

Bioinvasion and Global Environmental Governance: The Transnational Policy Network on Invasive Alien Species

Indonesia's Actions on IAS

Description⁸

The Republic of Indonesia is a transcontinental country in Southeast Asia and Oceania. Indonesia comprises 17,508 islands, and with an estimated population of around 240 million people, it is the world's fourth most populous country. The country shares land borders with Papua New Guinea, East Timor and Malaysia. Other neighboring countries include Singapore, Philippines, Australia, and the Indian territory of the Andaman and Nicobar Islands. The nation's capital city is Jakarta. Despite its large population and densely populated regions, Indonesia has vast areas of wilderness that support the world's second highest level of biodiversity. The country is richly endowed with natural resources, yet poverty is a defining feature of contemporary Indonesia.

The Dutch began to colonize Indonesia in the early 17th century; Japan occupied the islands from 1942 to 1945. Indonesia declared its independence after Japan's surrender, but it required four years of intermittent negotiations, recurring hostilities, and UN mediation before the Netherlands agreed to transfer sovereignty in 1949. Indonesia's first free parliamentary election after decades of repressive rule took place in 1999. Indonesia is a republic, with an elected legislature and president. In 2005, Indonesia reached a historic peace agreement with armed separatists in Aceh, which led to democratic elections in December 2006. President Yudhoyono's government has introduced significant reforms in the financial sector, including in the areas of tax and customs, the use of Treasury bills, and capital market supervision. As global demand has slowed and prices for Indonesia's commodity exports have fallen, Indonesia faces the prospect of growth significantly below the 6-plus percent recorded in 2007 and 2008.

Summary of Biodiversity

Indonesia's archipelago comprises approximately 17,000 islands of which around 990 are permanently inhabited. There are 7 major biogeographic regions in Indonesia, centered on the major islands and their surrounding seas. Conservation International considers Indonesia to be on the 17 "megadiverse" countries, with 2 of the world's 25 "hotspots", 18 World Wildlife Fund's "Global 200" ecoregions and 24 of Bird Life International's "Endemic Bird Areas".

- [CBD Country Profile](#)
- [Earth Trends Country Profile on Biodiversity and Protected Areas](#)

Legislation relating to IAS

- Relevant legislation includes Government Regulation No. 14/2002⁵
- Law No. 16/1992: Animal, Fish and Plant Quarantine.⁵
- Government Regulation No. 27/1999 on Environmental Impact Assessment⁷
- Act No. 5/1990 on conservation of biological diversity and its ecosystems⁷

Government Agencies/Programs/Ministries dealing with IAS

- [Ministry of Forestry](#)
- [Ministry of Marine and Fisheries Affairs](#)
- [Ministry of Agriculture](#)
 - National Plant Protection Organization³
 - [Agricultural Quarantine Agency](#) (AQAI)

Major Invasive Alien Species¹

Acacia farnesiana (tree, shrub)	Eichhornia crassipes (aquatic plant)
Alternanthera philoxeroides (aquatic plant)	Gambusia affinis (fish)
Aristichthys nobilis (fish)	Hypophthalmichthys molitrix (fish)
Beak and Feather Disease Virus (BFDV) (micro-organism)	Lantana camara (shrub)
Bemisia tabaci (insect)	Macaca fascicularis (mammal)
Bidens pilosa (herb)	Mimosa pigra (shrub)
Brontispa longissima (insect)	Myriophyllum aquaticum (aquatic plant)
Bubulcus ibis (bird)	Oncorhynchus mykiss (fish)
Clidemia hirta (shrub)	Pennisetum polystachion (grass)
Corvus splendens (bird)	Piper aduncum (tree, shrub)
Ctenopharyngodon idella (fish)	Pomacea canaliculata (mollusc)
Cyprinus carpio (fish)	Prosopis spp. (tree, shrub)
Euglandina rosea (mollusc)	Xylosandrus compactus (insect)

Native Species Exported/Introduced to Non-Native Environments¹

Adenanthera pavonina (tree)	Neyraudia reynaudiana (grass)
Alternanthera sessilis (herb)	Paederia foetida (vine, climber)
Brontispa longissima (insect)	Pennisetum ciliare (grass)
Channa marulius (fish)	Pterois volitans (fish)
Cervus timorensis russa (mammal)	Python molurus bivittatus (reptile)
Clarias batrachus (fish)	Rottboellia cochinchinensis (grass)
Colubrina asiatica (shrub)	Rubus moluccanus (vine, climber, shrub)
Columba livia (bird)	Syzygium cumini (tree)
Hiptage benghalensis (vine, climber, shrub)	Technomyrmex albipes (insect)
Landoltia punctata (aquatic plant)	Xanthomonas axonopodis pv. citri (micro-organism)
Lygodium japonicum (vine, climber, fern)	Xylosandrus mutilatus (insect)
Melia azedarach (tree, shrub)	
Miscanthus sinensis (grass)	

Table 1 Actions to prevent, detect and manage IAS categorized into three themes: biodiversity, human health, and economic

Note: Actions (such as projects, publications and programs) are classified according to the most obvious theme but may also fit into the dimensions of another.

