

Ramsar

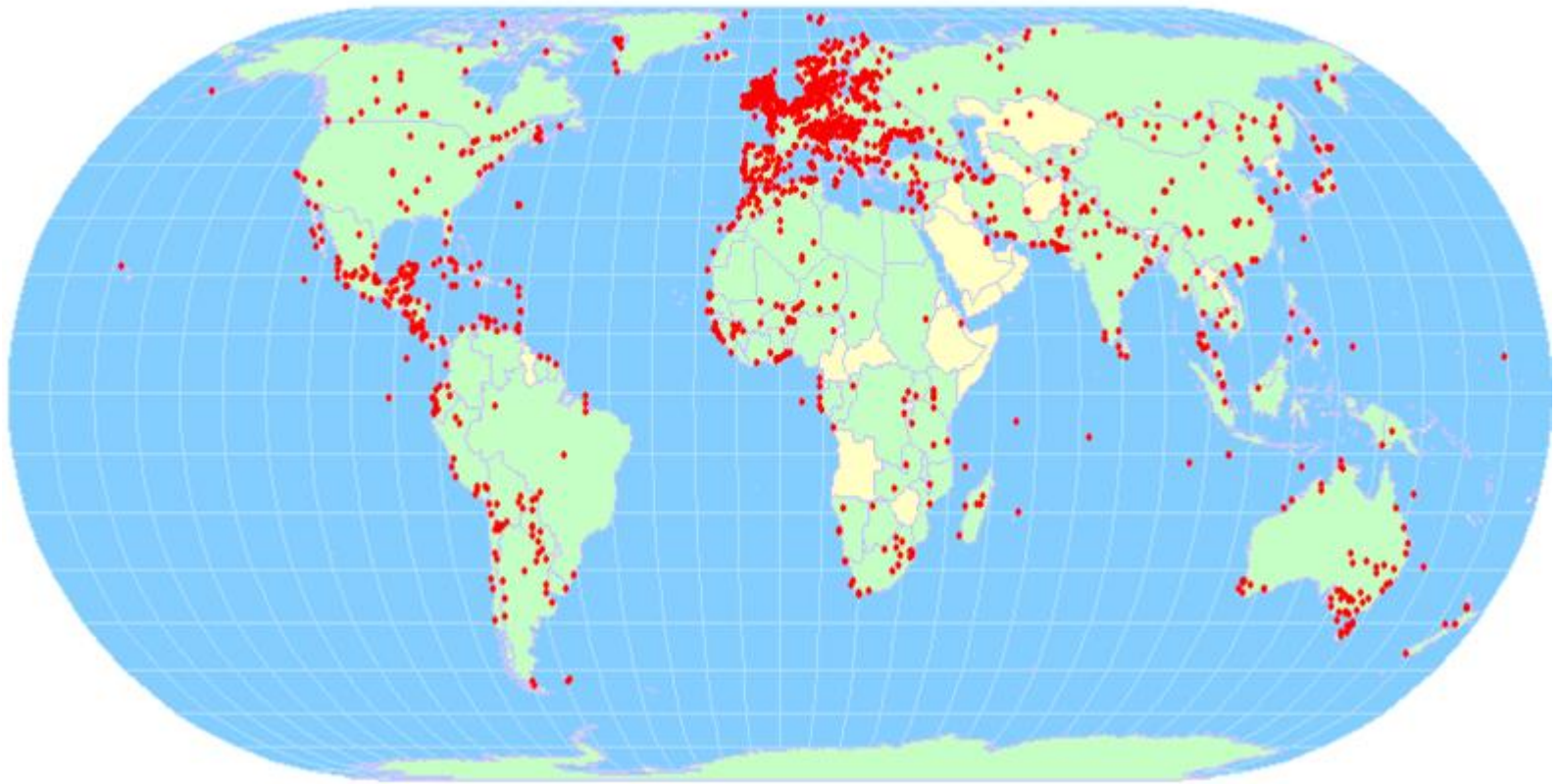
The conservation and wise use of wetlands

- Entered into force in 1975
- 146 Parties
- 1469 wetland sites – 128.9 million ha for Ramsar List of Wetlands of International Importance

