United Nations Decade on Biodiversity

Living in harmony with nature

Convention on Biological Diversity

The Convention on Biological Diversity (CBD) is an international legally-binding treaty with three main goals: conservation of biodiversity; sustainable use of biodiversity; and the fair and equitable sharing of the benefits arising from the use of genetic resources. Its overall objective is to encourage actions which will lead to a sustainable future.

The conservation of biodiversity is a common concern of humankind. The CBD covers biodiversity at all levels: Ecosystems, species and genetic resources. It also covers biotechnology through the Cartagena Protocol on Biosafety. In fact, it covers all possible domains that are directly or indirectly related to biodiversity and its role in development, ranging from science, politics and education to agriculture, business, culture and much more.

The governing body of the CBD is the Conference of the Parties (COP). This ultimate authority of all governments (or Parties) that have ratified the treaty meets every two years to review progress, set priorities and commit to work plans.

In 2010, Parties to the CBD adopted the Strategic Plan for Biodiversity 2011–2020, a ten-year framework for action by all countries and stakeholders to safeguard biodiversity and the benefits it provides to people.

The Secretariat of the Convention on Biological Diversity (SCBD) is based in Montreal, Canada. Its main function is to assist governments in the implementation of the CBD and its programmes of work, to organize meetings, draft documents, and coordinate with other international organizations and collect and spread information. The Executive Secretary is the head of the Secretariat.

UNEP

Convention on Biological Diversity

www.cbd.int

United Nations Decade on Biodiversity

Fast Facts

- The Convention on Biological Diversity was opened for signature at the Earth Summit in Rio de Janeiro on 5 June 1992 and entered into force on 29 December 1993
- To date, there are 193 Parties
- Components of biodiversity are all the various forms of life on Earth including ecosystems, animals, plants, fungi, microorganisms, and genetic diversity
- With its three objectives, the CBD is often seen as the key international instrument for sustainable development
- Ecosystems, species and genetic resources should be used for the benefit of humans, but in a way that does not lead to the decline of biodiversity
- Substantial investments are required to conserve biodiversity, but it will bring significant environmental, economic and social benefits in return
- The Ecosystem Approach, an integrated strategy for the management of resources, is the framework for action under the Convention
- The precautionary principle states that where there is a threat of significant reduction or loss of biodiversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat

Learn More

Biodiversity—Sustaining Life on Earth ▸ www.cbd.int/iyb/doc/prints/cbd-sustain-en.pdf

Full text of the Convention on Biological Diversity ▸ www.cbd.int/convention/convention.shtml

The Conference of the Parties (COP) ▸ www.cbd.int/convention/cops.shtml

Cartagena Protocol on Biosafety ▸ www.cbd.int/biosafety/about.shtml

The Biosafety Clearing-House (BCH) ▸ www.cbd.int/biosafety/bch.shtml

The Clearing-House Mechanism (CHM) ▸ www.cbd.int/chm

The IUCN Red List of Threatened Species ▸ www.iucnredlist.org

United Nations Environment Programme (UNEP) ▸ www.unep.org

United Nations Framework Convention on Climate Change (UNFCCC) ▸ http://unfccc.int/2860.php

United Nations Convention to Combat Desertification (UNCCD) ▸ www.unccd.int

Food and Agriculture Organization of the United Nations (FAO) ▸ www.fao.org

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) ▸ www.cites.org

Ramsar Convention on Wetlands ▸ www.ramsar.org

Convention on Migratory Species (CMS) ▸ www.cms.int

Biodiversity Synthesis Report of the Millennium Ecosystem Assessment ▸ www.millenniumassessment.org/en/Synthesis.aspx

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Strategic Plan for Biodiversity 2011–2020

In 2010 Parties to the Convention on Biological Diversity (CBD) adopted the Strategic Plan for Biodiversity 2011–2020, a ten-year framework for action by all countries and stakeholders to safeguard biodiversity and the benefits it provides to people. As part of the Strategic Plan 20 ambitious but realistic targets, known as the Aichi Biodiversity Targets, were adopted.

Governments have committed to establishing national targets in support of the Aichi Biodiversity Targets. The development of national targets and their incorporation into updated National Biodiversity Strategies and Action Plans (NBSAPs) is a key process in fulfilling the commitments set out in the Strategic Plan. National Biodiversity Strategies Action Plans reflect how a country intends to fulfill the objectives of the CBD and the concrete actions it intends to take.

The Strategic Plan for Biodiversity is comprised of:

The vision—"By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."

The mission—"Take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication. To ensure this, pressures on biodiversity are reduced, ecosystems are restored, biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; adequate financial resources are provided, capacities are enhanced, biodiversity issues and values mainstreamed, appropriate policies are effectively implemented, and decision-making is based on sound science and the precautionary approach."

UNEP

Convention on Biological Diversity

www.cbd.int/sp

United Nations Decade on Biodiversity

20 targets, under five strategic goals

Strategic Goal A Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Strategic Goal B Reduce the direct pressures on biodiversity and promote sustainable use

Strategic Goal C Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Strategic Goal D Enhance the benefits to all from biodiversity and ecosystem services

Strategic Goal E Enhance implementation through participatory planning, knowledge management and capacity building

Fast Facts

- In recognition of the urgent need for action in support of biodiversity, by all stakeholders at all levels, countries agreed to the Strategic Plan for Biodiversity
- To support countries in their efforts to achieve the Aichi Biodiversity Targets, the Secretariat of the CBD, together with various partners, is convening a series of capacity-building workshops: www.cbd.int/nbsap
- Parties have agreed to develop national and regional targets and report thereon to the Conference of the Parties at its eleventh meeting (COP-11)
- Parties have committed to revising and/or updating their National Biodiversity Strategies and Action Plans (NBSAPs) in light of the new strategic plan and to implement them as policy instruments by COP-12

Learn More

Find out what your country is doing to implement the Convention by accessing your country's profile at ▸ www.cbd.int/countries

National Biodiversity Strategies and Action Plans ▸ www.cbd.int/nbsap

National Reports ▸ www.cbd.int/reports

Implementation of Strategic Plan for Biodiversity 2011-2020, including the Aichi Biodiversity Targets ▸ www.cbd.int/sp/implementation

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int/sp

United Nations Decade on Biodiversity

Living in harmony with nature

National Biodiversity Strategies and Action Plans (NBSAPs)

The Convention on Biological Diversity calls for each Party to develop a National Biodiversity Strategy and Action Plan (NBSAP) to guarantee that the objectives of the Convention are undertaken at all levels and in all sectors in each country (Article 6). The national biodiversity *strategy* reflects the country's vision for biodiversity and the broad policy and institutional measures that the country will take to fulfill the objectives of the Convention, while the *action plan* comprises the concrete actions to be taken to achieve the targets of the strategy. The strategy should include ambitious but realistic and measurable national targets developed in the framework of the Aichi Biodiversity Targets adopted at the tenth meeting of the Conference of the Parties. The strategy and action plan are developed by each Party in accordance with national circumstances and capabilities.

It is essential that all sectors whose activities impact on biodiversity be brought into the NBSAP process early. This is what is meant by 'mainstreaming'—all stakeholders in biodiversity working together to develop and implement the NBSAP. Mainstreaming also means integrating biodiversity considerations into related legislation, plans, programmes and policy, such as National Development Plans; National Strategies for Sustainable Development; Poverty Reduction Strategy Papers; Strategies to achieve the Millennium Development Goals; National Programmes to Combat Desertification; National Climate Change Adaptation or Mitigation Strategies; and relevant private-sector policies.

While the NBSAP can take the form of a single biodiversity planning document, it can also be conceived as comprising a 'basket' of elements on, for example, laws and administrative procedures; scientific research agendas, programmes and projects; communication, education and public awareness activities; forums for inter-ministerial and multi-stakeholder dialogue. The NBSAP should be a living process by which increasing information and knowledge, gained through the monitoring and evaluation of each phase of implementation, feed an ongoing review and improvement.

UNEP

Convention on Biological Diversity

www.cbd.int/nbsap

United Nations Decade on Biodiversity

Fast Facts

- National Biodiversity Strategies and Action Plans are the key instruments for the implementation of the Convention
- To date, 173 Parties have developed NBSAPs (of these some 40 Parties have revised their Strategies)
- COP-10 urges Parties to revise and update their NBSAPs in line with the revised and updated Strategic Plan for Biodiversity, including the Aichi Biodiversity Targets, for the 2011–2020 period
- A growing number of countries are preparing Biodiversity Strategies and Action Plans at the sub-national and local levels
- COP-10 decided that the fifth national reports are due by 31 March 2014, and that the reports should focus on implementation of the 2011–2020 Strategic Plan for Biodiversity and progress towards the Aichi Biodiversity Targets

Learn More

Find out what your country is doing to implement the Convention by accessing your country's National Biodiversity Strategy and Action Plan and National Reports through the pop-down menu at ▸ www.cbd.int/countries

National Biodiversity Strategies and Action Plans ▸ www.cbd.int/nbsap

National Reports ▸ www.cbd.int/reports

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

The Nagoya Protocol on Access to Genetic Resources and Benefit-Sharing

The fair and equitable sharing of the benefits arising out of the utilization of genetic resources is one of the three objectives of the Convention on Biological Diversity. At the tenth Conference of the Parties, held in Nagoya, Japan, in October 2010, the *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization* was adopted. It is a new international agreement which aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way, thereby contributing to the conservation and sustainable use of biodiversity. The Nagoya Protocol further builds on the access and benefit-sharing provisions of the CBD by creating greater legal certainty and transparency for both providers and users of genetic resources. It does this by establishing more predictable conditions for access to genetic resources and helping to ensure benefit-sharing when genetic resources leave the contracting Party providing the genetic resources.

Genetic resources, whether from plant, animal or micro-organisms, are used for a variety of purposes ranging from basic research to the development of products. In some cases, traditional knowledge associated with genetic resources that comes from indigenous and local communities (ILCs), provides valuable information to researchers regarding the particular properties and value of these resources and their potential use for the development of, for example, new medicines or cosmetics. Users of genetic resources include research and academic institutions, and private companies operating in various sectors such as pharmaceuticals, agriculture, horticulture, cosmetics and biotechnology.

When a person or institution seeks access to genetic resources in a foreign country, it should obtain the prior informed consent of the country in which the resource is located; this is one of

the fundamental principles of access and benefit-sharing. Moreover, the person or institution must also negotiate and agree on the terms and conditions of access and use of this resource. This includes the sharing of benefits arising from the use of this resource with the provider as a prerequisite for access to the genetic resource and its use. Conversely, countries, when acting as providers of genetic resources, should provide fair and non-arbitrary rules and procedures for access to their genetic resources.

Fast Facts

Example of uses:

- The development of compounds called Calanolides, derived from the latex of a tree (*Calophyllum* species) found in the Malaysian rainforest, as a potential treatment for HIV (type 1) and certain types of cancer
- The use of indigenous plant resources for breeding programmes and cultivation, e.g. the so-called “Mona Lavender”, a hybrid of two *Plectranthus* species indigenous to South Africa, is now commercially available as an ornamental plant throughout Europe, the US and Japan.

Examples of benefit-sharing:

- Research exchanges: a researcher from a provider country collaborates with research staff from the user country
- Provision of equipment, improvement of infrastructure and sharing of technologies: the user of genetic resources sets up laboratories or a drug manufacturing facility in the provider country
- Payment of royalties: royalties generated from the commercialization of a product based on genetic resources are shared between the provider and the user of genetic resources and associated traditional knowledge
- Preferential access for the provider country to any medicine derived from genetic resources and associated traditional knowledge: preferential rates to purchase medicine
- Joint ownership of intellectual property rights (IPRs): when the user and provider of genetic resources seek joint ownership of IPRs for patented products based on the genetic resource used

Learn More

Awareness-raising material on ABS ▸ www.cbd.int/abs/awareness-raising

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

The Cartagena Protocol on Biosafety, and its Nagoya—Kuala Lumpur Supplementary Protocol on Liability and Redress

The Cartagena Protocol on Biosafety is an additional agreement to the Convention on Biological Diversity. It aims to ensure the safe transport, handling and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biodiversity, also taking into account risks to human health. The Protocol establishes procedures for regulating the import and export of LMOs from one country to another.

There are two main sets of procedures, one for LMOs intended for direct introduction into the environment, known as the advance informed agreement (AIA) procedure, and another for LMOs intended for direct use as food or feed, or for processing (LMOs-FFP).

Under the AIA procedure, a country intending to export an LMO for intentional release into the environment must notify in writing the Party of import before the first proposed export takes place. The Party of import must acknowledge receipt of the notification within 90 days and must communicate its decision on whether or not to import the LMO within 270 days. Parties are required to ensure that their decisions are based on a risk assessment of the LMO, which must be carried out in a scientifically sound and transparent manner. Once a Party takes a decision on the LMO, it is required to communicate the decision as well as a summary of the risk assessment to a central information system, the Biosafety Clearing-House (BCH).

