass immigration of foreign workers. This has led to conversion of agricultural lands, rangelands, and coastal areas for infrastructure development. Such unsustainable land use has contributed to loss of biodiversity and intensified desertification.

A broader set of policy, institutional, technological, and economic factors drive the proximate causes of desertification such as the expansion of cropland and overgrazing, expansion of infrastructure, increased aridity, and wood extraction. These have resulted in a downward spiral of enhanced degradation and decreased land productivity. Overgrazing, agricultural activities, and deforestation remain the crucial causative agents of land degradation. About 97% of land degradation in Saudi Arabia was due to overgrazing, while the numbers for Qatar and Kuwait stood at 92% and 88% respectively.

Increasing tourism, camping, and rallying activities in the region have also taken a toll on the land and vegetation. Vehicles trekking through the deserts and sand dunes compact the soil, while camping activities interfere with germination, flowering, and fruiting (not to mention contribute to land and air pollution).

On the other hand, continued encroachment of agricultural lands results in extension of cultivation to marginal and pasturelands. Such substitute lands, due to their inherent low productive capacity, are later abandoned without any protective cover and in the absence of corrective measures, are prone to land degradation.

Agricultural activities are considered to be one of the main factors for land degradation in GCC countries. Over-abstraction and subsequent poor management of irrigation water have resulted in salinization, alkalinization, water logging, and nutrient depletion in large areas of the region according to UNEP.



Efforts to Combat Desertification

GCC countries have taken initiatives to combat desertification, including policy and institutional measures at the national level, regional initiatives as well as accession to various international agreements and conventions.

The countries have initiated steps to develop and promote less water-intensive crops and drought and salt-tolerant species. For instance, Bahrain has initiated a program to replace alfalfa with other fodder crops like barley, oats, rye grass and Sudan grass. Regional institutes like Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD) are also involved in the development of drought-tolerant and disease-resistant wheat and barley varieties.

Forests, artificial or natural, are considered to be an effective means to control shifting sands and regulate the spread of deserts. All the countries of the region have initiated large-scale afforestation programs to increase forest cover. Recent ambitious initiatives launched by Saudi Arabia include the Saudi Green Initiative and the Middle East Green Initiative that aim to plant 50 billion trees.

The GCC countries are also active participants in international conventions dealing with the preservation of the environment. Of particular relevance to land degradation are the three sister conventions, namely the UNCCD, UNCBD (United Nations Convention on Biological Diversity) and the UNFCCC (United Nations Framework Convention on Climate Change). All the GCC countries have ratified and acceded to these conventions.

Recommendations to Prevent Land Degradation

While combating desertification has been accorded a level of priority, the effort is constrained by lack of an integrated land-use plan and supporting policies. It is therefore essential to evolve an integrated land plan, which considers all forms of land-use like range management agriculture, forestry, and land for industrialization etc. It is also essential to promote bioregional planning that explicitly names biodiversity conservation and combating desertification as the central factors around which other activities can be planned.

In order to improve range management practices and cultivation of native grasses it is important to study the ecological carrying capacity of rangelands and develop grazing systems to match. It is essential that all elements of biodiversity be taken into consideration while determining the carrying capacity, not just production of edible herbage.

In addition, there is a need to undertake reclamation of degraded rangelands with local range species, taking care not to plant invasive species. Moreover, one needs to carefully examine and adopt suitable rangeland management practices such as rotational grazing, including systems based on nomadic pastoral as well as traditional hema (protection) systems.

The subsidies provided by the GCC countries in cultivation of water-intensive fodder crops like alfalfa and Rhodes grass may be gradually discontinued, and in fact, imposing a levy on such practices may be more effective in minimizing their cultivation.



Experience from across the world points to the fact that active involvement of the primary stakeholder, especially local community and environmental civil society organizations, is crucial for the success of any conservation activity. It is essential to strengthen the involvement of local communities and environmental civil society organizations through awareness generation and capacity building.

One of the surest ways of promoting products and services of sustainable land-use is to create a market for them. The region has good potential for ecotourism. Properly designed and promoted ecotourism, based on a large network of protected areas, could be a viable alternative to large-scale livestock grazing in arid and hyper-arid areas.

There have been efforts to assess and combat desertification in the past decades in the GCC countries. However, there is still a shortage of knowledge/awareness regarding the magnitude of the different causes of desertification and their extent and impacts. Preparing and implementing an integrated and comprehensive action plan would require accurate information about the extent of desertification, the resulting economic losses, and the actual cost of mitigation.

Saudi Arabia's hosting of UNCCD COP16 will be an important milestone in mobilizing the GCC countries to preserve land of all kinds, reduce their degradation, and combat desertification and the effects of drought as well as exchange information and best practices in this regard. The attention associated with this meeting and the interest this will generate must be taken full advantage of.

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