Party obligations

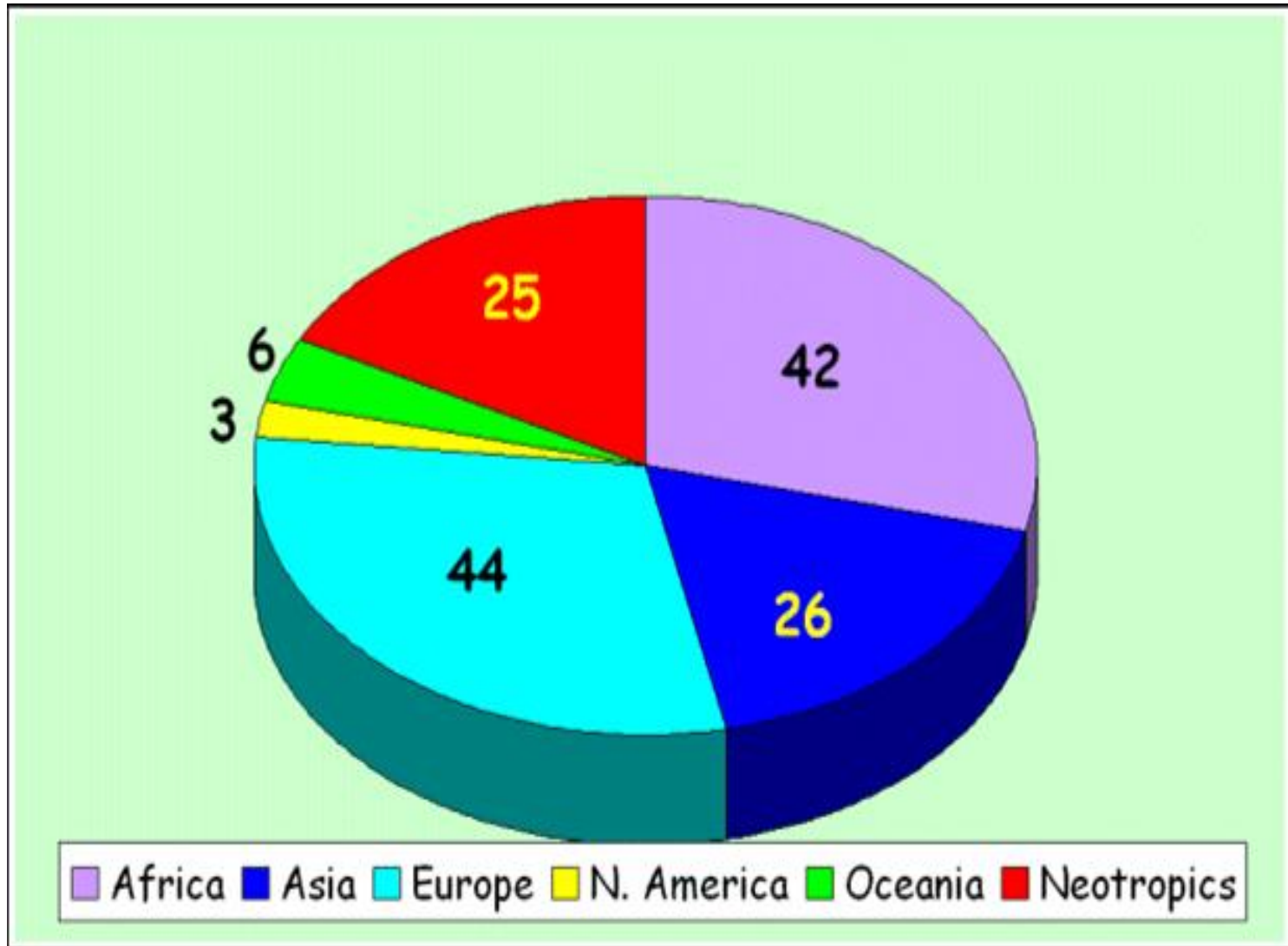
- Designate at least one wetland
- Promote the wise use of wetlands within national plans
- Promote training in related areas
- Consult with other Parties on shared systems and species, transfrontier wetlands and development projects that may affect them