Under the procedure for LMOs-FFP, Parties that decide to approve and place such LMOs on the market are required to make their decision and relevant information, including the risk assessment reports, publicly available through the BCH.

UNEP

Convention on Biological Diversity

http://bch.cbd.int/protocol

The Protocol also requires Parties to ensure that LMOs being shipped from one country to another are handled, packaged and transported in a safe manner. The shipments must be accompanied by documentation that clearly identifies the LMOs, specifies any requirements for the safe handling, storage, transport and use and provides contact details for further information.

The Cartagena Protocol is reinforced by the Nagoya—Kuala Lumpur Supplementary Protocol on Liability and Redress. The Supplementary Protocol specifies response measures to be taken in the event of damage to biodiversity resulting from LMOs. The competent authority in a Party to the Supplementary Protocol must require the person in control of the LMO (operator) to take the response measures or it may implement such measures itself and recover any costs incurred from the operator.

Fast Facts

- The Cartagena Protocol on Biosafety was adopted on 29 January 2000 and entered into force on 11 September 2003. As of May 2011, 160 countries and the European Union have ratified or acceded to the Protocol
- The Nagoya—Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety was adopted on 15 October 2010 in Nagoya, Japan. It opened for signature on 7 March 2011
- Modern biotechnology involves modifying the genetic material of an organism with the aim of developing or improving one or more characteristics in the organism. While this technology has the potential to generate benefits for humankind and contribute to sustainable development, there are concerns that living modified organisms resulting from biotechnology may have negative effects on biodiversity and human health

Learn More

The Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety ▸ http://bch.cbd.int/protocol/NKL_Protocol.shtml

Biosafety Clearing-House (BCH) ▸ http://bch.cbd.int

Strategic Plan for the Cartagena Protocol on Biosafety for the period 2011-2020 ▸ http://bch.cbd.int/protocol/issues/cpb_stplan_txt.shtml

Biosafety Protocol News ▸ http://bch.cbd.int/protocol/cpb_newsletter.shtml

Publications on the Cartagena Protocol ▸ http://bch.cbd.int/protocol/cpb_publications.shtml

Biosafety Information Resource Centre ▸ http://bch.cbd.int/database/resources

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

http://bch.cbd.int/protocol

United Nations Decade on Biodiversity

Living in harmony with nature

The Nagoya—Kuala Lumpur Supplementary Protocol on Liability and Redress

The Nagoya—Kuala Lumpur Supplementary Protocol is a treaty intended to supplement the Cartagena Protocol on Biosafety by providing international rules and procedures on liability and redress for damage to biodiversity resulting from living modified organisms (LMOs).

The Supplementary Protocol focuses, mainly, on administrative procedures and requirements with respect to response measures that need to be taken in the event of damage by LMOs that adversely affect the conservation and sustainable use of biological diversity, taking also into account risks to human health.

Parties have an obligation, under the Supplementary Protocol, to provide, in new or existing domestic law, for rules and procedures that address damage. They need to provide for response measures with a view to prevent or mitigate damage or restore biological diversity. Parties must require the operator that is in direct or indirect control of the LMO in question to take appropriate measures in response to damage or sufficient likelihood of damage.

The Nagoya—Kula Lumpur Supplementary Protocol:

- Provides flexibility in regulatory approaches by allowing Parties to apply existing or new domestic laws that may be general or specific as regards response measures to damage
- Creates an enabling environment and builds further confidence in the safe development and application of modern biotechnology
- Contributes to the prevention or mitigation of damage by creating incentives for operators to ensure safety in the development or handling of LMOs

UNEP

Convention on Biological Diversity

http://bch.cbd.int/protocol/supplementary

United Nations Decade on Biodiversity

Fast Facts

- The Nagoya—Kuala Lumpur Supplementary Protocol:
  - was adopted on 15 October 2010 by the fifth meeting of the Conference of the Parties to the Convention on Biological Diversity serving as the meeting of the Parties to the Cartagena Protocol on Biosafety, which took place in Nagoya, Japan
  - was opened for signature at the UN Headquarters in New York on 7 March 2011 and will remain open for signature until 6 March 2012. It will enter into force 90 days after being ratified by at least 40 Parties to the Cartagena Protocol on Biosafety
  - takes its name from the city of Nagoya, where it was adopted, and from the city of Kuala Lumpur where several negotiation sessions were held
  - is the first international treaty that provides for a definition of 'damage' to biodiversity
- Liability is an obligation of a person as defined by law to redress damage or to provide compensation for damage resulting from an action or other situation that the law attributes or attaches to that person
- Principle 13 of the 1992 Rio Declaration on Environment and Development calls upon States to develop national law regarding liability and compensation and also to cooperate in developing further international law regarding liability and compensation for adverse effects of environmental damage
- The United Nations Environment Programme has developed guidelines that countries can use in the development of their domestic laws on liability, response action and compensation for damage caused by activities dangerous to the environment

Learn More

Liability and Redress, Article 14.2 ▸ www.cbd.int/liability

The text of the Supplementary Protocol ▸ http://bch.cbd.int/protocol/NKL_text.shtml

The 1992 Rio Declaration on Environment and Development ▸ www.unep.org/Documents.Multilingual/Default.asp?documentID=78&articleID=1163

The UN International Law Commission (ILC) ▸ www.un.org/law/ilc, especially its work on State responsibility and international liability for injurious consequences arising out of acts not prohibited by international law

United Nations Environment Programme's Draft guidelines for the development of national legislation on liability, response action and compensation for damage caused by activities dangerous to the environment ▸ www.unep.org/dec/Events/Intergovernmental_Meeting.asp

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

http://bch.cbd.int/protocol/supplementary

United Nations Decade on Biodiversity

Living in harmony with nature

Agricultural Biodiversity

Biodiversity is the foundation of agriculture. Agricultural biodiversity includes ecosystems, animals, plants and microorganisms related to food and agriculture. Today, most species of crops and domesticated livestock are the result of thousands of years of human intervention, such as selective breeding and other farm practices.

Agricultural biodiversity provides food and raw materials to produce goods. Moreover, every plant, animal and microorganism plays its part in the regulation of essential ecosystem services, such as water conservation, decomposition of waste and nutrient cycling, pollination, pest and disease control, climate regulation, erosion control and flood prevention, carbon sequestration and many more.

While modern agricultural practices have increased food production, contributing much to improving food security and reducing poverty, they have also been responsible for considerable damage to biodiversity, primarily through land-use conversion but also through overexploitation, intensification of agricultural production systems, excessive chemical and water use, nutrient loading, pollution and introduction of invasive alien species. Agriculture is part of the landscape and needs to be managed wisely and sustainably in this context.

Farmers' traditional knowledge is central to both sustaining biodiversity and ensuring global food security. Today this knowledge is being eroded, undermining the important contribution that farmers can make.

Agriculture faces considerable challenges of meeting the requirements of an ever growing population whilst simultaneously reducing its footprint on the earth's resources and biodiversity. Technically these challenges can be met but this requires significant shifts in policies and approaches. Central to this is the need for more effective partnerships between farmers, consumers, governments and other stakeholders which build upon the contribution that biodiversity can make towards the achievement of sustainable agriculture.

UNEP

Convention on Biological Diversity

www.cbd.int/agro

United Nations Decade on Biodiversity

Fast Facts

- Close to a quarter of the world's population (1.3 billion people) work in agriculture
- Over 826 million people are chronically hungry and need 100–400 more calories per day
- 32% of pre-school children worldwide are underweight
- Agriculture accounts for 44% of methane emissions and about 70% of nitrous oxide gases
- Globally, agriculture accounts for about 70% of the water used by humans, and the sustainable limit of water withdrawal has already been reached or exceeded in many areas
- Deforestation in the tropics and sub-tropics, driven in many places by agriculture, can lead to a reduction in regional rainfall—undermining sustainable water supplies for agriculture
- 20% of the 6,500 breeds of domesticated animals face extinction
- 20% of CO_2 emissions in the 1990s originated from land use changes, much of this was through deforestation for agriculture
- There are over 25,000 bee species, but populations are declining. One-third of the world's crop production must be pollinated to produce seeds and fruits
- Soil worldwide is being lost 13 to 18 times faster than it is being formed

Learn More

Food and Agriculture Organization of the United Nations (FAO) ▸ www.fao.org/biodiversity

Land Resources, Management, Planning and Use (FAO) ▸ www.fao.org/nr/land/en

Commission on Genetic Resources for Food and Agriculture ▸ www.fao.org/nr/cgrfa/en

Bioversity International ▸ www.bioversityinternational.org

World Agroforestry Centre ▸ www.worldagroforestry.org

Ecoagriculture Partners ▸ www.ecoagriculturepartners.org

The Global Crop Diversity Trust ▸ www.croptrust.org

International Center for Agricultural Research in the Dry Areas (ICARDA) ▸ www.icarda.org

International Livestock Research Institute (ILRI) ▸ www.ilri.org

Consultative Group on International Agricultural Research (CGIAR) ▸ www.cgiar.org

Living Modified Organisms (LMOs) ▸ www.cbd.int/biosafety

International Potato Center (CIP) ▸ www.cipotato.org

International Federation of Organic Agriculture Movements (IFOAM) ▸ www.ifoam.org/partners/advocacy/Biodiversity_Campaign.html

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int/agro

United Nations Decade on Biodiversity

Living in harmony with nature

Dry and Sub-Humid Lands

Dry and sub-humid lands cover about 47% of the Earth's terrestrial area. They include arid and semi-arid regions, grasslands, savannahs and Mediterranean landscapes. These fragile environments, home to many endemic species, warrant priority attention to avoid irreversible loss of biodiversity.

The biodiversity of dry and sub-humid lands is well adapted to the harsh conditions typified by inconsistent rainfall patterns leading to periods of drought and floods, and, in many cases, high temperatures. Dry and sub-humid lands are the origin of many of the world's crops such as wheat barley and olives. This biodiversity forms the basis of many livelihoods locally, and supports a large population of the world's food production.

The main pressures on biodiversity in dry and sub-humid lands are habitat conversion (for agriculture, transport, tourism and industry), as well as poor soil and water management. Climate change has a particularly strong impact on wetlands in drylands, grasslands, Mediterranean forests and desert margins. Invasive alien species adversely affect indigenous biodiversity. Excessive collection of fuel wood, over-harvesting of plants, over-hunting of wildlife and unsustainable agricultural practices all add to the problem.

The conservation and sustainable use of dry and sub-humid lands biodiversity is essential to livelihood development and poverty reduction as the majority of dryland areas are found in developing countries. Furthermore, as a result of the high proportion of indigenous peoples and local communities who are responsible for managing biodiversity resources in dry and sub-humid lands, these areas hold a great deal of opportunity for the engagement of communities in implementation of the Convention. Unfortunately, the link between biodiversity and poverty alleviation is not often reflected in poverty reduction or development planning.

The Convention on Biological Diversity has a programme of work on dry and sub-humid lands, which seeks to fill gaps in our knowledge, supports best management practices, and promotes partnerships among countries, institutions and other conventions.

UNEP

Convention on Biological Diversity

www.cbd.int/drylands

United Nations Decade on Biodiversity

Fast Facts

- Dry and sub-humid lands are home to about two billion people (35% of the global population)
- Encompass approximately 44% of the world's cultivated systems
- 90% of people inhabiting dry and sub-humid lands live in developing countries
- Six countries (Botswana, Burkina Faso, Iraq, Kazakhstan, the Republic of Moldova and Turkmenistan) have at least 99% of their area classified as dry and sub-humid lands
- Because of harsh conditions (irregular rainfall, high temperatures, etc.), many species have developed unique adaptations:
  - Desert toads lie dormant below the sand for months until the rain returns
  - The sociable weaver of southern Africa builds communal nests weighing up to 1,000 kg to maximize insulation from extreme temperatures
  - The Gemsbok of the Kalahari Desert can survive for weeks without water
- Dry and sub-humid lands include important areas of extraordinary endemism, such as the Mediterranean Basin, home to more than 11,700 endemic plant species
- Some 2,311 known dry and sub-humid lands species are endangered or threatened with extinction

Learn More

United Nations Development Programme (UNDP) Drylands Development Centre ▸ www.undp.org/drylands

United Nations Convention to Combat Desertification (UNCCD) ▸ www.unccd.int

Food and Agriculture Organization of the United Nations (FAO) ▸ www.fao.org

United Nations Educational, Scientific and Cultural Organization (UNESCO) ▸ www.unesco.org

United Nations Environment Programme (UNEP) ▸ www.unep.org

United Nations Framework Convention on Climate Change (UNFCCC) ▸ http://unfccc.int

World Conservation Monitoring Centre (WCMC) ▸ www.unep-wcmc.org

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int/drylands

United Nations Decade on Biodiversity

Living in harmony with nature

Forest Biodiversity

Forest biodiversity refers to all forms of life found in forests, including trees, plants, animals, fungi and micro-organisms, and their roles in nature. The complexity and rich diversity of life found in forests provides many vital services to human beings.

