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Coastal Agriculture's Sustainability in the Face of Climate Change

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Editorial

Climate change is an unavoidable and serious global concern with long-term implications for all nations' sustainable development. It has been widely recognised as a major environmental concern affecting natural and human systems on a global scale. According to the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4), coastal systems and low-lying areas are expected to be more threatened by global climate change during the twenty-first century and beyond. Waves, winds, currents, tides, and storms are major threats associated with the shoreline. Coastal processes are the results of natural actions and interactions on the coastline and near-shore seafloor, and they include erosion and deposition, dune motion, and long shore drift. Coastal locations are especially vulnerable to a variety of climate-related risks (e.g., rising sea levels, higher flood levels and storm surges, accelerated coastal erosion, seawater intrusion and increasing ocean acidity and surface temperatures). These dangers may have a number of socioeconomic consequences in coastal areas (e.g., reduced agricultural productivity, loss of property and coastal habitats, loss of tourism, recreation, transportation and industry and harbour activities). There is also evidence that non-climate stressors such as urbanisation, population movement, land-use change, pollution, and gender concerns have been important drivers of changes in coastal agriculture around the world. These would have an effect on the long-term sustainability of food security in coastal areas.

Oceans occupy approximately 72% of the Earth's surface, with 620,000 kilometres of coastline. Coastal towns face unquestionably difficult challenges as a result of climate change. Over 40% of the global population (approximately 2.4 billion people) live in coastal areas or within 100 kilometres of the coast, surrounded by extremely productive deltas, coral reefs, mangrove biomes, and adjacent land-based estuaries. Many residents of these environmentally diverse regions practise a mix of natural resource-based livelihoods, including as agriculture and artisanal fishing. Climate change and agriculture are intertwined and occur on a global scale. Climate change is predicted to have a severe influence on crop and livestock production around the world, thereby threatening food security. The agriculture sector's output risks will be exacerbated by the unknown effects of climate change. Given these realities, the concept of sustainable agricultural development and global food security must be prioritised. Climate change will cause changes in precipitation and temperature, which will have an impact on agriculture worldwide. Sea-level rise (SLR), inundation, seawater intrusion, increased salinity, storm surges, flooding, and tropical cyclones will all have an influence on coastal agriculture.

Coastal agricultural operations are less stable than upland agricultural practises because they must deal with changes in salinity, tidal processes, water stressors, and waterlogging on a regular basis. Location-specific land use has a significant impact on coastal ecosystems. The precise size, frequency, and geographical patterns of climate change consequences on coastal agriculture are uncertain. However, the consequences of these impacts will change the fate of many generations to come and will particularly affect coastal communities if appropriate action is not taken. Sustainable management of natural resources in coastal zones is therefore critical to ensuring the stability of this production system. As a result, it is critical to explore how agriculture may alter as a result of climate change in dynamic and resource-rich coastal regions. While the effects of climate change on agriculture and food security are widely understood, the consequences for the sustainability of coastal agriculture have not been thoroughly addressed. Given the importance of agriculture in coastal populations' livelihoods, we wanted to look into the long-term viability of coastal agriculture in the face of climate change.

The pertinent issues related to coastal agricultural sustainability, differences between coastal and inland agriculture and key climatic pressures on coastal agriculture. We also discern the factors, such as perception, adaptation and gender issues, which are related to coastal agriculture under climate change. While some issues, such as gender in agriculture and rapid urbanisation in coastal regions, are not directly climate related, we have included them as they are connected to coastal agricultural sustainability. They are central to any discussion on mitigation and adaptation in coastal agricultural settings. This review and discussion paper synthesises pertinent information that is essential for researchers and policymakers. It will help identify alternatives in the sustainability of coastal agriculture in the wake of climate change and serve as a basis for similar studies in the future. This review and discussion article synthesises important information for researchers and policymakers. It will aid in the identification of solutions for the long-term sustainability of coastal agriculture in the face of climate change and serve as a foundation for future research.

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