Global Ramsar Sites

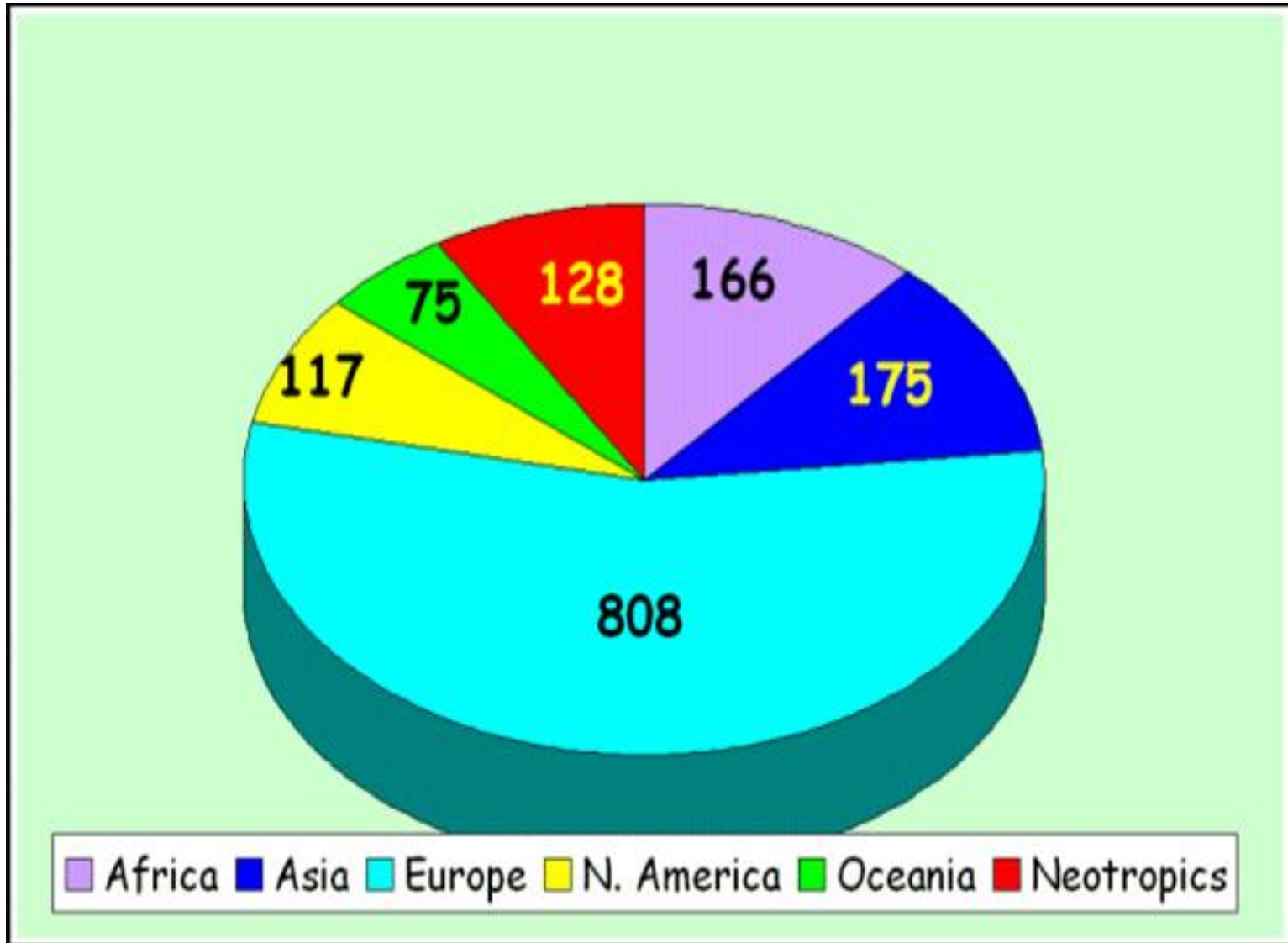


Ramsar Regions

Wetlands International



Site Distribution



Regional status

- Botswana

Okavango Delta system – 6,864,000 ha

- Gambia

Babolon Wetland Reserve – 20,000 ha

- Lesotho

Lets'eng-la-Letsie – 26 ha

- Mauritius

Rivulet Terre Rouge Estuary Bird Sanctuary – 26
ha

- Namibia

Walvis Bay – 12,600 ha

Sandwich Harbour – 16,500 ha

Orange River Mouth – 500 ha

Etosha Pan, Lake Oponoo and Cuvelai
drainage – 600,000 ha

- Seychelles

Port Launey Coastal Wetlands (Port Glaud
Wetlands – 120.59 ha

Impact on the Region:

- Increased awareness of the importance of wetlands
- Provides employment – tourism, restoration work

World Heritage

The identification, protection, preservation of cultural and natural heritage of outstanding value to humanity

- Entered into force - 1975
- 180 Parties
- 160 natural and 24 mixed properties

Parties

- Nominate sites for inclusion on the List
- Establish management plans and reporting systems for these sites
- Encourage local populations to participate in preserving their heritage

Desertification

- Entered into force – 1986
- 179 Parties
- Focuses on Africa but not restricted to it

Objective:

To develop long-term integrated strategies that focus on:

- improving land productivity
- Rehabilitation, conservation, sustainable management of land and water resources

Party obligations:

- Adopt integrated approach to solving desertification issues
- Integrate poverty eradication strategies
- Strengthen subregional, regional and international cooperation
- Address the underlying causes -particularly the socio-economic factors contributing to desertification
- Strengthen existing legislation, enact new ones and establish long term policies and action programmes

Southern Africa Action Programme

- SADC

- Sub-regional programme developed to implement the UNCCD – 1997
- Focus:
 - information collection
 - research
 - technology transfer
 - capacity building and training
 - joint management of shared natural resources

Southern Africa Action Programme - SADC

- Linking with pertinent programmes and activities
- Sees addressing the socio-economic root causes of overgrazing, over-cultivation and deforestation as a major challenge

CBD

- 188 Parties

7 thematic areas:

- ✓ Agricultural biodiversity
- ✓ Dry and Sub-humid Lands Biodiversity
- ✓ Forest Biodiversity
- ✓ Inland Waters Biodiversity
- ✓ Island Biodiversity
- ✓ Marine and Coastal Biodiversity
- ✓ Mountain Biodiversity

The CBD seeks to protect ecosystem integrity by:

- conserving biological diversity
- sustainable use of components
- equitable sharing of benefits derived from genetic resources
- technology transfer
- stakeholder participation

CBD

Issues relevant to the CBD common to other Agreements or arrangements:

- Protected Areas/Management
- Conservation of Biological Diversity
- Coastal Zone Management
- Climate Change Management
- Desertification Management
- Designation of Environment Authority
- Information Sharing and Technology Transfer

- Pollution/Waste Control
- Soil/Water Management
- Protection of Traditional Knowledge
- Sustainable Development
- Recognition of International Obligations
- Regional and International Cooperation
- Establishment of Environment Trust Fund

Some Cross-Cutting Issues

- ✓ Access to Genetic Resources and Benefit-sharing
- ✓ Alien Species
- ✓ Traditional Knowledge
- ✓ Biological Diversity and Tourism
- ✓ Climate Change and Biological Diversity
- ✓ Economics, Trade and Incentive Measures
- ✓ Ecosystem Approach
- ✓ Global strategy for Plant Conservation
- ✓ Global Taxonomy Initiative
- ✓ Protected Areas
- ✓ Sustainable Use of Biodiversity

Party obligations:

- Parties are to develop National Biodiversity Strategy Action Plans (NBSAPs)
- Increase regional cooperation
- Establish protected areas
- Develop projects to address the issue of alien species
- Adopt measures to avoid or minimise adverse impacts on biodiversity
- Develop legislation on traditional knowledge
- Use EIAs
- Facilitate access to genetic resources
- Promote technical and scientific cooperation
- Develop legislation to handle biotechnology

CBD

Strategic Plan

To achieve by 2010 significant reduction in biodiversity loss (Dec. VI/26)

- Framework for assessment of progress (Dec. VII/30) – 7 focal areas with goals and indicators have been identified:
 - Biodiversity a) reduce rate of loss, b) promoting sustainable use, c) addressing major threats

Regional Impact:

National Reports

Botswana – 3rd – May 2005

Gambia – 2nd - ? Date submitted; NBSAP-
1999 (not on CBD website)

Lesotho – 1st -?

Mauritius – 2nd - Thematic reports on Alien and invasive species; Access and Benefit Sharing; Forest Ecosystems

Namibia – 3rd (June 2005) - NBSAP; Thematic reports on Alien and invasive species; Access and Benefit Sharing; Forest Ecosystems; Report on Implementation of GTI Work Programme

Seychelles – 1st - ; Thematic reports on Alien and invasive species (2000); Forest Ecosystems (2001); Report on Implementation of GTI Work Programme (2004)

Swaziland – 2nd – (); NBSAP (1997)