Nonetheless, humans are destroying forest biodiversity at an alarming rate. The conversion of forests to agricultural land, overgrazing, unsustainable management, introduction of invasive alien species, infrastructure development, mining and oil exploitation, man-made fires, pollution and climate change are all having negative impacts on forest biodiversity. This loss and degradation of forests makes landscapes more fragile and diminishes the services provided by forests to humans.

People have come to realize that forests offer much more than just timber. Forests provide recreational opportunities and contribute to our health and well-being. Not only do they regulate local temperatures and protect drinking water supplies, they also act as carbon sinks and mitigate climate change. Forests also play important economic, social, and cultural roles in the lives of many people, especially those of indigenous communities.

Traditional medicine is often based on natural products and plants found in forests. By destroying forests, we may be destroying an undiscovered cure for diseases. Therefore, many countries are starting to restore forests, and to use existing forests more sustainably, and to conserve remaining primary forests, in line with the new Strategic Plan for Biodiversity for the period 2011–2020.

UNEP

Convention on Biological Diversity

www.cbd.int/forest

United Nations Decade on Biodiversity

Fast Facts

- Tropical, temperate and boreal forests host the vast majority of the world's terrestrial species
- Some 80% of people in developing countries rely on traditional medicines–up to half of these medicinal substances originate from plants found mainly in tropical forests
- Two thirds of all major cities in developing countries depend on surrounding forests for their supply of clean water
- Over the last 8000 years about 45% of the Earth's original forests has disappeared, most of which was cleared during the past century
- Approximately 13 million hectares of the world's forests are lost to deforestation each year, an area the size of Greece
- Emissions resulting from deforestation may contribute up to 20% of annual global greenhouse gas emissions
- Natural forests are among the best stores of carbon. The world's forests contain more carbon than the entire atmosphere
- Over three quarters of the world's accessible fresh water comes from forested watersheds
- More than six million hectares of primary tropical forests, which are especially rich in biodiversity, are lost each year

Learn More

CBD Technical Series 41, 43 and 47 ▸ www.cbd.int/ts

UNEP Climate Change Science Compendium ▸ www.unep.org/compendium2009

UN Forum on Forests (UNFF) ▸ www.un.org/esa/forests

Food and Agriculture Organization of the UN (FAO) Forestry Department ▸ www.fao.org/forestry

Centre for International Forestry Research (CIFOR) ▸ www.cifor.cgiar.org

UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN REDD) ▸ www.un-redd.org

Montréal Process ▸ www.rinya.maff.go.jp/mpci

Forest Stewardship Council (FSC) ▸ www.fsc.org

WWF Ecological Footprint ▸ http://footprint.wwf.org.uk

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Inland Waters Biodiversity

Water supports all life on Earth. Freshwater is the most important natural resource on the planet. Inland waters include all kinds of inland water bodies, fresh or saline, as well as groundwater. They are also closely interconnected with terrestrial ecosystems.

The biodiversity of freshwater ecosystems is declining faster than that of any other biome. Unsustainable practices lead to loss of habitat through construction, land conversion (mainly for agriculture) and pollution. Unsustainable use of water and invasive alien species also negatively impact biodiversity.

Inland water ecosystems provide services vital to human development and poverty reduction. These services include food, fibre, medicine, climate regulation, flood and natural disaster mitigation, nutrient recycling and drinking water purification. These ecosystems are also essential for production of energy, transport, recreation, tourism, and as habitat for animals and plants.

These services are taken for granted, yet they can be expensive to replace. For example, building and maintaining water treatment plants is often more costly than maintaining ecosystem infrastructure to provide clean water.

The main impacts of climate change will be felt through water, making inland water ecosystems particularly important in this context. For example, wiser use of freshwater ecosystem infrastructure can help us cope with the increasing frequency and severity of both droughts and floods.

In order to stop or reverse the decline in inland water biodiversity, we need to raise awareness of the importance of these ecosystems. It is urgent to act now, by applying the ecosystem approach when managing both land and water.

UNEP

Convention on Biological Diversity

www.cbd.int/waters

United Nations Decade on Biodiversity

Fast Facts

- Aquatic and terrestrial systems are tightly linked and interrelated
- Only 0.03% of the world's water is available as liquid freshwater on the Earth's surface
- Of the 29,000 known fish, about 30% are freshwater species
- Peatlands cover about 3–4% of the world's land area yet hold about 25–30% of the carbon contained in terrestrial ecosystems, and store twice the amount of carbon as the world's forests
- Wetlands, such as mangroves and river floodplains, protect human communities from natural catastrophes such as Tsunamis and floods
- Aquaculture development and the introduction of invasive alien species are major causes of mangrove loss
- Agriculture accounts for about 70% of all water taken from rivers and is the main cause of wetland loss worldwide, due to clearing, transformation and drainage, and water abstraction for agricultural development
- About 80% of the world's population currently live in areas lacking water security. By 2025, two-thirds of the world population could live under water-stress conditions and a similar proportion will be without adequate sanitation
- Nearly half of the world's large cities obtain some, if not most, of their drinking water supplies from protected or managed forested areas
- Two million tonnes of human waste (untreated sewage) are dumped into water courses each day, as well as 70% of untreated industrial wastes in developing countries
- Habitat loss and degradation is the primary cause of extinction of freshwater species

Learn More

The Ramsar Convention on Wetlands ▸ www.ramsar.org

COP decisions related to inland waters ▸ www.cbd.int/waters/decisions.shtml

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Island Biodiversity

The Earth's 100,000 islands are exceptionally rich reservoirs of biodiversity. Environmentally fragile and economically vulnerable, they are home to some of the Earth's most exclusive life forms and ecosystems.

The importance of these ecosystems becomes even greater when we remember that over 600 million island inhabitants depend on these ecosystem services for food, water, shelter, medicines and other natural resources needed to sustain their daily lives. Some of the most spectacular coral reefs can be found surrounding islands. A healthy, coral colony helps regulate carbon dioxide and provides sanctuary to a variety of aquatic life.

The Convention's programme of work on Island Biodiversity aims to halt biodiversity loss and in turn enhance the well-being of islanders. National governments, NGOs and development agencies have established a cooperative platform called the Global Island Partnership (GLISPA), which in turn supports groundbreaking regional conservation projects such as the Micronesia Challenge, and the Caribbean and Coral Triangle initiatives.

The GLISPA is one of the mechanisms to assist islands in conserving and sustainably using the natural resources that support the people living on them. It also promotes collaboration among island nations and with all nations: people share skills, knowledge and technologies, and combine their efforts to build common grounds to make a change for the better.

Island ecosystems are visibly unbalanced and species are threatened with extinction, with clear negative effects on human beings. Main causes of island species extinction are habitat destruction, invasive alien species, tourism development, climate change, natural disasters, overexploitation, pollution and waste.

UNEP

Convention on Biological Diversity

www.cbd.int/island

United Nations Decade on Biodiversity

Fast Facts

- Islands cover about 3% of the world's surface yet harbour a disproportional amount of biodiversity, and endemic species in particular
- One third of the world's conservation hotspots are islands
- Of 724 recorded animal extinctions in the last 400 years about half were island species
- At least 90% of bird species that have become extinct in that period were island-dwellers
- 12 of the 18 centres of marine endemism are around islands
- Seven of the 10 coral reef hotspots surround islands
- Many island species are endemic
- Over 90% of Hawaiian species are endemic
- 50% of all plants, mammals, birds, reptiles and amphibians in Mauritius are endemic
- The Seychelles has the highest number of endemic amphibians in the world
- Cuba has 18 endemic mammals, while nearby mainland Guatemala and Honduras only have three each
- Madagascar has over 8000 endemic species—highest number of endemic species in sub-Saharan Africa—and has vowed to protect 30% of its territory by 2020
- Islands demonstrate the impacts of climate change and invasive species far before they are visible on larger land masses
- Islands are the most damaged by climate change without having contributed to it in any significant manner
- Small island developing States are among those with the most alarming rate of biodiversity loss

Learn More

The Global Island Partnership (GLISPA) ▸ www.cbd.int/island/glispa.shtml

The Micronesia, Caribbean and Coral Triangle initiatives
▸ www.nature.org/initiatives/protectedareas/features/art24892.html

UNEP Islands website ▸ http://islands.unep.ch

The International Coral Reef Action Network ▸ www.icran.org/action-csi.html

Palau Conservation Society ▸ www.palau-pcs.org

Small Island Developing States Network ▸ www.sidsnet.org/1d.html

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Marine and Coastal Biodiversity

Oceans cover 70% of our planet and represent over 95% of the biosphere. Marine and coastal habitats cover a diverse spectrum—from those near terrestrial environment such as coral reefs, mangrove forests, seagrass beds, and estuaries, to those deep below the surface, such as open ocean, hydrothermal vents, seamounts and soft sediments on the ocean floor.

More than just a valuable source of food and various economic activities, the ocean is one of the largest natural reservoirs of carbon. It stores about 15 times more CO_2 than the terrestrial biosphere and soils, and plays a significant role in climate moderation.

Deep-seabed habitats host between 500,000 and 10 million species. Deep-sea life is essential to life on Earth because of its crucial role in global carbon and biogeochemical cycles, including nutrient regeneration.

This tremendous wealth of biodiversity and ecosystem services is not, however, infinite. Today, human activities are greatly threatening the seas and coasts through overfishing, destructive fishing practices, pollution and waste disposal, agricultural runoff, invasive alien species, and habitat destruction. Global climate change adds additional pressures by raising the sea level, increasing the water temperature and leading to more storms and natural disasters. Seawater is acidifying due to increasing levels of atmospheric CO_2, with significant implications for marine biodiversity.

Oceans are seriously under-protected: just over 1% of the ocean surface is designated as protected areas, compared to nearly 15% of protected-area coverage on land.

Countries that adopted the Convention on Biological Diversity are addressing various challenges to the conservation and sustainable use of marine and coastal biodiversity. By applying the ecosystem and precautionary approaches, they focus on the integrated management of marine and coastal areas, protection and enhanced management of ecologically or biologically significant areas, and sustainable fishery and mariculture management.

UNEP

Convention on Biological Diversity

www.cbd.int/marine

United Nations Decade on Biodiversity

Fast Facts

- Oceans contain a vast diversity of habitats and spectacular seascapes, hosting 32 of the 34 phyla of the planet, of which approximately 13 are exclusively or mostly marine
- Genetic resources in the oceans and coasts are of great interest for commercial use
- Recent scientific results highlighted that higher biodiversity can enhance the functioning and efficiency of deep-sea ecosystems
- The sustainability of our biosphere significantly relies on the goods and services provided by deep-sea ecosystems
- Oceans have absorbed one-quarter to one-third of the CO_2 emitted to the atmosphere from the burning of fossil fuels, deforestation and other human activities since 1800
- About 80% of world fish stocks, for which assessment information is available, are fully exploited or overexploited and thus require effective and precautionary management
- Pressures on coastal and marine biodiversity will continue to increase, as 50% of the world's population will live along coasts by 2015, putting unsustainable pressures on coastal resources

Learn More

United Nations Atlas of the Oceans ▸ www.oceansatlas.org

Food and Agriculture Organization of the United Nations (FAO) ▸ www.fao.org

Intergovernmental Oceanographic Commission—United Nations Educational, Scientific and Cultural Organization (UNESCO/IOC) ▸ www.ioc-unesco.org

International Maritime Organization ▸ www.imo.org

United Nations Division for Ocean Affairs and the Law of the Sea (UNDOALOS) ▸ www.un.org/Depts/los

World Conservation Monitoring Centre—United Nations Environment Programme (UNEP-WCMC) ▸ www.unep-wcmc.org

Census of Marine Life ▸ www.coml.org

Ocean Biogeographic Information System ▸ www.iobis.org

Global Ocean Biodiversity Initiative (GOBI) ▸ www.gobi.org

IW: LEARN (GEF International Waters Learning Exchange and Resource Network) ▸ www.iwlearn.net

International Coral Reef Initiative (ICRI) ▸ www.icriforum.org

International Collective in Support of Fishworkers (ICSF) ▸ www.icsf.net

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int/marine

United Nations Decade on Biodiversity

Living in harmony with nature

Mountain Biodiversity

Mountains encompass spectacular landscapes, a wide variety of ecosystems, a great diversity of species, and distinctive human communities. The world's principal biome types—from hyper-arid hot desert and tropical forest to arid polar icecaps—all occur in mountains. Almost every area that is jointly important for plants, amphibians and endemic birds is located within mountains.

Mountain areas have been affected by loss of diversity as a result of human activities, largely due to changes in land use. Mountain forests are threatened by uphill expansion of agriculture and human settlements, logging for timber and fuel wood and replacement by highland pastures.

Climate change largely affects mountain biodiversity by reducing available land area for organisms adapted to the cold. The pace of plant species moving uphill, possibly due to climate change, is quite high, increasing the number of species in the upper belts in the short term, but outcompeting rare species or those adapted to the cold in the long term.

