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Safeguard Natural Resources and Biodiversity from Climate Change Impacts

We rely on Nature and its ecosystems for all our material needs: freshwater for domestic, industrial and power generation uses; crop farming and animal husbandry; fisheries; forestry; tourism and recreation; and traditional medicine. Natural products still generate a major share of our economic output and exports.

Sri Lanka's high biodiversity includes a diverse array of ecosystems and species, and provides for a wide range of ecosystem services. These include maintaining soil fertility, ensuring the flow of surface water, buffering the impacts of weather events like cyclones and floods, and improving the local level climate.

As human numbers and their aspirations grow, the demands on natural resources will also increase. Climate change impacts will add to these pressures in the coming years, disrupting ecosystem services.

This can, in turn, affect the country's food security, livelihoods, nutrition, public health and overall economic development.

**Strengthening Capacity for Climate Change
Adaptation in Sri Lanka**

**National Climate Change Adaptation Strategy:
Strategic Thrust Area #5**

Conserving our rich biodiversity and maintaining our ecosystems are among the most practical climate change adaptation strategies that Sri Lanka can pursue.

Climate change impacts

We don't yet know exactly how climate change would impact our biodiversity and natural resources. However, we can expect these to be significant and long-lasting – they would affect the ecosystem services that we are used to.

The anticipated climate change impacts would include the following:

- Changes in rainfall patterns and temperatures would trigger changes in all our ecosystems – ranging from forests and wetlands to coastal areas – and their species.
- The rates at which plants and animals grow, multiply and spread would change, leading to unexpected results – some harmless, and others damaging (e.g. invasive species spreading fast).
- Rising sea levels and warming sea waters would threaten coral reefs and other marine species.

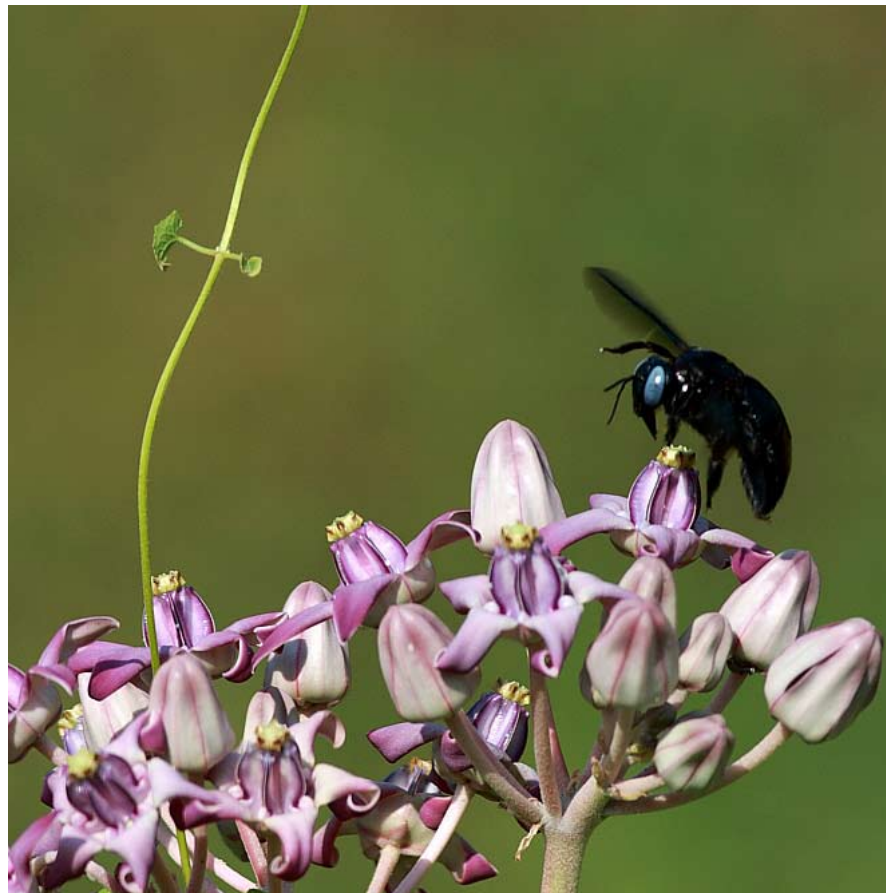


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One thing is clear: healthier ecosystems and more genetically diverse species can withstand climate change impacts better. So the best response is to reduce human pressures on ecosystems and species, increasing their natural ability to adapt and cope.

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Last Chance for Biodiversity?