Invasive species

ANNEXE I MAJOR GLOBAL INSTRUMENTS RELATED TO INVASIVE ALIEN SPECIES

Instrument	Status	Relevant Provisions/Resolutions	Species / Ecosystems Covered	Vectors/ Pathways Covered
<p>1. Convention on Biological (Nairobi, 1992) http://www.biodiv.org</p> <p>Interim Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species</p> <p>Cartagena Protocol on to the CBD (Montreal, 2000)</p>	<p>Binding (1993) (1993) (Parties - 179)</p> <p>Non-binding guidance (2000)</p> <p>Date of adoption 29.01.2000</p>	<p>To prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species Art. 8(h).</p> <p>The safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the and sustainable use of biological diversity (Art. 1)</p>	All	All (no specific provisions)
<p>2. United Nations Convention on the Law of the Sea (Montego Bay, 1982) http://www.un.org/Depts/los/losconv1.htm</p>	<p>Binding (1994) (Parties - 135)</p>	<p>To prevent, reduce and control pollution of the marine environment resulting... the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes. (Art. 196)</p>	Marine environment	No Specific Provision
<p>3. Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar 1971) http://www.ramsar.org</p>	<p>Binding (1975) (Parties - 123)</p>	<p>COP7/Resolution VII.14 "Invasive Species and Wetlands" (No specific provisions in the Convention text)</p>	Wetlands, and wetland species	No Specific Provision
<p>4. Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979) http://www.wcmc.org.uk/cms/</p>	<p>01.11.1983 (Parties - 70)</p>	<p>To prevent, reduce or control factors that are endangering or are likely to further endanger Appendix 1 species, including strictly controlling the introduction of, or controlling or eliminating, already introduced exotic species. Art. III (4) (c)</p>	All species and their habitats	No Specific Provision

<p>5. Convention on the Law of the Non-Navigational Uses of International Watercourses (New York, 1997) http://www.un.org</p>	<p>Not in force</p>	<p>to prevent the introduction of species, alien or new, into an international watercourse, which may have effects detrimental to the ecosystem of the watercourse resulting in significant harm to other watercourse States. (Art. 22)</p>	<p>International watercourse marine and freshwaters</p>	<p>no specific provisions</p>
<p>6. International Plant Protection Convention (Rome, 1951, Revised in 1997) http://www.fao.org</p> <p>7. International Standards for Phytosanitary Measures: Principles of Plant Quarantine as Related to International Trade Guidelines for Pest Risk Analysis Code of Conduct for the Import and Release of Exotic Biological Control Agents Requirements for the Establishment of Pest Free Areas Glossary of Phytosanitary Terms Guidelines for Surveillance Export Certification System Determination of Pest Status Guidelines for Pest Eradication Programmes Requirements for the Establishment of Pest Free Places of Production and Pest Free Production Sites</p>	<p>Binding (1952) (Parties - 111) 1997 revision not in force.</p> <p>Standards recognized by WTO</p>	<p>Creates an international regime to prevent spread and introduction of plant and plant product pests premised through the use of sanitary and phytosanitary measures. (Relationship to Invasive Species being explored, 2000)</p>	<p>Quarantine pests of plants and plant products.</p>	<p>Trade in agricultural products</p>

<p>8. The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (Marrakech, 1995) http://www.wto.org/english/tratop_e/sps_e/spsagr.htm</p>	<p>01.01.1995 (Parties - 132)</p>	<p>Provides a uniform framework governing the adoption of sanitary and phytosanitary measures applied to protect human, animal or plant life or health.</p>	<p>Pests and diseases affecting human, plant and animal health</p>	<p>Trade in goods and products</p>
<p>9. International Health (Geneva, 1982, adopted by the 22nd World Health Assembly in 1969, amended by 26th World Health Assembly in 1973, and the 34th World Health Assembly in 1981) http://www.who.int</p>	<p>Under revision (expected completion: 2002)</p>	<p>Purpose is to ensure the maximum security against the international spread of diseases. Goals are to: (1) detect, reduce or eliminate sources from which infection spreads; (2) improve sanitation in and around ports and airports, and (3) prevent dissemination of vectors.</p>	<p>Diseases affecting human health. Specifically cholera, plague and yellow fever</p>	<p>International traffic</p>
<p>10. Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens. (Resolution A.868 (29)1997, International Maritime Organization) http://www.imo.org</p>	<p>Non-binding. Binding instrument under preparation (completion expected 2002)</p>	<p>Provides guidance and strategies to minimize the risk of unwanted organisms and pathogens from ballast water and sediment discharge.</p>	<p>Marine and Coastal areas</p>	<p>Ballast Water through shipping</p>
<p>11. Code of Practice on the Introductions and Transfers of Marine Organisms (ICES/EIFAC 1994)</p>	<p>Non-binding</p>	<p>Recommends practices and procedures to diminish risks of detrimental effects from marine organism introduction and transfer, including those genetically modified. Also applicable to freshwater organisms. Requires ICES members to submit a prospectus to regulators, including a detailed analysis of potential environmental impacts to the aquatic ecosystem.</p>	<p>All aquatic ecosystems</p>	<p>Direct introductions, including for fisheries and aquaculture</p>
<p>12. Code of Conduct for Responsible Fisheries (FAO, 1995) http://www.fao.org/fi/agreem/codecond/ficonde.asp</p>	<p>Non-binding</p>	<p>Sets out principles and international standards for responsible fishing practices, including aquaculture, including: Pre-introduction discussion with neighbouring states when non-indigenous stocks are to be introduced into transboundary aquatic ecosystems.; Harmful effects of non-indigenous and genetically altered stocks to be minimized.</p>	<p>Aquatic ecosystems</p>	<p>Direct introductions, including for fisheries and aquaculture</p>