The Convention on Biological Diversity adopted the programme of work on mountain biodiversity, which has a set of actions addressing characteristics and problems specific to mountain ecosystems. It aims to conserve mountain biodiversity and maintain the goods and services of mountain ecosystems, and contribute to poverty alleviation and to the achievement of the Millennium Development Goals, as well as improve the capabilities of institutions and organizations to promote conservation and sustainable use of biodiversity.

UNEP

Convention on Biological Diversity

www.cbd.int/mountain

United Nations Decade on Biodiversity

Fast Facts

- Referred to as the 'water towers of the world', mountain systems cover about 27% of the world's land surface and directly support 22% of the world's people and provide the freshwater needs of more than half of humanity
- Mountains support about one quarter of world's terrestrial biodiversity and include nearly half of the world's biodiversity 'hotspots'
- Of the 20 plant species that supply 80% of the world's food, six (maize, potatoes, barley, sorghum, tomatoes, and apples) originated in mountains
- Evergreen tropical cloud forests, which harbour the wild relatives and sources of genetic diversity of important staple crops such as beans, potatoes and coffee, are the most fragile and most diminished part of mountain forests
- A large portion of domestic mammals—sheep, goats, domestic yak, llama, and alpaca—originated in mountain regions
- Genetic diversity tends to be higher in mountains associated with cultural diversity and extreme variation in local environmental conditions
- Mountains are often sanctuaries for plants and animals long-gone from the more transformed lowlands. For example, the last mountain gorillas survive among the volcanoes of Rwanda and Uganda
- Mountains are vulnerable to many natural and anthropogenic threats, including seismic hazards, fire, land cover change and agricultural intensification, infrastructure development, and armed conflict

Learn More

Chapter 13 of Agenda 21 on Sustainable Mountain Development
▸ http://earthwatch.unep.ch/agenda21/13.php

Global Mountain Biodiversity Assessment ▸ http://gmba.unibas.ch

Mountain Partnership ▸ www.mountainpartnership.org

Mountain Forum ▸ www.mtnforum.org

Mountain Research Institute ▸ http://mri.scnatweb.ch

UNEP-World Conservation Monitoring Centre ▸ www.unep-wcmc.org

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Ecosystem services

The principal framework for expressing the 'usefulness' of biodiversity is through the concept of *ecosystem services*. They illustrate the link between, on one hand, the interactions of species with each other and with the physical environment; and on the other, the well-being of people, whether in terms of wealth, nutrition or security.

The Millennium Ecosystem Assessment, published in 2005, divided ecosystem services into four categories:

- **Provisioning services**, or the supply of goods of direct benefit to people, and often with a clear monetary value, such as timber from forests, medicinal plants, and fish from the oceans, rivers and lakes.
- **Regulating services**, the range of functions carried out by ecosystems which are often of great value but generally not given a monetary value in conventional markets. They include regulation of climate through the storing of carbon and control of local rainfall, the removal of pollutants by filtering the air and water, and protection from disasters such as landslides and coastal storms.
- **Cultural services**, not providing direct material benefits, but contributing to wider needs and desires of society, and therefore to people's willingness to pay for conservation. They include the spiritual value attached to particular ecosystems such as sacred groves, and the aesthetic beauty of landscapes or coastal formations that attract tourists
- **Supporting services**, not of direct benefit to people but essential to the functioning of ecosystems and therefore indirectly responsible for all other services. Examples are the formation of soils and the processes of plant growth.

Biodiversity is not regarded as an ecosystem service itself, but rather as a prerequisite underpinning each of them. The precise link between diversity and the capacity of an ecosystem to provide services is a complex one, and an area in which science is still developing.

United Nations Decade on Biodiversity

Fast Facts

- Ecosystem services do the following:
  - Moderate weather extremes and their impacts (ex. drought, floods, etc.)
  - Mitigate climate change
  - Absorb and store CO_2
  - Protect water channels and shores from erosion
  - Regulate disease-carrying organisms
  - Provide ingredients for pharmaceutical, biochemical and industrial products
  - Are a source of energy and biomass fuels
  - Decompose waste and detoxify pollution
  - Generate, maintain and renew soil fertility (nutrient cycling)
  - Pollinate crops and plants, and disperse seeds
  - Control agricultural pests and diseases
  - Produce food (such as crops, wild foods and spices, seafood)
  - Produce wood and fibre
  - Produce oxygen, purify air and water
  - Give cultural, intellectual, artistic and spiritual inspiration
  - Allow recreation (ex. ecotourism)
  - Hold answers to scientific questions
  - Hold the cures to diseases
- Conserving forests avoids greenhouse gas emissions worth US$ 3.7 trillion
- Ecotourism is the fastest-growing area of the tourism industry with an estimated increase of global spending of 20% annually (TIES 2006)
- Bee keeping generates US$ 213 million annually in Switzerland by ensuring agricultural production through pollination—some five times the value of honey production alone
- Under a 'business as usual' scenario, where ecosystem services keep declining, the cost to compensate for the lost services (the cost of inaction) over a 50 year period will amount to US$ 2.0 to 4.5 trillion per year

Learn More

Global Biodiversity Outlook 2 ▸ www.cbd.int/gbo2

Global Biodiversity Outlook 3 ▸ www.cbd.int/gbo3

The Economics of Ecosystems and Biodiversity (TEEB) ▸ www.teebweb.org

Ecosystem services abridged
▸ www.greenfacts.org/glossary/def/ecosystem-services.htm

World Resources Institute ▸ www.wri.org

Millennium Ecosystem Assessment ▸ www.millenniumassessment.org/en/index.aspx

Millennium Ecosystem Assessment, Ecosystems and Human Wellbeing (synthesis) ▸ www.millenniumassessment.org/documents/document.356.aspx.pdf

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Biodiversity for Development and Eradication of Poverty

Biodiversity underpins the global economy and society. The complex financial systems obscure the fact that all such human systems remain subsystems in the Earth's broader ecosystem.

The continuous failure to recognize the enormous value of biodiversity is rapidly pushing us toward critical tipping points, to where many of the planet's ecosystems will shift into unprecedented states in which the capacity to provide for the needs of present and future generations is highly uncertain. Because biodiversity also matters as insurance against global changes or risk management strategy, this is a serious problem.

Currently, the reversal of biodiversity loss and ecosystem services degradation is not recognized by development strategies, sectoral and intersectoral policies and budgetary processes. Actions taken (or not taken) over the next two decades will determine whether the relatively stable environmental conditions on which human civilization depend will continue beyond this century.

The 193 Parties to the Convention on Biological Diversity unequivocally state that biodiversity must be recognized as the foundation of economic productivity, prosperity and sustainable development, and must be backed with new and original economic regulations and governance.

Main macro-economic indicators need to reflect the costs and consequences of biodiversity degradation. Ecosystem services need to be incorporated into national accounting systems to reflect their contribution to the economy.

The poor, who disproportionately depend on biodiversity for their subsistence needs, suffer first and most severely from its degradation. Recognition of the link between ecosystem services and the fate of poor people implies that biodiversity should be a priority in national and international efforts to address poverty reduction.

UNEP

Convention on Biological Diversity

www.cbd.int/development

United Nations Decade on Biodiversity

Poverty is not simply the result of low income, but also reflects a deprivation of basic human requirements for well-being. The poorest populations are the most dependent on ecosystem services for food, clothes, medicine, fuel, shelter, income and other basic needs. It is essential to protect poor people's rights to access ecosystem services, renewable natural resources, land and sea. The free and accessible nature of ecosystem services makes them essential and irreplaceable. Their empowerment in the management of biodiversity constitutes a positive incentive, addresses underlying causes of biodiversity loss and contributes to prevent poverty.

Fast Facts

- Under a 'business as usual' scenario, where overexploitation continues and ecosystem services keep declining, the cost to compensate for lost ecosystem services (the cost of inaction) over a 50 year period will amount to US$ 2.0 to 4.5 trillion per year
- Current global fisheries underperform by US$ 50 billion annually
- Ecosystem services and other non-marketed goods account for 47% (India) to 89% (Brazil) of the so-called GDP (Gross Domestic Product) of the poor
- 3 billion people depend on marine and coastal biodiversity, while 1.6 billion rely on forests and non-timber forest products for their existence
- Habitat degradation, and consequently biodiversity loss, is a threat to the livelihoods of more than a billion inhabitants of dry and sub-humid lands
- In 2010, about 45% of business leaders in Africa, 53% in Latin America, 34% in Asia-Pacific and 18% in Western Europe considered biodiversity loss to be a threat to economic growth

Learn More

Millennium Development Goals ▸ www.un.org/millenniumgoals

United Nations Poverty-Environment Initiative ▸ www.unpei.org

United Nations Development Programme (UNDP) ▸ www.undp.org/biodiversity

United Nations Environment Programme (UNEP) & Millenium Development Goal 7 ▸ www.unep.org/MDGs

International Institute for Environment and Development (IIED) ▸ www.iied.org/tags/biodiversity

Poverty Environment Partnership ▸ www.povertyenvironment.net

Platform for practitioners working on ecosystem management and poverty alleviation ▸ www.natureandpoverty.net

The Economics of Ecosystems and Biodiversity (TEEB) ▸ www.teebweb.org

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Business and Biodiversity

All businesses affect and rely upon biodiversity and ecosystem services, regardless of size, location and sector. Whilst companies can have a major direct and indirect impact on biodiversity, they also possess biodiversity relevant knowledge, managerial skills and technical resources.

Today companies run the risk of facing increased public scrutiny for their impact on biodiversity and ecosystem services. Growing awareness among consumers has put pressure on businesses to reduce their environmental footprint.

There is a growing recognition of the monetary value of biodiversity and businesses could be asked to pay the bill for degraded services. At the same time, business can also benefit from new opportunities in biodiversity-related markets.

The Convention on Biological Diversity encourages companies faced with significant risks or opportunities related to ecosystem services to understand and manage them better, and to reduce their footprint on biodiversity and ecosystems.

Business is explicitly referred to in the Convention text (i.e. in articles 10 and 16), in many COP decisions, and in the Convention's Strategic Plan. Many of the Convention's programmes of work are directly relevant to business.

UNEP

Convention on Biological Diversity

www.cbd.int/business

United Nations Decade on Biodiversity

Fast Facts

- According to the United Nations Principles for Responsible Investment, the top 3,000 listed companies globally are estimated to be responsible for environmental externalities worth at least US$ 2.2 trillion per year
- The Union for Ethical BioTrade's Biodiversity Barometer Survey (2011) showed that a high proportion of consumers (84%) are ready to stop buying products from companies that disregard ethical biodiversity sourcing practices
- A McKinsey survey shows 59% of business executives see biodiversity as more of an opportunity than a risk for their companies
- TEEB for Business highlights several examples of the monetary value of biodiversity
- Insect pollinators, for example, are estimated to provide services worth US$189 billion per year to global agriculture through increased yields and other benefits
- Global sales of organic food and drink amounted to US$46 billion in 2007, a threefold increase since 1998
- Sales of certified 'sustainable' forest products quadrupled between 2005 and 2007

Learn More

Business.2010 newsletter ▸ www.cbd.int/business/newsletter.shtml

Jakarta Charter on Business and Biodiversity
▸ www.cbd.int/doc/business/jakarta-charter-busissness-en.pdf

Canadian Business and Biodiversity Council ▸ www.businessbiodiversity.ca

European platform on Business and Biodiversity
▸ www.business-and-biodiversity.de/en/homepage.html

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Climate Change

Levels of greenhouse gases in the atmosphere are rapidly increasing, warming the Earth's surface and lower atmosphere. Higher temperatures lead to climate change that includes effects such as rising sea levels, changes in precipitation patterns that can produce floods and droughts, and the spread of vector-borne diseases such as malaria. Some areas may benefit from changes in the climate. Others, including many areas in least developed countries, small island developing states, and Polar Regions may suffer greatly.

There is ample scientific evidence that climate change affects biodiversity. Climate change, according to the Millennium Ecosystem Assessment, is likely to become the dominant direct driver of biodiversity loss by the end of the century. It is already forcing biodiversity to adapt either through changing habitat, life cycles, or development of new physical traits. This, in turn, will affect vital ecosystem services for all humans, such as air and water purification, pollination and production of food, decomposition and nutrient cycling, carbon sequestration.

Biodiversity can also help reduce the effects of climate change. The conservation of habitats, for example, can reduce the amount of greenhouse gases released into the atmosphere. Moreover, conserving healthy ecosystems can reduce the disastrous impacts of climate change such as flooding and storm surges while genetic resources can help people adapt to increased crop disease.

If we act now to reduce emissions and implement ecosystem-based approaches to adaptation, we can address the risk of species extinctions and limit damage to ecosystems. We can preserve intact habitats and reduce other threats to biodiversity, especially those sensitive to climate change; improve our understanding of the climate change-biodiversity relationship; and view biodiversity as a solution to climate change.