Theme	Action
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Biodiversity	<ul style="list-style-type: none"> • In 2005 the Ministry of Forestry was in the process of developing guidelines on IAS for the country. They aim to disseminate these guidelines as well as continue monitoring invasives and evaluate control mechanisms.² • The Ministry of Forestry's Strategic Plan includes provisions for developing management plans for the control of IAS in National Parks.² First, risk assessments for IAS were conducted for certain groups (weed and water hyacinth) in national parks. Second, national targets for certain invasive species were established: the control of rusa in Wasur National Park and <i>Acacia nilotica</i> in Baluran National Park as well as marsupial conservation and protection (from IAS) in Wasur National Park. Third, eradication and control measures against certain invasive species (such as golden snails, jumping lice, <i>Acacia nilotica</i>, wild buffalo, <i>Cervus timorensis russa</i>) are partially in place in Baluran National Park, and Wasur National Park.² • Indonesia established regulations regarding the use of environmental impact assessment (EIA) when introducing species.² • The Ministry of Marine Affairs and Fisheries is in the process of developing an inventory of invasives that have invaded marine and coastal areas.² • Ministry of Forestry's Strategy and Action Plan for the Conservation of Rhinos in Indonesia: Wherever Arenga palm grows, in Ujung Kulon National Park, it over-shades rhino (and other species') food plants. An estimated 18,000 ha of the Ujung Kulon peninsula now is occupied by the palm. Since 2003, studies have been underway to find an effective way of controlling this invasive species. Direct injections with RoundUp herbicide have proven to effectively kill the palm without leaving harmful chemical traces in the soil. As a next step, a larger area of Arenga palm will be destroyed to in order to study the succession of rhino food plant species. Effectiveness of new growth of food plants and whether rhinos use these new feeding areas will be determined. • The National Strategy and the Aksi Pengelolaan Lahan Basah Indonesia Plan (Strategi Nasional dan Rencana Aksi Pengelolaan Lahan Basah Indonesia): includes provisions for preventing the introduction of invasives into wetland systems and educating communities about the cultivation of IAS for income. • Ministry of Agriculture's the Threat of Invasive Alien Species portal (in Indonesian).
Economic	<ul style="list-style-type: none"> • The introduction of IAS is controlled using a quarantine system, however the system only screens organisms that are categorized as pests.² • The Indonesian government has recognized that there are still large numbers of IAS entering the country through illegal smuggling.² • Indonesia's National Plant Protection Organization exists under the

	<p>Minister of Agriculture. The body responsible for preventing the introduction of plant and animal pests and the spread of pests domestically or internationally is the Agricultural Quarantine Agency.³</p> <ul style="list-style-type: none"> • The Agriculture Quarantine Agency of Indonesia (AQAI) has tried to ask FAO for technical cooperation programme in strengthening quarantine control systems on IAS. FAO has been positively responding by sending its consultant to assist AQAI in calling on FAO and, if possible, other international organizations, to give assistance to cope with the issues of IAS.⁴ Further collaboration between the Ministry of Agriculture and FAO can be found here (in Indonesian). <p>Overall, there are several pieces of legislation pertaining to Animal Quarantine including:</p> <ul style="list-style-type: none"> • Decree of the Minister of Agriculture No. 02/Kpts/Ot.140/2007 concerning the Documents and Certificates of Animal Quarantine • Law No. 16/1992 regarding Animal, Fish and Plant Quarantine (The Government Gazette No. 56/1992, Government Gazette No. 3482/1992) • Government Regulation No. 83/2000 concerning Animal Quarantine (Government Gazette No. 161/2000, Government Gazette No. 4002/2000).⁶ <p>The plant quarantine policy that related to IAS is still in concepts or ideas, they are:⁷</p> <ol style="list-style-type: none"> a. Prevention of the plant species that potential to be an IAS should be conducted at all harbors based on the result of quarantine and environment risk assessment. This activity will be conducted by The agriculture Quarantine Agency collaboration with The State Ministry of Environment. b. Controlling and eradicating of IAS that has already domesticated should be conducted by all institutions that related to biosecurity, i.e. Ministry of Agriculture, Ministry of Forestry, Ministry of Ocean and Fishery and State Ministry of Environment as a National Focal Point of CBD. c. The handling of IAS in the entrance of harbor should hinder confusing rule that caused by unperfected various rules under convention and International agreement. d. Database of domestic and international IAS should be developed in coordination by all relevant institutions. e. The legal framework on IAS in Indonesia should be developed as a basic role to the risk analysis and certification system. f. The CBD recommendations that related to IAS should be adopted to become a national regulations.
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Table 2 Actions on IAS in cooperation with other countries