<p>13. Preventing the Introduction of Invasive Alien Species. Resolution A-32-9, International Civil Aviation Organization (ICAO) (1998). http://www.icao.int/icao/end/res/a32_9.htm</p>	<p>Non-binding</p>	<p>To reduce the risk of introducing, through civil air transportation, potentially invasive species to areas outside their natural range.</p>	<p>All species</p>	<p>Air transport</p>
<p>14. The Biological and Toxin Weapons Convention (signed in 1972, and entered into force in 1975) http://projects.sipri.se/cbww/docs/bw-btwc-mainpage.html</p>	<p>Binding</p>	<p>To prohibit the development, production and stockpiling of biological and toxin weapons, and destroy them for the protection of populations and the environment.</p>	<p>Microbial and other biological agents used as weapons</p>	<p>Various</p>

Secretariat of the Convention on Biological Diversity (2001). Review of the efficiency and efficacy of existing legal instruments applicable to invasive alien species. Montreal, SCBD, 42p. (CBD Technical Series no. 2).

Cyprinus carpio – Common carp



- *Introduced as a food and ornamental fish, into temperate freshwaters throughout the world. Considered a pest because of its abundance and its tendency to reduce water clarity and destroy and uproot aquatic vegetation*
- **Geographical range**
Native range: probably native to Asia
Known introduced range: Introduced so widely over so many centuries that its precise origins are uncertain, (NIWA, 2003). Prior to human influence, was found in the Black, Caspian and Aral Sea drainages, east into Siberia and China and west as far as the Danube River (Balon, 1995. In Aguirre and Poss, 2000). Occurs on every continent except Antarctica, (NIWA, 2003)
- **Invasion pathways to new locations**
Aquaculture: Introduced as a food fish (Aguirre and Poss, 2000)
For ornamental purposes: Introduced as an ornamental fish (Aguirre and Poss, 2000)
Other: Introduced into many places for angling/sport. (FishBase, 2003)

Oreochromis mossambicus - Tilapia



- *Oreochromis mossambicus* commonly known as Mozambique tilapia has spread worldwide through introductions for aquaculture. Established populations in the wild are a result of intentional releases or escapes from fish farms. Omnivorous and feeds on almost anything from algae to insects.

Occurs in:

estuaries, lakes, marine habitats, water courses, wetlands

Habitat

Many tilapias can live quite happily in seawater. The fact that they have not typically invaded coral reefs is perhaps due to predation by marine fishes. (Courtenay, W., pers. comm., 2004). *O. mossambicus* is very hardy and tolerates the high salinities of atoll lagoons, such as that at Fanning Atoll (Lobel, 1980).

General impacts

Causes possible threat to native species through competition for food and nest space. Now generally considered to be pests. Eradication has been suggested on Tarawa and Nauru (Eldredge, 2000).

Native range: Native to southern Africa in the lower river parts and coastal regions, from just north of the Zambezi delta southwards to Bushman's River (eastern Cape).

Known introduced range: Has been introduced to various tropical and subtropical waters all over the world. *O. mossambicus* has been taken to 19 Pacific island territories.

Invasion pathways to new locations

Aquaculture

Landscape/fauna "improvement": Moved around by humans mainly for aquaculture.

Pet/aquarium trade

Taken to botanical garden/zoo

Ligustrum robustum - privet



- *Ligustrum robustum subsp. walkeri* (Sri Lankan privet) - a highly invasive weed in the Mascarene Archipelago where it was introduced (in Mauritius over a century ago and in Réunion Island in the 1960s). Disrupts primary forest regeneration and threatens native floral biodiversity. Its high fruit production (due to a lack of natural enemies) has been cited as one reason for its high invasiveness.

General impacts

L. robustum - among the most invasive of the introduced plant species on the Mascarene Islands. May alter the structure and composition of the forest by affecting nutrient and water cycling, and may compete with native species for space and nutrients, displacing them and affecting succession patterns. Characteristics that contribute to its invasiveness include; rapid growth rate, ability to tolerate high shade conditions, high seedling recruitment and dependence on birds to distribute its seeds. Native floral diversity is highly threatened by this aggressive species (Taylor and Killiffer, 1996).