UNEP

Convention on Biological Diversity

www.cbd.int/climate

United Nations Decade on Biodiversity

Fast Facts

- Greenhouse gases act like the glass roof of a greenhouse by trapping heat and warming the planet. The main greenhouse gasses are: water vapour, carbon dioxide, tropospheric ozone and methane
- Human activities, such as burning of fossil fuels and unsustainable land management, add to the natural emissions of greenhouse gasses in the atmosphere
- Deforestation is responsible for about 20% of human-induced carbon dioxide emissions
- Average global temperature from 1850 to 2005 increased by about 0.76ºC. A further increase of 1.4°C to 5.8°C is projected by 2100
- Global mean sea level rose by 12 to 22 cm during the last century
- It is estimated that each degree rise in temperature will place an additional 10% of species at increased risks of extinction
- Conservation of habitats reduces the amount of greenhouse gasses released into the atmosphere and helps communities adapt to climate change

Learn More

Intergovernmental Panel on Climate Change (IPCC) ▸ www.ipcc.ch

United Nations Framework Convention on Climate Change (UNFCCC) ▸ http://unfccc.int

United Nations Convention to Combat Desertification (UNCCD) ▸ www.unccd.int

The Ramsar Convention on Wetlands ▸ www.ramsar.org

The World Bank ▸ www.worldbank.org

International Union for Conservation of Nature (IUCN) ▸ www.iucn.org

The Millennium Ecosystem Assessment (MA) ▸ www.millenniumassessment.org

The Report of the Second Ad Hoc Technical Expert Group (AHTEG) on Biodiversity and Climate Change ▸ www.cbd.int/doc/publications/cbd-ts-41-en.pdf

Database of ecosystem-based approaches to adaptation ▸ http://adaptation.cbd.int

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Communication, Education and Public Awareness (CEPA)

People are interested in biodiversity. Zoos, aquariums, botanical gardens and nature shows are popular. Yet beyond the knowledge of a few charismatic species, the public is not aware of the critical role biodiversity plays in providing the essentials for our survival and well-being. This means less public support for actions and policies towards a more sustainable relationship between humanity and the biodiversity of the planet.

The programme of work on Communication, Education and Public Awareness (CEPA) helps create the tools needed to answer biodiversity and sustainability questions, raise public awareness and integrate biodiversity into learning worldwide.

CEPA encourages and supports collaboration with governments, civil society and others for developing public awareness programmes about biodiversity and its contribution to human well being.

During the United Nations Decade on Biodiversity 2011–2020, CEPA will play an important role in building awareness amongst all stakeholders whose actions have an impact on the ecosystems of our planet.

The International Day for Biological Diversity, held every 22 May and organised around special themes, provides an excellent opportunity for countries and individuals to celebrate biodiversity.

The Green Wave is an ongoing worldwide campaign that uses social media and the internet to bring together children and youth to raise awareness about biodiversity.

UNEP

Convention on Biological Diversity

www.cbd.int/cepa

United Nations Decade on Biodiversity

Fast Facts

- Most EU citizens had heard of the term biodiversity, but only 35% said that they also knew what biodiversity meant
- In 2009, a UK survey of 1,500 children aged 5 to 10 years and 1,500 parents to analyse children's knowledge of nature found that:
  - Four out of ten children can't tell the difference between a bee and a wasp
  - Almost two thirds struggled to tell a toad and a frog apart
  - 13% of children didn't know what a tulip looked like, with one in ten thinking it was a daisy or rose
  - Nearly 70% of parents worry that their child doesn't know enough about nature, wildlife and the environment
- The general public tends to understand biodiversity loss mostly as a species-focused concept
- A third of respondents are most motivated by alarming data about endangered species and the destruction of ecosystems. However, calls urging people to act now and do more are highlighted as the least useful (2011 Biodiversity Barometer). Many people are ready to make personal efforts to protect biodiversity, but do not know what they should be doing
- Deforestation continues as six million hectares of primary forest has been lost annually since 2000
- The average abundance of species is declining—40% loss between 1970 and 2000
- Unsustainable consumption continues as demand for resources worldwide exceeds the biological capacity of the Earth by about 20%
- In the North Atlantic, large fish have declined by 66% in the last 50 years, due to overfishing

Learn More

CEPA Toolkit ▸ www.cbd.int/cepa/toolkit/2008/doc/CBD-Toolkit-Complete.pdf

International Year of Biodiversity ▸ www.cbd.int/iyb

International Day for Biological Diversity ▸ www.cbd.int/idb

The Green Wave ▸ http://greenwave.cbd.int/en/home

Plant for the Planet Billion Tree Campaign ▸ www.unep.org/billiontreecampaign

Children and youth ▸ www.cbd.int/education/biodiv-edu/youth

Teacher's corner ▸ www.cbd.int/education/biodiv-edu/teachers-corne

Indigenous education ▸ www.cbd.int/education/biodiv-edu/indigenous

Article 13 of the CBD ▸ www.cbd.int/convention/articles.shtml?a=cbd-13

IUCN Commission on Education and Communication ▸ www.iucn.org/cec

UNESCO ▸ www.unesco.org/mab/biodiv/biodivEducation.shtml

The Decade of Education for Sustainable Development ▸ www.unep.org/Training/programmes/undesd.asp

UN Conference on Environment and Development (UNCED) ▸ www.un.org/geninfo/bp/enviro.html

Agenda 21, Chapter 36 ▸ www.un.org/esa/dsd/agenda21/res_agenda21_36.shtml

Key policy issues ▸ www.cbd.int/education/policy

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Economics, Trade and Incentive Measures

Biodiversity is the basis for ecosystem services, which are essential for human well-being and economic development. In addition to its intrinsic value, biodiversity and ecosystem services are therefore also of tremendous economic value. However, many ecosystem services are not traded on markets and their value is not properly reflected in existing market prices for other goods and services. Markets, when left alone, do not tell the 'ecological truth' and will therefore provide insufficient, if any, incentives to individuals, companies and governments to use biodiversity, and related ecosystem services, in a sustainable manner.

The reason for this market failure is simple: most biodiversity components are considered 'public goods', belonging to everyone and to no one. Consequently there is little concern in economic decision-making for their conservation and sustainable use.

The economic work under the Convention on Biological Diversity seeks to elucidate this 'hidden' economic value of ecosystem services and the underlying biodiversity, and incorporate it into market prices through the use of incentive measures that favour the conservation and sustainable use of biodiversity.

Work under the Convention, in partnership with the World Trade Organization, also looks at the relationship between its provisions and international trade rules. This is part of a broader effort by the international community to ensure harmony and mutual support between international trade rules and international environmental law, in order to both maintain biodiversity and promote international trade for the common goal of sustainable development. An important goal of the Convention is that no species of wild flora and fauna should be endangered by international trade hence the CBD is closely cooperating with the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

UNEP

Convention on Biological Diversity

www.cbd.int/incentives

United Nations Decade on Biodiversity

Fast Facts

- The Convention's Clearing-House Mechanism (CHM) features a database on incentive measures, which facilitates the exchange of experiences among governments and organizations in the design and application of incentive measures
- The Strategic Plan for Biodiversity 2011–2020 includes explicit targets on valuation and incentive measures
- Target 2 of the Strategic Plan calls upon Parties to, by 2020 at the latest, integrate biodiversity values into national and local strategies and planning processes and, as appropriate, into national accounting and reporting systems
- Target 3 calls on Parties to eliminate, phase out or remove, incentives, including subsidies harmful to biodiversity, such as subsidies that support unsustainable farming, forestry or fishery
- Target 3 calls upon Parties to develop and apply positive incentives for the conservation and sustainable use of biodiversity. These are economic or legal measures that encourage beneficial activities such as payments for ecosystem services, conservation easements or covenants, and the promotion and commercialization of biodiversity-based goods, which are produced in a sustainable manner ('biotrade'), through, for example, certification and eco-labelling

Learn More

The Economics of Ecosystems and Biodiversity (TEEB) study ▸ www.teebweb.org

United Nations Environment Programme's Green Economy Initiative ▸ www.unep.org/greeneconomy

Biodiversity Economics ▸ www.biodiversityeconomics.org

CBD Clearing-House Mechanism ▸ www.cbd.int/chm

BioTrade Initiative of the United Nations Conference on Trade and Development (UNCTAD) ▸ www.biotrade.org

World Trade Organization (WTO) ▸ www.wto.org

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) ▸ www.cites.org

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Ecosystem Approach

The ecosystem approach is a way to manage entire ecosystems, keeping in mind that all their components (including ourselves) are interconnected. Its main objectives are the conservation and sustainable use of biodiversity in an equitable way.

When managing an ecosystem, we must consider the effects of our actions on each of its components, and also on surrounding ecosystems. We must take into account both the well-being of the environment and the well-being of humans.

Although our understanding of ecosystems is still incomplete, the ecosystem approach is based on scientific methodologies. One way to overcome the lack of information is to learn from indigenous and local knowledge and practices. A network of competent and committed partners (governments, institutions and concerned communities) should collaborate for the management of different ecosystem components and processes in a holistic manner.

As the ecosystem functions and processes are often unpredictable and change over time, the management planning and actions should remain flexible and adaptable. Sometimes, we may need to take measures even if some cause-and-effect relationships are not fully understood. Where there's a threat of significant biodiversity loss, we should try to avoid it even without full scientific certainty. Such measures require careful planning and risk analysis if they are to be viable over the long-term.

Finally, the ecosystem approach does not preclude other management and conservation approaches, such as area-based management tools and single-species conservation practices, but ideally all these approaches should be integrated, especially when dealing with complex ecological situations.

UNEP

Convention on Biological Diversity

www.cbd.int/ecosystem

United Nations Decade on Biodiversity

Fast Facts

- Ecosystem processes and functions are complex and variable: ecosystem management must involve a learning process and remain flexible in order to adapt to changes
- The ecosystem approach is a way to manage entire ecosystems in a holistic manner
- Your actions affect both your immediate environment and distant ecosystems: take into account the well-being of the environment and the well-being of humans
- Around the world, ecosystems are being eroded, fragmented and degraded
- The most important threats to ecosystems and biodiversity are: climate change, overexploitation of natural resources, large-scale conversion of land to agriculture and urban expansion, introduction of invasive alien species, and pollution
- Biodiversity loss directly affects the quality and quantity of ecosystem services provided, such as carbon sequestration, soil fertility, nutrient cycling, pest control, control of erosion and pollination of crops and trees
- Protected areas, when carefully managed, can contribute to sustainable development through the provision of important goods and services to local people, and employment opportunities created by tourism
- Many people in the developing world depend on biological resources collected from their surrounding environment for their day-to-day needs
- Human health is highly dependent on a healthy, well-functioning environment

Learn More

Ecosystem approach ▸ www.cbd.int/ecosystem

Ecosystem Sourcebook ▸ www.cbd.int/ecosystem/sourcebook

Food and Agriculture Organization of the United Nations (FAO)—Ecosystem Approach
▸ www.fao.org/biodiversity/cross-sectoral-issues/ecosystem-approach/en

IUCN Commission on Ecosystem Management
▸ www.iucn.org/about/union/commissions/cem

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Gender and Biodiversity

The importance of biodiversity to individuals varies according to gender. Based upon the social roles between men and women, gender is shaped by culture, social relations, and natural environments. For this reason, we need to incorporate gender dimensions into our understanding of biodiversity and its conservation, sustainable use and the sharing of benefits.

Gender roles affect economic, political, social and ecological opportunities and constraints faced by both men and women. Recognizing women's roles as primary land and resource managers is central to the success of biodiversity policy. For example, women farmers currently account for 60-80% of all food production in developing countries, but gender often remains overlooked in decision-making on access to, and the use of, biodiversity resources.

Just as the impact of biodiversity loss is disproportionately felt by poorer communities, there are also disparities along gender lines. Biodiversity loss affects access to education and gender equality by increasing the time spent by women and children in performing certain tasks, such as collecting valuable resources and services such as fuel, food and water.

To conserve biodiversity, we need to understand and expose gender-differentiated biodiversity practices, gendered knowledge acquisition and usage. Various studies demonstrate that projects integrating gender dimensions generate superior results. Gender considerations are not solely a women's issue; instead, this outlook could yield advantages for whole communities and benefit both sexes.

The Convention on Biological Diversity developed a Gender Plan of Action that defines the Secretariat's role in stimulating and facilitating efforts on national, regional, and global levels to promote gender equality and mainstream a gender perspective. The Millennium Development Goals emphasize clear linkages between gender equality, poverty alleviation, biodiversity conservation and sustainable development. Such insights should be included into our outlook and approach for reversing biodiversity loss, reducing poverty and improving human well-being.

