



Editorial

Tradeoffs of Climate Change, Agriculture, and Ecosystems in Sri Lanka

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Sri Lanka being a tropical island with rich ecosystems, is under the influence of a complex interplay of climate change, agriculture, and environmental conservation. The balance among these is more complicated and the balance among them is much more challenging, as when a decision is made to address one aspect, it often comes with tradeoffs that impact on others.

Sri Lankan Agriculture which is the backbone of the country has significant dependency on the rural populations of the country. Agriculture is one of the first sectors to bear the effects of climate change. Sri Lanka's crop farming is often disrupted by erratic rainfall, prolonged droughts, and rising temperatures which reduces yields of staple crops like rice, tea, and vegetables. Tea plantations and the quality of tea depend on specific climate conditions and changed climatic conditions are threatening a vital export industry and thousands of livelihoods.

As agriculture struggles with climate pressures, the need for adaptive strategies often clashes with intentions to preserve ecosystems. When expanding farmlands to meet food demands by means of clearing the forests and connected habitat loss threatens its rich biodiversity. Sri Lanka is the habitat for unique flora and fauna which relies on undisturbed ecosystems. Converting forests into agricultural land accelerates carbon emissions, intensifying the climate challenges faced by the farmers.

Clear-cut tradeoffs could be disclosed in the efforts to address these interconnected issues. The promotion of organic farming to reduce environmental degradation even though it results in lower yields in the short run potentially affecting food security. Introducing climate-resilient crop varieties may require significant investment in farmer training and technology.

However, problems exist in conservation efforts too which are much needed for the country. Efforts in restricting agricultural land expansion with the expectation of protecting natural habitats may limit the land availability for food production creating food security issues while necessitating higher dependence on imports. On the other hand, prioritizing agricultural expansion damages ecosystems, leading to long-term losses in biodiversity and natural resilience.

Hence fostering synergy between agriculture and ecosystem conservation while addressing the realities of climate change is much needed. In light of this, the integration of sustainable agricultural practices provides synergistic solutions. Regenerative agriculture, agroforestry practices, and nature farming can enhance productivity while preserving biodiversity. Investments in soil health, renewable energy for farming operations, and water-saving technologies can mitigate environmental impact and improve resilience.

Moreover, strengthening policies to promote reforestation, carbon sequestration, and community-led environmental conservation ensures the ecosystem's health, especially in combating climate change. A coordinated, inclusive approach that engages policymakers, environmentalists, scientists, and farmers is a must at the heart of these solutions.

In the recent past, Sri Lanka faced challenges in safeguarding its agriculture, ecosystems, and communities in the face of an unpredictable climate change which needs the highest attention at present. Directing these tradeoffs requires not only innovative solutions but also a shared commitment to balance short-term needs with long-term sustainability. Researchers need to pay much attention to conducting related research and development activities towards exploring further synergistic solutions while social activists promote community-led interventions to implement synergistic strategies to protect agriculture, and ecosystems in light of continuously changing climates.