- **Geographical range**

Native range: Sri Lanka (Central Highlands) (Lavergne *et al.* 1999; Milne and Abbott, 2004)

Known introduced range: Present on three islands; Réunion Island, Mauritius, Rodrigues Island (Lavergne *et al.*, 1999).

Invasion pathways to new locations

For ornamental purposes: *L. robustum* was introduced to Mauritius as an ornamental plant (Lavergne *et al.* 1999).

Other: It was introduced into Rodrigues Island as a hedge plant in some gardens (Lavergne *et al.* 1999).

Crazy Ant (*Anoplolepis gracilipes*)



Crazy ants (so called because of their frenetic movements) have invaded native ecosystems and caused environmental damage from Hawai'i to the Seychelles and Zanzibar. On Christmas Island in the Indian Ocean, they have formed multi-queen supercolonies in at least eight areas of rainforest, foraging in all habitats, including the rainforest canopy. They are also decimating the red land crab (*Gecarcoidea natalis*) populations. In 18 months the crazy ants were able to kill 3 million crabs. The land crabs play an important role in Christmas Island's forest ecosystem

helping in litter breakdown and influencing forest composition by eating leaves and seedlings of rainforest trees. Crazy ants also prey on, or interfere in, the reproduction of a variety of arthropods, reptiles, birds and mammals on the forest floor and canopy. Their ability to farm and protect sap-sucking scale insects, which damage the forest canopy on Christmas Island, is one of their more surprising attributes. Although less than 5% of the rainforest on Christmas Island has been invaded so far, scientists are concerned that endangered birds such as the Abbott's booby (*Sula abbotti*), which nests nowhere else in the world, could eventually be driven to extinction through habitat alteration and direct attack by the ants.

Small Indian Mongoose (*Herpestes javanicus* (*auro punctatus*))



Photo: Jack Jeffery Photography

This voracious and opportunistic predator is native to areas from Iran, through India to Myanmar and the Malay Peninsula. It was introduced to Mauritius and Fiji and to the West Indies and Hawai'i in the late 1800s to control rats. Unfortunately, this early attempt at biological control has had disastrous impacts. Island populations of native fauna, which had evolved without the threat of a fast-moving, mammalian predator, were no match for the mongoose. It has caused the local extinction of several endemic birds, reptiles and amphibians and threatens others including the rare Japanese Amami rabbit (*Pentalagus furnessi*). The small Indian mongoose is also a vector of rabies.

Water Hyacinth (*Eichhornia crassipes*)

This South American native is one of the worst aquatic weeds in the world. Its beautiful, large purple and violet flowers make it a popular ornamental plant for ponds. It is now found in more than 50 countries on five continents. Water hyacinth is a very fast growing plant, with populations known to double in as little as 12 days. Infestations of this weed block waterways, limiting boat traffic, swimming and fishing. Water hyacinth also prevents sunlight and oxygen from reaching the water column and submerged plants. Its shading and crowding of native aquatic plants dramatically reduces biological diversity in aquatic ecosystems.



Water hyacinth on Lake Victoria

Nile Perch (*Lates niloticus*)

The Nile perch was introduced to Lake Victoria, Africa in 1954 to counteract the drastic drop in native fish stocks caused by over-fishing. It has contributed to the extinction of more than 200 endemic fish species through predation and competition for food. The flesh of Nile perch is oilier than that of the local fish, so more trees were felled to fuel fires to dry the catch. The subsequent erosion and run-off contributed to increased nutrient levels, opening the lake up to invasions by algae and water hyacinth (*Eichhornia crassipes*). These invasions in turn led to oxygen depletion in the lake, which resulted in the death of more fish. Commercial exploitation of the Nile perch has displaced local men and women from their traditional fishing and processing work. The far-reaching impacts of this introduction have been devastating for the environment as well as for communities that depend on the lake.



Box 6 Ecosystem restoration: the Ile Aux Aigrettes Nature Reserve, Mauritius

Ile Aux Aigrettes is a small island (26 ha) situated in the Mahebourg Bay lagoon off northeastern Mauritius. The island was declared a Nature Reserve in 1965, and has approximately 700 species of native flowering plants of which 311 are endemic. The island is a refuge for several critically endangered endemic species such as ebony (*Diospyros egrettorum*) and the rare Bois de Fer (*Sideroxylon boutonianum*). Other endemic species include the Mauritius pink pigeon (*Columba mayeri*) and the ornate day gecko (*Phelsuma ornata*). Human disturbances, logging and the introduction of alien species have contributed to the degradation of the island's habitats. There are 97 known introduced plant species on the island, 28 of which are considered major weeds. A number of alien animal species are still present that affect native invertebrate and reptile species.