UNEP

Convention on Biological Diversity

www.cbd.int/gender

United Nations Decade on Biodiversity

Fast Facts

- Exposing and understanding gender-differentiated biodiversity practices and knowledge of women and men enhances biodiversity conservation
- Biodiversity conservation efforts become more effective and efficient when women and vulnerable groups are empowered to participate as equals in: information sharing and generation, education and training, technology transfer, organizational development, financial assistance, policy development
- The tenth Conference of the Parties (COP-10) through decision X/19: (i) emphasized the importance of gender mainstreaming in all programmes of work under the Convention in order to achieve the objectives of the Convention and its Strategic Plan for the period 2011–2020 and the Aichi Biodiversity Targets
- 25 out of 47 decisions from COP-10 call for the mainstreaming of gender and/or the full participation of women
- The first coordination meeting on gender mainstreaming in the Rio Conventions and the GEF was held in March 2011
- Financial and technical support to date:
  - Government of Finland: €190,000 for the establishment of a full-time Gender Programme Officer, including support to the other Rio Conventions on gender mainstreaming
  - Government of the United Kingdom: £10,000
  - Government of Norway: $25,000
  - HIVOS the Humanist Institute for Development Cooperation, of the Netherlands: $300,000
  - Swiss Development Corporation: $30,000 for women's participation in COP-9
  - The International Union for Conservation of Nature through the Office of the Global Senior Gender Advisor secured funding for the elaboration of the CBD Gender Plan of Action and continues to give technical support, advise and resource mobilization to the Secretariat including the elaboration of the Guidelines for Mainstreaming Gender into the National Biodiversity Strategies and Action Plans

Learn More

Gender and the Environment ▸ www.unep.org/gender_env

Facts from the UN Millennium Development Goals Report 2008
▸ www.millenniumpromise.org/site/DocServer/MDG_FastFacts.pdf

Gender and Women's empowerment ▸ www.unwomen.org

IUCN, the International Union for Conservation of Nature
▸ www.genderandenvironment.org

Women's Environment and Development Organization ▸ www.wedo.org

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int/gender

United Nations Decade on Biodiversity

Living in harmony with nature

Global Strategy for Plant Conservation

Plants are a vital part of biodiversity. In addition to the relatively small number of crop plants that we rely on for food and fibres, many thousands of wild plants have great economic and cultural importance—providing food, medicine, fuel, clothing and shelter for all human beings.

Many plant species are in danger of extinction, threatened by habitat transformation, overexploitation, invasive alien species, pollution and climate change. The disappearance of such vital components of biodiversity is one of the greatest threats facing humans.

The Global Strategy for Plant Conservation (GSPC) aims to halt the loss of plant diversity, contribute to poverty reduction and sustainable development, and promote the sharing of the benefits arising from the use of plant genetic resources. The GSPC facilitates cooperation at all levels—local, national, regional and global—to understand, conserve and to sustainably use the world's immense wealth of plant diversity while promoting awareness and building the necessary tools for its implementation.

Fully applying the GSPC will have many positive consequences. Societies around the world will better understand the importance of plants, and they will use them in a more sustainable manner. People will continue to be able to rely upon plants for food, clean water, medicines and other vital ecosystem services, including climate regulation. The benefits from the use of plants will be shared, which in turn will improve human well-being and help to preserve the knowledge and traditions of indigenous and local communities.

UNEP

Convention on Biological Diversity

www.cbd.int/gspc

United Nations Decade on Biodiversity

Fast Facts

- There are more than 300,000 known plant species on Earth
- Plants are the foundation of all food chains
- Compounds from plant species are the basis of 50% of modern prescription medicines
- Many plants contain elements that can cure human diseases, but not all have been discovered
- 80% of the world's people rely on traditional, plant-based medicine
- Medicinal plants are widely used throughout the developing world, as in Ghana, where 60% of childhood malarial fevers are first treated with traditional, plant-based medicines
- An appetite suppressant derived and developed from species of succulent plants in Southern Africa (*Hoodia* spp.) is used by the San people to stave off hunger and thirst
- Plant species and soils in water-related ecosystems such as forests and wetlands play a crucial role in water retention and purification
- About 34,000 plant species are currently in danger of extinction

Learn More

The UNEP World Conservation Monitoring Centre (UNEP-WCMC) ▸ www.unep-wcmc.org

The Plant Conservation Report ▸ www.cbd.int/doc/reports/gspc-report-draft-en.pdf

Global Partnership for Plant Conservation ▸ www.plants2010.org

Botanic Gardens Conservation International ▸ www.bgci.org

Bioversity International ▸ www.bioversityinternational.org

Convention on International Trade in Endangered Species of Wild Faunas and Flora ▸ www.cites.org

COP Decisions ▸ www.cbd.int/gspc/decisions.shtml

COP Decision VI/9 on the Global Strategy for Plant Conservation ▸ www.cbd.int/decision/cop/?id=7183

Flexible Coordination Mechanism ▸ www.cbd.int/gspc/coordination.shtml

Food and Agriculture Organization of the United Nations (FAO) ▸ www.fao.org

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Health and Biodiversity

We rely on biodiversity to stay healthy. Biodiversity sustains our food supply, is a source of medicines, and supports the provision of clean air and fresh water while also contributing to economic development, cultural and spiritual enrichment. It is now also widely recognized that biodiversity is affected by climate change, with negative consequences for human well-being, but biodiversity, through the ecosystem services it supports, also makes an important contribution to both climate change mitigation and adaptation. As all people require freedom from illness as well as social, emotional, physical, spiritual and cultural well-being, we cannot have healthy societies without biodiversity.

Changes to biodiversity can have severe and unpredictable effects on the health of all living things, including people. Clearing new land, for example, can bring people into closer contact with wildlife that may transmit their diseases to humans and also promote the spread of disease from humans to animals. It may also reduce populations of predators that hold disease-carrying organisms in check. In addition, clearing of land may bring about the loss of plants and other organisms useful in medical research or that may contain substances used as medicines.

People in developing countries face particularly heavy health burdens from a loss of biodiversity, with impacts on food supply and quality, medicines, and cultural and religious values. It has been estimated that approximately 80% of the world's population from developing countries rely mainly on traditional medicines derived from plants and that 25% of prescriptions dispensed in United States pharmacies contained plant extracts or active ingredients derived from plants. Also, as the number of crop varieties has shrunk in the past 50 years, with 90% of the world's calories coming from a dozen crops, people's diets have been simplified and nutritional diseases have arisen in part as a result. Obesity and diabetes, as well as many other emerging plagues such as mental health ailments, including depression, can all in part be connected to biodiversity loss.

Biodiversity loss affects all species in the web of life, including humans, and the vital ecosystems that they support. Where we can improve upon our understanding of how biodiversity loss affects health, we can make clearer what is at stake for ourselves and all life when we lose species and ecosystems. We thus become better equipped to plan our development projects and societies in the healthiest possible way.

The continuing efforts to protect, restore and understand local and global biodiversity will have both immediate and long-term benefits for human and ecosystem health.

UNEP

Convention on Biological Diversity

www.cbd.int

United Nations Decade on Biodiversity

Here's how you can help:

1. Know where your food comes from and purchase locally harvested fresh fruits and vegetables as much as possible. Reduce your consumption of meats. This will benefit your health and the planet's.
2. Walk if you can, take public transport when possible, and use your car as little as possible.
3. Do an energy audit of your home and figure out how you can make it more energy efficient, and at the same time save money.

Fast Facts

- Paclitaxel, used in treating breast, ovarian, and other cancers, comes from the Pacific Yew tree (*Taxus brevifolia*)
- Each year at least three million children under the age of five die due to environment-related diseases
- Artemisinin, from the sweet wormwood plant, is one of the most effective anti-malarial drugs
- Schistosomiasis, a parasitic disease afflicting over 200 million people annually, is carried by freshwater snails. Overfishing may reduce populations of snail predators, resulting in a greater risk of human schistosomiasis. Deforestation in the tropics tends to favour snails that carry schistosomiasis and mosquitoes that carry malaria
- A third of the world's hundred largest cities rely on forest protected areas for a substantial proportion of their drinking water supply (Running Pure: The importance of forest protected areas to drinking water, 2003 by Nigel Dudley and Sue Stolton (Eds.), A research report for the World Bank / WWF Alliance for Forest Conservation and Sustainable Use)
- Nature can contribute to disease prevention as it has positive effects on blood pressure, cholesterol, outlook on life and stress-reduction (Healthy Parks Healthy People, The Health Benefits of Contact with Nature in Park Context, 2008 by School of Health and Social Development, Faculty of Health, Medicine, Nursing and Behavioural Sciences, Deakin University, Melbourne, Australia)
- Overweight and obesity are now on the rise in low- and middle-income countries, particularly in urban settings. In 2010, around 43 million children under five were overweight. Supportive environments and communities are fundamental, as well as healthier choice of foods and regular physical activity

Learn More

The Center for Health and the Global Environment at Harvard Medical School ▸ http://chge.med.harvard.edu

The Consortium for Conservation Medicine ▸ www.conservationmedicine.org/index.htm

Food and Agriculture Organization of the United Nations, Natural Resources and Environment ▸ www.fao.org/nr

Global Environmental Change and Human Health ▸ www.gechh.unu.edu/index.html

United Nations University Institute for Water, Environment and Health ▸ www.inweh.unu.edu/index.html

The World Health Organization ▸ www.who.int

This fact sheet is based on the book Sustaining Life: How Human Health Depends on Biodiversity (E. Chivian and A. Bernstein, editors), Oxford University Press, New York, NY 2008 and the World Health Organization website, unless cited otherwise.

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Impact Assessment

When an individual, private company or public organization plans a project there is much to consider. Services provided by natural ecosystems are often costly to replace, and sometimes irreplaceable. For example, to convert a forested area to agriculture means cutting down trees. This can lead to soil erosion, flooding, release of carbon, loss of habitat and other problems. Repairing the damages could prove costly for society if the project is poorly planned and unsustainable in the long term.

To plan a project correctly you need an Environmental Impact Assessment (EIA) to minimize unnecessary impacts on the environment resulting from human activities. Implemented by making changes to project or activity plans, or if necessary, by preventing a project from going ahead, EIAs help ensure that planned projects are effective, safe, economical, socially beneficial and environmentally sustainable.

Just as those undertaking projects need to be aware of the potential impacts of their actions, decision makers need to be aware of any consequences of their policies before spending public funds that may negatively impact people and the environment. One approach is to use the Strategic Environmental Assessment (SEA), which incorporates environmental issues into policies, plans and programmes.

National, regional and international legislation and policies on EIA and SEA are at different stages of development. The Convention addresses impact assessment and aims to minimize negative impacts on biodiversity. It calls for Environmental Impact Assessment of proposed projects, for assessing the consequences of programmes and policies through SEA, and to collaborate with other countries, in developing areas beyond national jurisdiction, to prevent or minimize potential biodiversity loss.

UNEP

Convention on Biological Diversity

www.cbd.int/impact

United Nations Decade on Biodiversity

Fast Facts

- Impact assessment legislation is designed to minimize negative impacts on the environment
- Most countries have impact assessment legislation, but some are still limited when it comes to addressing biodiversity issues
- Many countries have national mechanisms for emergency response to imminent danger to the environment
- The Conference of the Parties examines the issue of liability and redress, including restoration and compensation for damage to biodiversity
- Loss of ecosystem services caused by environmental degradation jeopardizes development options
- Of 24 ecosystem services evaluated globally, 15 are degraded and four have been enhanced
- Biodiversity loss and environmental degradation can be the main factors causing poverty and social conflicts, and are likely to become much worse over the next 50 years if nothing changes

Learn More

Article 14.1 of the CBD ▸ www.cbd.int/convention/articles.shtml?a=cbd-14

Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment ▸ www.cbd.int/doc/publications/cbd-ts-26-en.pdf

International Association for Impact Assessment (IAIA) ▸ www.iaia.org

The Organisation for Economic Co-operation and Development (OECD)/DAC policy ▸ www.oecd.org/document/59/0,3343,en_2649_33721_35423803_1_1_1_1,00.html

Convention on Environmental Impact Assessment in a Transboundary Context ▸ www.unece.org/env/eia/eia.htm

United Nations Convention on the Law of the Sea ▸ www.un.org/Depts/los/index.htm

European Union Directives on Environmental Impact Assessment ▸ http://ec.europa.eu/environment/eia/home.htm

Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources ▸ http://untreaty.un.org/English/UNEP/landbased_english.pdf

Legislation and procedure on environmental impact assessment (EIA) and strategic environmental assessment (SEA) ▸ www.unep.ch/etu/publications/textONUBr.pdf

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

International Day for Biological Diversity—22 May

The United Nations proclaimed 22 May the International Day for Biological Diversity (IDB) to increase understanding and awareness of biodiversity issues. On this day, governments and citizens from around the world take time to discover the biodiversity that surrounds them, and celebrate some of the successful activities that support biodiversity conservation and sustainable use. IDB is part of the Programme of Work on Communication, Education and Public Awareness (CEPA).

Every year a different theme is designated by the Secretariat of the Convention on Biological Diversity (CBD). To help highlight the key issues pertinent to the given theme, the Secretariat publishes outreach materials and encourages all Parties and relevant partners to use these free resources as a means of promoting awareness of these crucial issues.