Agreement/ Organization	Countries/ Member	Action
Asia-Pacific Forest Invasive Species Network	Australia, Bangladesh, Bhutan, Cambodia, China, Fiji, India, Indonesia, Japan, Republic of Korea, Laos, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Samoa, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, US, Vanuatu, Vietnam, Tuvalu, Kiribati, France, and Russia	<p>The APFISN has been established as a response to the immense costs and dangers posed by invasive species to the sustainable management of forests in the Asia-Pacific region. It is a cooperative alliance of 32 member countries of the Asia-Pacific Forestry Commission (APFC). The network operates under the umbrella of APFC which is a statutory body of the Food and Agricultural Organization of the United Nations. The APFISN focuses on inter-country cooperation that helps to detect, prevent, monitor, eradicate and/or control forest invasive species in the Asia-Pacific region.</p> <ol style="list-style-type: none"> 1. Raises awareness of FIS throughout the Asia-Pacific region 2. Exchanges and shares information on FIS among member countries 3. Facilitates access to technical expertise, research results and training and education opportunities 4. Strengthens capacities of member countries to conduct research, manage FIS and prevent new incursions 5. Develop strategies for regional cooperation and collaboration in combating threats posed by FIS

Case Study

[The Efforts To Against The Forest Invasive Species In Indonesia; A Review](#)⁷

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Indonesia is one of The Mega Biodiversity Countries in the world that has high biodiversity potency. To improve the forest management, introducing of exotic flora and fauna occurred, whether it has done on purpose or not. Those exotic species have positive and negative impacts ecologically and economically. By the time, the utilization of some exotic species was out of control and at the end those species, which has adaptation capability, growth and distributed naturally or by animals invading the forests. Finally, such species became dominant and create one new ecosystem. Cases of

Invasive Alien Species (IAS) have been occurred in Indonesia for along time, and cause great negative impact such on several forest areas. Some cases occurred in conservation areas, i.e. Baluran National Park (NP) in East java, Ujung Kulon NP., Gunung Gede Pangrango NP. in Papua, Pangandaran Nature Reserve and Palau Moyo Game Reserve. Other Accidents also happened in some production forests and plantation forests. To handle IAS, The government of Indonesia has several regulations and policies as operational as well as a concept.

1. National regulations to control the introduction of alien flora and fauna, are:
 - a. Act No. 5/1990 on conservation of biological diversity and its ecosystems
 - b. Act No. 16/1992 on Animal Quarantine, fish and plant.
 - c. Government Regulation No. 27/1999 on Environmental Impact Assessment, emphasize on conducting IAE to every activities which has important impact to environmental, including introduction of plant species, animals, and genetic. Unfortunately, the technical guidelines on risk review and risk management related to species introduction have not established yet.
2. Participating in assignment of Convention of Biological Diversity on 5 June 1992, and ratify The Convention of Biological Diversity through Act No. 5/1994.
3. At this present, we have a national Biodiversity management strategy 2003-2020, named Indonesian Biodiversity Strategy and Action Plan, needs to be implementing effectively to minimize biodiversity crisis, including minimizing the impact of IAS. Indonesian biodiversity management strategy in national level has vision to create community of Indonesia, which care, empower, independent, and smart to conserve and utilize biodiversity optimally, fairly and sustainable through accountable management to increase community welfare, while the vision are:
 - a. To build mental and human behavior of Indonesian people, and various institutions and law instruments, in order to get awareness of conservation and utilization of biodiversity for people welfare.
 - b. To apply scientific and technology input as well as traditional role
 - c. To conserve and utilize the biodiversity proportionally
 - d. To strengthen the institution and law enforcement
 - e. To conduct the resolution of nature resources conflicts
4. Plant quarantine policy, Government of Indonesia regulated the main tasks and function of plant quarantine to apply in the harbors, airports, country border posts and inter-land harbors. The quarantine action is conduct based on the commodity kinds, i.e. food stock, horticulture, estate products and forest products. This action use SPS (Agreement on The application of Sanitary and Phytosanitary Measures), which aimed to protect life and health of plants.
5. To handle the issues of IAS, some national workshops about IAS have been held in Indonesian, and resulting some recommendations:
 - a. Identify and inventory of IAS including definition, and classification, and the loss impact
 - b. IAS database development, including originality, distribution, biology, ecology, benefit and determent of IAS to the people.
 - c. To consider IAS, it is necessary to decide what are the risks and benefit based on Convention on Biological Diversity.
 - d. Inventory and reviewing the law and regulations that related to IAS
 - e. Improving and developing research activities on all IAS aspects in order to respons the IAS issues in national, regional and international levels.

- f. Set up the networking among the government, NGO and private sectors to manage the IAS in local and national levels.
- g. Set up bilateral, regional and international collaborations

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