

Invasive Alien Species

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ARTICLE ID: 028

Introduction

Invasive Species also known by the name introduced Species, alien species or exotic species are species introduced accidentally or intentionally into a new geographic location where they become a nuisance and pose a threat to native Species. International union for conservation of Nature and Natural resources (IUCN) defines alien invasive species as one which becomes established in natural or semi natural ecosystems or habitat, and threatens native biological diversity. These invasive are widely distributed in all kinds of ecosystems throughout the world and include all categories of living organisms.

Hidden Global Threat

A steep rise in global trade in agriculture and human activities has an unwanted impact in the form of increased chances of introduction of invasive alien species. Millions of the world's most vulnerable people face problems with invasive weeds, insects, plant diseases and animals, which are out of control and have a major impact on economic, social and environment. Invasive species are therefore fast becoming a critical factor in preventing us achieving many of the Sustainable development goals (SDGs), with the global cost of the world's invasive species estimated at US\$1.4 trillion per year – close to 5% of global GDP. It is estimated that 480,000 invasive species have been introduced to different ecosystems globally. Unfortunately, their geographic spread and impact is growing due to climate change, trade and tourism. There has been an unprecedented rate of new introductions in recent years, as well as a rapid expansion of existing biological invasions.

Four T's:

The four Ts: trade, transport, travel and tourism leads to new biological invasions. Species are able to 'hitch-hike' in travellers' luggage and clothing, in freight and packaging, be introduced through contaminated animals and plants, or through ships' ballast water and other waste material when dumped.

Victims

Invasive species threatens biological diversity and has much unforeseen impression on livelihoods. They disproportionately influence communities of poor rural areas; people who depend on natural resources and healthy ecosystems to make a living. For example, an invasive weed can take over grazing land and out-class crops for limited resources. This can significantly reduce yields and production as easily as invasive insect pests and diseases. Invasive species can also harm the health of people in infected areas.

Over half of the world's food comes from just three crops - rice, wheat and maize. CABI estimates that these three crops alone suffer annual yield losses of up to 16% (i.e. US\$96bn of lost production) due to invasive species. Invasive species destroy livelihoods, cause hunger, threaten the economic prosperity of entire countries and regions, and increase biodiversity loss. Immediate actions are needed if we are to achieve the UN's vision of attaining food security and sustainable agriculture, economic growth and prosperity, and protecting our ecosystems.

Devastating Introduced pest species

- 1. Neotropical woolly whitefly (2019)
- 2. Fall army worm (2018)
- 3. Rugose Spiralling whitefly (2016)
- 4. South American Tomato leaf miner (2014)
- 5. Papaya mealy bug (2007)

Action plans

Nodal agency , Directorate of Plant Protection, Quarantine and Storage (DPPQS) Faridabad , Ministry of Agriculture is presently regulating the enforcements for invasive latest regulations are Plant Quarantine (Regulation of Import into India) Order 2003 Invasive species Management has broadly following approaches

1. **Exclusion of IAS** : It is based on pathways along which pest are most likely to enter national boundaries and to intercept several potential invaders linked to a single pathway. Possibilities to prevent further invasion are
 - Inceptions based on regulations enforced with inspection and fees
 - Treatment of material suspected with non-indigenous species

- Prohibition of particular commodities in accordance with international regulations.
- 2. Eradication:** It could be successful only in response to early detection of non indigenous species. Successful eradication programs should rely on
- Mechanical control -Picking of snails ,
 - Chemical control -Using of insecticides , Pesticides or irradiation methods ,
 - Habitat Management - Grazing and prescribed burning.

Control

It goes as a last step in management of IAS when eradication is not feasible and involves an integrated control tactics including mechanical, chemical , biological measures.