In 1984 the Mauritian Wildlife Foundation established a watchman on the island to prevent illegal woodcutting. In 1985 the Foundation began restoration work to eradicate alien species, conserve and re-establish the native plant and animal species, and develop a model to be applied to other sites. Twenty endangered endemic plant species have been reintroduced to the island since restoration work began. The Foundation aims to plant 19 more endangered species. Over 30 Mauritius kestrels (*Falco punctatus*) were reintroduced between 1990 and 1994, and 35 pink pigeons were reintroduced in 1994. A range of indigenous reptile species will be reintroduced once the conditions are suitable, and there are plans to release the endangered native passerine, including the Mauritius fody (*Foudia rubra*), on the island. The success of the release will partly rely on the eradication of shrews (*Suncus murinus*).

In 1997, the island was opened to tourists and the Ecotourism Strategy and Action Plan for the Ile Aux Aigrettes was prepared by the Mauritian Wildlife Foundation, adhering very closely to the international principles of ecotourism. The development of ecotourism facilities was funded by the Government of Mauritius and other donors including the Japanese Expo Fund. The Foundation provides guided tours on the island. Ecotourism also provides educational opportunities, though this is not the main aim of the Foundation.

Cartagena Protocol on Biosafety (CBD)

- Aims to:
 - Protect the environment and human health from potential adverse effects due to the release of LMOs
 - Centres around the operation of Advance Informed Agreement

- Finalised and adopted in January 2000
- Entered into force on 11 September 2003
- Has 103 signatures and 111 Parties as of 5 February 2005

Background

- Article 8(g) of the Convention on Biological Diversity gave rise to the development of the CPB

“Establish or maintain means to manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity....” (UNEP, 1992)

Purpose

- To manage the transboundary movement, transit, handling and use of LMOs that may have an adverse effect on the environment and human health

- The CPB provides framework within which countries can develop national measures to ensure that the release of GMOs into the environment is managed so as to prevent or reduce risks to biodiversity.
- Measures can be more restrictive than articulated in the CPB as long as they are consistent with its objectives and provisions.

- Does not cover:

Pharmaceuticals for humans covered by other agreements

LMOs covered by the CPB

- Subject to the AIA
- Intended for use as food or feed or processing
- Simplified procedure
- In transit to a third Party
- Destined for contained use
- Agreed by COP of the CBD not to pose a threat therefore not subject to AIA

Why do we need the CPB?

- Modification of the genetic makeup of living organisms by advanced techniques (biotechnology) could result in organisms having the potential to behave differently from their regular counterparts
- Provides a framework that enables countries to determine the types of organisms that can be released safely into their environment

What are the goals of biosafety?

- Assess in advance an GMO's potential for harm if released
- Anticipate when a GMO might be harmful when it becomes part of human foods
- Assess the claimed benefit(s) of the GMO
- Anticipate possible hazards from transporting GMOs among ecosystems and nations.

Is biosafety relevant to small/developing countries?

- Most GMOs are produced in the developed world – USA is at the forefront
- Developing countries – Cuba, China, India
- Produce seed stock for major crops
- Produce food crops for export worldwide – soya, maize, rice, wheat
- Many small/developing countries import commodity seeds and foods

- Countries regardless of size and production capability need to recognise that there is a likelihood that GMOs or products of GMOs can become part of their trading systems
- National regulatory systems therefore need to be developed to manage the movement of GMOs
- Countries need to develop the means that enable them to make informed decisions that can withstand international scrutiny

The CPB and Risk Assessment

- Central to the CPB is:

Advance Informed Agreement

(Article 7)

- Gives countries the power to make informed decisions about accepting an GMO as the

AIA is applied prior to the first movement of a GMO from one Party to another

Integral to the AIA procedure is the conduct of risk assessments as they provide the basis for the decision making process.

Impact:

- Africa was at the forefront of the negotiations of the CPB – the like minded group consisting of most of the developing countries led by Ethiopia argued the case for the AIA procedure and risk assessment
- Regional workshops on various aspects – risk assessment etc. have been conducted worldwide
- Biosafety Unit/UNEP has been working on an international implementation project - countries are in various stages of consultation, developing legislation, establishing National Biosafety Committees and getting training in risk assessment procedures

Impact:

- Some Southern African countries have refused the entry of LMOs as part of food aid because of inadequate knowledge about potential adverse effects
- Focus groups have been very vocal in their opposition to the introduction of LMOs before more scientific research has been completed