Past, present and future International Days for Biological Diversity:

2012—Marine and Coastal Biodiversity
2011—Forest Biodiversity
2010—Biodiversity, Development and Poverty Alleviation
2009—Invasive Alien Species
2008—Biodiversity and Agriculture
2007—Biodiversity and Climate Change
2006—Protect Biodiversity in Drylands
2005—Biodiversity: Life Insurance for our Changing World
2004—Biodiversity: Food, Water and Health for All
2003—Biodiversity and Poverty Alleviation—Challenges for Sustainable Development
2002—Forest Biodiversity

UNEP

Convention on Biological Diversity

www.cbd.int/idb

United Nations Decade on Biodiversity

The Green Wave

THE GREEN WAVE
One school, one tree, one gift to nature

A global project coordinated by the CBD Secretariat to promote biodiversity education and awareness among children and youth, *The Green Wave* supports national, international and global tree planting initiatives such as the UNEP-led Billion Tree Campaign. Each year on 22 May participants plant a tree at 10:00 am local time, creating a 'green wave' starting in the far east and travelling west around the world. Throughout the day, students upload photos and text to *The Green Wave* website to share their stories. An interactive map goes live at 20:10 local time, creating a second, virtual, green wave.

From some 40 celebrations in 2008, *The Green Wave* brought together about 600 groups of children and youth from schools and clubs in 73 countries in 2009 and over 2500 groups from 75 countries in 2010, for a total of hundreds of thousands of participants. Over the years, *The Green Wave* has built strong partnerships with, for example, the Small Grants Programme of the Global Environment Facility, several local and national governments, NGOs, businesses and youth organizations. In 2010, Jean Lemire, Canadian yachtsman, biologist and filmmaker, was named Ambassador for *The Green Wave*.

What can I do?

- Learn about biodiversity and environmental issues in your area and in your country. You need to know before you can act. The internet is full of ideas and 'green practices', or ask your local environmental organisation
- Volunteer in environmental actions, safeguarding biodiversity starts with you and your community
- Participate in activities on the IDB—support conservation efforts, or join in celebrations organised by local or national governments
- Organise your own activities
- Organise tours of an area for protection
- Develop learning modules and materials about species
- Promote sustainable agriculture or sustainable consumption

Learn More

The Green Wave ▸ http://greenwave.cbd.int

United Nations Decade on Biodiversity ▸ www.cbd.int/2011-2020

United Nations Decade on Biodiversity on Facebook
▸ www.facebook.com/UNBiodiversity

Communication, Education and Public Awareness ▸ www.cbd.int/cepa

List of environmental dates (Wikipedia)
▸ http://en.wikipedia.org/wiki/List_of_environmental_dates

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Invasive Alien Species

Invasive alien species have devastating impacts on native biota, causing decline or even extinctions of native species, and negatively affecting ecosystems. Invasive alien species are animals, plants, fungi and microorganisms entered and established in the environment from outside of their natural habitat. They reproduce rapidly, out-compete native species for food, water and space, and are one of the main causes of global biodiversity loss. Species are often introduced deliberately, through for example, fish farming, pet trade, horticulture, biocontrol; or unintentionally, through such means as land and water transportation, travel, and scientific research.

The global economy, with increased transport of goods and travels, has facilitated the movement of live species over long distances and beyond natural boundaries. While only a small percentage of transported organisms become invasive, they have a tremendous impact on the health of plants, animals and even humans—threatening lives and affecting food security and ecosystem health. Their negative impact on the economy costs countries billions of dollars in losses to agricultural production and some trillion dollars of environmental cost worldwide annually. Once established, eradication is the most desirable solution, but it can be very expensive to do. Prevention is still the best answer.

The negative effects of invasive alien species on biodiversity can be intensified by climate change, habitat destruction and pollution. Isolated ecosystems such as islands are particularly affected. Loss of biodiversity will have major consequences on human well-being. This includes the decline of food diversity, leading to malnutrition, famine and disease, especially in developing countries. It will also have an important impact on our economy and culture.

The issue of invasive alien species is caused by human activities associated with international movement, but measures have to be taken at national and local levels. International cooperation can assist it. Prevention is the first step, but where the damage has been done, it can still be reversed if we all work together.

UNEP

Convention on Biological Diversity

www.cbd.int/invasive

United Nations Decade on Biodiversity

Fast Facts

- Invasive alien species have since the 17th century contributed to nearly 40% of all animal extinctions for which the cause is known
- Annual environmental losses caused by introduced pests in the United States, United Kingdom, Australia, South Africa, India and Brazil have been calculated at over US$ 100 billion
- Chytridiomycosis caused by the fungus *Batrachochytrium dendrobatidis*, pushed populations of amphibian species to decline and even go extinct in western North America, Central America, South America, eastern Australia, and Dominica and Montserrat in the Caribbean. The fungus caused sporadic deaths in some amphibian populations, with 100% mortality in others
- 80% of the threatened species in the Fynbos biome of South Africa are endangered due to invasions by alien species
- Invasive alien species can transform the structure and species composition of ecosystems by dominating the ecosystems and repressing or excluding native species
- Because invasive species are often one of a whole suite of factors affecting particular sites or ecosystems, it is not always easy to determine the proportion of their impact
- Major pathways of invasive alien species in aquatic environment are hull fouling and the release of ballast water from ships. Live bait for recreation fishing, escapes and releases from aquaculture or aquariums, are also serious problems

Learn More

International Plant Protection Convention ▸ www.ippc.int

Global Invasive Species Programme ▸ www.gisp.org

IUCN's Invasive Species Specialist Group ▸ www.issg.org

The Nature Conservancy ▸ www.nature.org/initiatives/invasivespecies

CAB International ▸ www.cabi.org

Global Invasive Species Database (GISD) of ISSG ▸ www.issg.org/database/welcome

World Organisation for Animal Health ▸ www.oie.org

Globallast Partnership ▸ http://globallast.imo.org

CITES ▸ www.cites.org

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int/invasive

United Nations Decade on Biodiversity

Living in harmony with nature

National Reports

How is biodiversity doing in your country? What is your country doing for biodiversity? How effective are these actions in protecting and sustaining our biodiversity? Your country's national report may provide answers to all these questions.

Countries have much to gain by writing national reports. These documents show the current status of biodiversity and implementation of the Convention on Biological Diversity at the national level, and they identify what else needs to be done. National reports are available to the public. Anyone can access them on the Convention website, on the National Clearing House Mechanism for Biodiversity, or on relevant national government websites. You can also help report on biodiversity by getting involved in the process through public consultations.

National reports are an important communication tool for increasing public awareness, conveying the urgency of the situation, and for taking action and mobilizing support from all sectors of society. They're also very useful to intergovernmental agencies, NGOs and scientists while designing and implementing strategies and programmes to assist governments addressing biodiversity issues.

The fifth national reports provide countries an opportunity to undertake a mid-term review of progress in the implementation of the Strategic Plan for Biodiversity 2011–2020 and in achieving relevant goals and targets of the Millennium Development Goals. So the information from the fifth national report is essential to the successes of the Strategic Plan and the Convention as a mid-term review and decisions to be made on that basis will boost their implementation. As a communication tool, the fifth national report is also crucial for the United Nations Decade on Biodiversity.

UNEP

Convention on Biological Diversity

www.cbd.int/reports

United Nations Decade on Biodiversity

Fast Facts

- National reports show the status of biodiversity and actions taken in a given country, and give recommendations for further actions to prevent biodiversity loss
- National reports are public and accessible to all
- You can get involved in the national reporting process through public consultations
- National reports enhance biodiversity planning and actions
- National reports facilitate international cooperation
- Countries are encouraged to use reports as a communication tool
- 150 countries produced their first national report, which covered their country's biodiversity studies and national biodiversity planning
- 130 and 145 countries sent their second and third national reports respectively, responding to questions on the implementation of the CBD
- To date (as of 24 February 2011), the Secretariat of the CBD has received 172 fourth national reports. In the fourth national report, countries provide an assessment of implementation of national biodiversity strategies and action plans and progress towards the 2010 Biodiversity Target and the implementation of the Strategic Plan of the CBD (2002–2010)

Learn More

1st, 2nd, 3rd, 4th and 5th National Reports ▸ www.cbd.int/reports

Article 26 of the Convention on Biological Diversity
▸ www.cbd.int/convention/articles.shtml?a=cbd-26

Working Group on Review of Implementation
▸ www.cbd.int/recommendation/wgri/?id=11478

COP Decisions II/17, IV/14, V/19, VI/25, VII/25, VIII/14, X/10
▸ www.cbd.int/decisions/cop

The 2010 Biodiversity Target ▸ www.cbd.int/2010-target

The Strategic Plan for Biodiversity 2011–2020 ▸ www.cbd.int/sp

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Protected Areas

A Protected Area is a clearly defined geographical space, recognized, dedicated and managed through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.

The establishment of comprehensive, ecologically representative, effectively managed and financially secured protected area networks is a critical strategy not only for biodiversity conservation, but for securing ecosystem goods and services, enabling climate change adaptation and mitigation, and helping countries achieve the Millennium Development Goals.

Recognizing these critical roles of protected areas, the Parties to the Convention on Biological Diversity (CBD) in February 2004 committed to a comprehensive and specific set of actions known as the Programme of Work on Protected Areas (PoWPA).

By emphasizing the equitable sharing of costs and benefits, recognizing various governance types and by giving prominence to ecological representation, management effectiveness and multiple benefits, the PoWPA is the most comprehensive global plan of action for effective implementation of protected areas and is considered as a defining framework or 'blueprint' for protected areas for the next decades.

CBD Parties have hailed PoWPA as the most implemented of CBD programmes and a successful initiative. The world's protected areas have increased by nearly 60%, both in number and in area, since the CBD came into force in 1993.

UNEP

Convention on Biological Diversity

www.cbd.int/protected

United Nations Decade on Biodiversity

Fast Facts

- Over 120,000 designated protected areas cover about 12.9% of the Earth's land surface
- Marine protected areas cover 6.3% of territorial seas and 0.5% of the high seas
- Well-managed protected areas can provide vital ecosystem services, such as water purification and retention, erosion control, and can reduce flooding and unnatural wild fires
- Protected areas buffer human communities against different environmental risks and hazards and support food and health security by maintaining crop diversity and species with economic and/or subsistence value
- Protected areas play an important role in ecosystem-based approaches to climate change adaptation and contribute to mitigation by storing and sequestering carbon
- Protected areas are often an important part of local cultural heritage and identity, in addition to their recreation, education, health and tourism benefits to millions of people worldwide
- As many rural communities depend on protected forests, pastures, wetlands and marine areas for subsistence and livelihoods, protected areas contribute directly to the global agenda for sustainable development, poverty reduction and maintaining cultures
- As many existing and proposed protected areas, particularly in developing countries, overlap with areas of high rural poverty, they increasingly feature in national poverty reduction programme strategies as potential sources of economic development that can contribute to human well-being and poverty reduction (subsistence, cultural and spiritual, environmental services, political)

Learn More

World Database on Protected Areas ▸ www.wdpa.org

IUCN-World Commission on Protected Areas
▸ www.iucn.org/about/union/commissions/wcpa

UNESCO World Heritage Sites ▸ http://whc.unesco.org/en/list

UNESCO—The Man and the Biosphere Programme
▸ www.unesco.org/mabdb/bios1-2.htm

LifeWeb Initiative ▸ www.cbd.int/lifeweb

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

The CBD LifeWeb Initiative

LifeWeb
Partnerships for financing protected areas

The Convention on Biological Diversity's LifeWeb Initiative strengthens financing for protected areas to sustain biodiversity, secure livelihoods and address climate change, through implementation of the CBD Programme of Work on Protected Areas.

LifeWeb provides value-added to international development cooperation by:

1. Enabling recipient countries to profile their financing priorities to multiple donor partners
2. Assisting donors to access information about recipient countries' financial priorities and coordinating counterpart funding opportunities with others
3. Providing global recognition of financial commitment and progress in implementing relevant international commitments.

The range of services to protected area donors and recipient partners include:

- Easy to use website clearing-house
- Assistance with establishing partnerships that meet the needs of donors and recipients
- Co-hosting financing round table processes at regional/national level to mobilize funding
- Coordinating media, communications and high-profile events to promote and encourage successful partnerships.

Well managed protected areas act as cornerstones of biodiversity conservation and provide vital ecosystem services on which we rely for human well-being. The need for increased financial resources to support protected areas is recognized by the decisions of the Parties to the Convention on Biological Diversity and support is increasing from Parties, public donors and private foundations. Adequate funding for the creation and management of the global network of protected areas not only protects ecosystem services, but it also safeguards the future of the planet's biodiversity and provides demonstrably significant return on investments.