Conserving natural resources does not mean their complete non-use. It means using them more sustainably – which is a lot harder than simply depleting them.

There are many factors and competing interests that affect the conservation and wise management of natural resources. These include: unplanned clearing of forests (for timber or land); larger forests being broken up into unconnected smaller patches; accidental or intentional firing of grasslands and forests; degradation of forests; over-harvesting of timber and other forest resources; plants and animals being endangered and driven to extinction; wetlands being filled up; shrinking size of home gardens; coral mining for lime extraction; loss of mangroves due to shrimp farming; degradation of lagoons and estuaries by garbage or sedimentation; and the loss of traditional crop varieties due to adoption of high yielding varieties.

Sri Lanka has dozens of laws and regulations aimed at protecting biodiversity and habitats, but these are implemented poorly. We need to sort out long-standing problems in conservation before climate change impacts will make things worse. At best, we have a window of a few years to do so.

Thematic Areas

The key issues and adaptation measures related to land and water resources as well as biodiversity were identified during stakeholder consultations to prepare the National Climate Change Adaptation Strategy. These may be grouped into the following thematic areas.

Ensure adequate quality and quantity of water for human wellbeing and ecosystem services

For now, Sri Lanka has abundant water resources, but climate change will affect both the volume and quality of water available. The country has no clear policy on water as yet, and many institutions are involved in its use at various levels without a central authority to coordinate multiple users. Involving many stakeholders – in domestic, agricultural and industrial sectors – requires better coordination and adopting Integrated Water Resource Management (IWRM) approach.

Enhance climate change resilience of terrestrial ecosystems and their services

Sri Lanka's land-based ecosystems are under enormous pressure from human numbers and economic activity (see box). Climate change impacts will be a double whammy to the already stressed or damaged ecosystems. Changing habitats, coupled with changing climate, could increase the spread of invasive species that threaten natural ecosystems. We need to enhance conservation measures to ensure the sustainability of ecosystem services.

Enhance the resilience of coastal and marine ecosystems and associated vulnerable species

Sri Lanka's population is concentrated in the coastal zone, which harbours higher levels of economic activity and environmental degradation. El Nino events, droughts and the 2004 tsunami have also battered these areas. Soon, climate change impacts will add to these woes – by way of rising sea levels and increased storm surges. The Coastal Zone Management Plan shows the way forward in managing coastal resources in an integrated manner. But the Coast Conservation Department needs better capacity and resources to implement it properly.

Enhance climate change resilience of natural inland wetlands and associated species

Cities have been expanding in recent years at the expense of marsh lands and wetlands – reclaiming them for land, or treating them as garbage dumps. This has reduced Nature's ability to absorb excess rainfall and contain flooding, while also diminishing aquatic biodiversity. With extreme rainfall events being triggered by climate change, we urgently need to restore wetlands to buffer the impact.

Address socio-economic concerns resulting from climate change impacts on biodiversity

A large number of our people earn their daily income from farming, fishing and other jobs that rely on natural resources and biodiversity. Climate change impacts can threaten their livelihoods and reduce incomes. Among the hardest to be hit will be poor rural people who are the least able to absorb such shocks. We need to identify who is at risk and work with them from now onwards to give them knowledge, technology and skills to adapt and cope with such changes.

Raise awareness and mobilize stakeholders for conservation of biodiversity and ecosystem services

Traditional Sri Lankan culture has been close to Nature, but many people today lack knowledge, understanding and sensitivity about natural resources and processes. Most people take ecosystem services for granted, little realising how much their well-being depends on these. A key element in climate change adaptation would be to increase awareness levels and to show how lifestyle choices affect resource use and ecosystems. Students and researcher should especially be encouraged to study and relate these challenges to their regular work.



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Sri Lanka's 20 million people depend on the island's rich biodiversity and ecosystems for many natural services and benefits that are crucial for their survival and well being. Climate change will have adverse impacts on plants, animals as well as ecosystems. These can, in turn, affect food security, livelihoods, nutrition, health and overall economic development.

Living and coping with uncertain impacts of climate change is no longer a choice; it is an imperative. Sri Lanka needs to address climate change adaptation to ensure that its economic development can continue without disruption or setbacks, and investments in poverty reduction, food and water security and public health will not be undone.

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ADB is working with the Ministry of Environment, Sri Lanka, in formulating a national strategy for climate change adaptation to increase Sri Lanka's resilience to climate change impacts whilst pursuing sustainable economic development. When adopted, the strategy would stimulate improved effectiveness of environmental management and better organization of stakeholders to address climate change adaptation.

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