
Climate Change and Invasive Species in the Pacific

A Pacific Information Brief from the -

Pacific Invasives Partnership (a working group of the Roundtable
for Nature Conservation in the Pacific Islands)



CLIMATE CHANGE

Pacific island nations are already experiencing the effects of a changing climate. Cyclones and severe flooding have hit Yap, Niue and Fiji in recent years. Air temperature, the number of cyclones and sea level are all predicted to rise, and changes in rainfall are also predicted across the Pacific. Forces driving climate change are beyond the control of island nations. Pacific islands, while constituting 0.12 per cent of the world's population, release only 0.003 per cent of the world's carbon dioxide from fuel combustion. Adaptation to climate change should now be the focus of Pacific Island nations. **The most practical climate-change adaptation action is to improve ecosystem resilience and focus on sustainable development.**

INVASIVE SPECIES

Invasive species are introduced organisms that can cause harm to the environment, the economy, or human health. They are mostly spread through human activity and include insects, weeds, fungi, bacteria, viruses, fish, mammals, snails and other species. Many of these harmful organisms are already present in Pacific Island Countries and Territories (PICTs) where they are having detrimental impacts on several sectors including food production, tourism and trade as well as ecosystems and biodiversity. More invasive species are in countries neighbouring PICTs.

THE LINK BETWEEN CLIMATE CHANGE, INVASIVE SPECIES AND ISLANDS

Invasive species (introduced pests, weeds and diseases) threaten biodiversity and livelihoods across the Pacific and must be considered when planning climate change adaptation strategies. Found in terrestrial, freshwater and marine environments, invasive species adversely affect the livelihoods, lifestyles and health of island dwellers and cause harm to ecosystems and biodiversity. The global cost associated with invasive species is estimated at US\$1.4 trillion annually – about 5% of the world economy.

Islands are extremely vulnerable to the impacts of invasive species, and introduced pests, weeds and diseases have caused biodiversity loss and ecosystem disturbance on islands worldwide. The combination of climate change and invasive species could be devastating for some native plants and animals as well as for food security, international trade and other economic activities in the Pacific. An IUCN report listed invasive species as the most important direct pressure on the environment in Oceania and stated "poor understanding of environmental problems or their root causes" was the most important barrier to addressing pressures on the environment.

Declines and extinctions continue as invasive species prey on native animals, damage crops and native vegetation, compete for resources, modify habitats on land and in rivers and coastal waters, and cause or spread disease. Introduced species become successful invaders because they are aggressive and able to adapt to a wide range of habitats and climates, while most native species are less competitive, breed more slowly and have limited tolerance to environmental factors. Rapid environmental changes such as increasing temperature or rainfall, or a change in the frequency of disturbance events like cyclones, could have serious impacts on native species while at the same time creating favourable conditions for the invaders.

There is already evidence of such effects in the Pacific. Invasive plants often smother gardens, farmland and forests after destruction by extreme storms. A survey on Niue after Cyclone Heta (a Category 5 storm that caused massive damage to Niue's ecosystems) found that several invasive species already present on the island expanded their range and abundance after the cyclone.

The management of invasive species needs to be included in all public awareness programmes in relation to climate change. Many Pacific people rely on native plants and animals to supply them with food, water, shelter and medicine. Damage to ecosystems from climatic events or invasive species, or both, can have a significant effect on island economies. Destruction of coastal ecosystems (coral reefs, mangroves) has been identified as the most urgent environmental issue affecting island ecosystems, and the negative effects of invasive species can only add to the vulnerability of these fragile ecosystems.

Most invasive species are spread by the movements of goods and people. More business means more trade, more trade means more frequent and novel transport, and increased transport means increased risk from invasive species. With increasing trade and travel around the Pacific, it becomes even more important to manage invasive species given that climate change is likely to increase the impacts of invasives, both existing and new ones.

A crucial part of Pacific island adaptation to climate change will be to reduce pressures on ecosystems, such as those caused by invasive species. Adaptation to climate change requires increased efforts to prevent new invasions and to eradicate or control existing invasives.



Prepared by Pacific Invasives Initiative (PII) and IUCN SSC Invasive Species Specialist Group (ISSG) Regional Office for the Pacific, for the Pacific Invasives Partnership (PIP), the umbrella coordinating body for organisations working on invasive species in the Pacific. PIP is the Invasive Species Working Group of the Roundtable for Nature Conservation in the Pacific Islands.



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