UNEP

Convention on Biological Diversity

www.cbd.int/lifeweb

United Nations Decade on Biodiversity

Fast Facts

- Healthy ecosystems within protected areas deliver $100 worth of ecosystem services, such as freshwater and food security, for every $1 invested in management to maintain and increase the provision of these services
- Protected coral reef ecosystems contribute the equivalent of US$9 billion per year in coastal protection around the world
- Nearly 1.1 billion people worldwide depend on forest-protected areas for their livelihoods
- A review of 112 studies in 80 marine protected areas found that fish populations, size and biomass all dramatically increased inside fishing reserves, resulting in more and bigger fish in nearby areas, which have led to greater protein intake and an improvement in children's health in many fishing communities in and around marine protected areas
- About a third (33 out of 105) of the world's largest cities obtain a significant amount of their drinking water directly from protected areas
- 20% to 25% of global greenhouse gas emissions result from the conversion of forests and other ecosystems
- Three different wild peanuts have been used to breed commercial varieties resistant to root knot nematodes, helping to save growers around the world an estimated $100 million a year

Learn More

The Value of Nature: Ecological, Economic, Cultural and Social Benefits of Protected Areas, SCBD, 2008 ▸ www.cbd.int/doc/publications/cbd-value-nature-en.pdf

The Economics of Ecosystems and Biodiversity for National and International Policy Makers, 2009 ▸ www.preventionweb.net/files/11753_UNEP.pdf

Rio Conventions' Ecosystems and Climate Change Pavilion ▸ www.ecosystemspavilion.org

World Database on Protected Areas ▸ www.wdpa.org

IUCN-World Commission on Protected Areas ▸ www.iucn.org/about/union/commissions/wcpa

Terra Viva Grants Directory ▸ www.terravivagrants.org

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Sustainable Use of Biodiversity

To use biodiversity in a sustainable manner means to use natural resources at a rate that the Earth can renew them. It's a way to ensure that we meet the needs of both present and future generations.

As the human population increases, so does the pressure on ecosystems, since we draw ever more resources from them. Our ecological footprint on the planet is unsustainable and will become unbearable unless we change our consumption patterns and our behaviour in general. In the past, humans have adapted to changing conditions by increasing productivity, but now we have reached the limits of the Earth's capacity.

Today our only option is to manage productivity and resources in a sustainable manner, reducing waste wherever possible, using the principles of adaptive management, and taking into account traditional knowledge which contributes to the maintenance of ecosystem services.

Within the Convention on Biological Diversity (CBD), sustainable use principles are applied to the sectors that most affect biodiversity, such as agriculture, forestry, fisheries, tourism, and water management. In 2004, CBD Parties adopted the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity, a set of 14 principles that apply to all activities and areas. In 2010 these principles were reaffirmed and their implementation assessed through an in-depth review.

By adopting the CBD, governments commit themselves to integrate conservation and sustainable use into their policies at the national level. By minimizing biodiversity loss and helping local populations restore degraded areas, together we can make this a new era of environmentally-sound economic development.

UNEP

Convention on Biological Diversity

www.cbd.int/sustainable

United Nations Decade on Biodiversity

Fast Facts

- Despite the fact that sustainable use of biodiversity is widely included in national biodiversity strategies, unsustainable use and overexploitation remain major threats to biodiversity in several sectors, including fisheries, agriculture, and forestry
- Sustainable activities can be applied in many sectors, including: organic farming, environmental impact assessments, certification and eco-labelling, quotas for fisheries, not using large nets, management of protected areas, reduction of bush fires, sustainable tourism
- As human population increases, the demand for fish is expected to grow, especially in developing countries
- The 2010 Living Planet Report reveals that humanity's Ecological Footprint has more than doubled since 1966. In 2007, the most recent year for which data are available, humanity used the equivalent of 1.5 planets to support its activities (www.footprintnetwork.org)
- Mangroves protect coastlines from erosion, protect coral reefs from siltation and act as nurseries for a variety of fish and shellfish. The major causes of mangrove decline are conversion to aquaculture, agriculture, and urban, residential and tourism development
- About 300 million people depend on forests directly for their survival, including 60 million people of indigenous and tribal groups, who are almost completely dependent on forests
- Illegal logging and illegal harvesting of forest products are a serious problem, costing an estimated US$15 billion per year. Rare tree species and those with high value for timber or non-timber forest products are in danger of becoming locally extinct

Learn More

The Addis Ababa Principles and guidelines for the Sustainable Use of Biodiversity
▸ www.cbd.int/sustainable/addis.shtml

Article 10 of the Convention on Biological Diversity
▸ www.cbd.int/decision/cop/?id=7749

COP decision VI/13 on sustainable use ▸ www.cbd.int/decision/cop/?id=7187

COP decision V/24 on sustainable use as a cross-cutting issue
▸ www.cbd.int/decision/cop/?id=7166

COP decision VIII/21 on marine and coastal biological diversity: conservation and sustainable use of deep seabed genetic resources beyond the limits of national jurisdiction ▸ www.cbd.int/decision/cop/?id=11035

COP decision X/32 on sustainable use of biodiversity
▸ www.cbd.int/decision/cop/?id=12298

Desertification ▸ www.greenfacts.org/en/biodiversity/l-2/4-causes-desertification.htm

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Technology Transfer and Technological and Scientific Cooperation

There is international consensus that the development, transfer, adaptation and diffusion of technology and the building of related capacity are crucial for achieving sustainable development. This is reflected in key international policy documents such as the Rio Declaration on Environment and Development, Agenda 21 and the Johannesburg Plan of Implementation of the World Summit on Sustainable Development.

Access to, and transfer of, relevant technology is essential for attaining the three objectives of the Convention. Parties are called upon to share information and cooperate in technology development and transfer amongst each other and with the private sector, indigenous and local communities, research institutions and NGOs. All should facilitate access to, and transfer of, eco-friendly technologies that help conserve and sustainably use biodiversity.

Important technologies include techniques for *in situ* as well as *ex situ* conservation. Other significant technologies relate to the sustainable management of biodiversity resources. Moreover, many monitoring technologies are essential for getting accurate biodiversity information, which in turn is crucial for the design and implementation of effective policies.

Modern biotechnologies whose development is based on genetic resources are also important. Countries should facilitate access to the results of their research and share the benefits arising from these modern biotechnologies with the countries that provided the genetic resources.

The Convention shows the way to constructive and fruitful partnerships in scientific and technological cooperation through four key elements: technology assessments; strengthening of information systems at national, regional and international levels; establishment of enabling conditions for technological cooperation and technology transfer, both on the providing and on the receiving end; and capacity building. The Convention has developed a strategy for the practical implementation of relevant activities, with further conceptual work ongoing whether and how to best support implementation by Parties in the form of a Biodiversity Technology Initiative.

UNEP

Convention on Biological Diversity

www.cbd.int/tech-transfer

United Nations Decade on Biodiversity

Fast Facts

- Implementation of this programme of work contributes to reaching the Millennium Development Goals: to ensure environmental sustainability and to eradicate extreme poverty and hunger by 2015
- The development, transfer, adaptation and diffusion of environmentally-sound technology is essential for achieving sustainable development
- Technological cooperation and sharing of technology will help reduce the current rate of biodiversity loss
- Everyone should facilitate access to eco-friendly technologies that help conserve and sustainably use biodiversity

Learn More

CBD Articles 16, 17, 18 and 19 address technology transfer and cooperation; Article 12 addresses training and research activities; Article 16 sets out the basic obligation of all Parties regarding access to, and transfer of, technology and establishes several conditions regarding technology transfer; all Articles of the Convention can be accessed at ▸ www.cbd.int/convention/convention.shtml

The Rio Declaration on Environment and Development
▸ www.unep.org/Documents.Multilingual/Default.asp?documentID=78&articleID=1163

Agenda 21 ▸ www.un.org/esa/dsd/agenda21/res_agenda21_00.shtml

The Johannesburg Plan of Implementation of the World Summit on Sustainable Development (WSSD)
▸ www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf

The Strategy for the Practical Implementation of the CBD Programme of Work on Technology Transfer and Scientific and Technological Cooperation
▸ www.cbd.int/tech-transfer/ahtegtechnologycooperation.shtml

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Biodiversity and Tourism

Tourists are attracted by natural landscapes which harbour significant biodiversity. Tourists in coastal areas enjoy swimming in clean waters among the fish and coral reefs, and watching whales and seabirds. Others go on safaris to watch wildlife. All these activities require intact and healthy ecosystems. National parks rely on functioning ecosystems to provide visitors recreation, education, culture and fun.

Tourism is one of the fastest growing industries and can be a sustainable alternative to economic activities that would be damaging to biodiversity. It can be a sustainable alternative to more damaging industries. The money that tourists spend can serve nature, society and culture in the form of protected areas and other attractions. Sustainable tourism can also make communities proud of maintaining and sharing their traditions, knowledge and art, which contribute to the sustainable use of local biodiversity.

Tourism can have a variety of negative impacts on biodiversity, particularly when there is inadequate management. Irresponsible and unsustainable tourism can damage nature through habitat destruction, overexploitation of local resources, waste and pollution, invasive alien species, infrastructure development, and greenhouse gas emissions. Tourists expect a clean environment and they will not return to polluted or degraded destinations, which will cause economic losses.

Travellers, the tourism industry, governments and investors all have an interest in the conservation and sustainable use of resources. Biodiversity keeps tourism going, not to mention that it meets our most basic needs by supplying food, drinking water and medicines. Sustainable tourism is in everybody's interest.

UNEP

Convention on Biological Diversity

www.cbd.int/tourism

United Nations Decade on Biodiversity

Fast Facts

- Tourism contributes about 8% of global GDP, and one in 12 jobs worldwide
- In 2009, global international tourist arrivals fell to 880 million, compared with 920 million in 2008. In spite of the economic crisis of 2008, there is no change in long-term growth projections of the UNWTO, the World Tourism Organization, however one thing is clear: we cannot go back to business as usual
- 46% of the workforce in tourism are women, as their percentages of employment in most countries are higher than in the workforce in general (34–40% are women, ILO data)
- Carbon dioxide emissions from tourism account for approximately 5% of total global emissions, a problem compounded by the unpredictable nature of emissions in the higher atmosphere
- The CBD Indigenous Tourism and Biodiversity Website Award (ITBW Award) is presented annually to two winners. To participate see: http://planeta.wikispaces.com/itbw
- The Workshop Series on Indigenous Communities, Tourism and Biodiversity aims to support the management of biodiversity-friendly tourism activities, the web-based capacity of ILC tourism operators, and the marketing of the culturally and biologically sustainable aspects of ILC tourism products

Learn More

Guidelines on Biodiversity and Tourism Development
▸ www.cbd.int/doc/publications/tou-gdl-en.pdf

Managing Tourism & Biodiversity: User's Manual on the CBD Guidelines on Biodiversity and Tourism Development ▸ www.cbd.int/tourism/guidelines.shtml

The Workshop Series on Indigenous Communities, Tourism and Biodiversity
▸ www.cbd.int/doc/?meeting=WSTOURIDG-02

The Indigenous Tourism and Biodiversity Website (ITBW) Award
▸ www.cbd.int/tourism/Award.shtml

Biodiversity and Tourism Network ▸ http://tourism.cbd.int

International Ecotourism Society ▸ www.ecotourism.org

International Institute for Peace through Tourism ▸ www.iipt.org

The Global Sustainable Tourism Criteria ▸ www.SustainableTourismCriteria.org

United Nations World Tourism Organization (UNWTO) ▸ www.unwto.org

UNEP's Tourism and Environment Programme ▸ www.unep.fr/scp/tourism

World Tourism Forum for Peace and Sustainable Development ▸ www.desti-nations.net

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int/tourism

United Nations Decade on Biodiversity

Living in harmony with nature

Traditional Knowledge, Innovation and Practices

Traditional knowledge is the knowledge, innovations and practices of indigenous and local communities around the world. Developed from experience gained over centuries and adapted to the local culture and environment, it is transmitted orally from generation to generation. It tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language, and agricultural practices, including the development of plant species and animal breeds. Sometimes it is referred to as an oral tradition for it is practiced, sung, danced, painted, carved, chanted and performed down through millennia. Traditional knowledge is mainly of a practical nature, particularly in such fields as agriculture, fisheries, health, horticulture, forestry and environmental management in general.

Appreciation of the value of traditional knowledge is growing. This knowledge is valuable not only to those who depend on it in their daily lives, but to modern industry and agriculture as well. Many widely used products, such as plant-based medicines, health products and cosmetics, are derived from traditional knowledge. Other such valuable products include agricultural and non-wood forest products as well as handicraft. Traditional knowledge can make a significant contribution to sustainable development.

Most indigenous and local communities are situated in areas where the vast majority of the world's genetic resources are found. Many of them have cultivated and used biodiversity in a sustainable way for thousands of years. Some of their practices have been proven to enhance and promote biodiversity at the local level and aid in maintaining healthy ecosystems.

However, the contribution of indigenous and local communities to the conservation and sustainable use of biodiversity goes far beyond their role as natural resource managers. Their skills and techniques provide valuable information to the global community and a useful model

UNEP

Convention on Biological Diversity

www.cbd.int/traditional

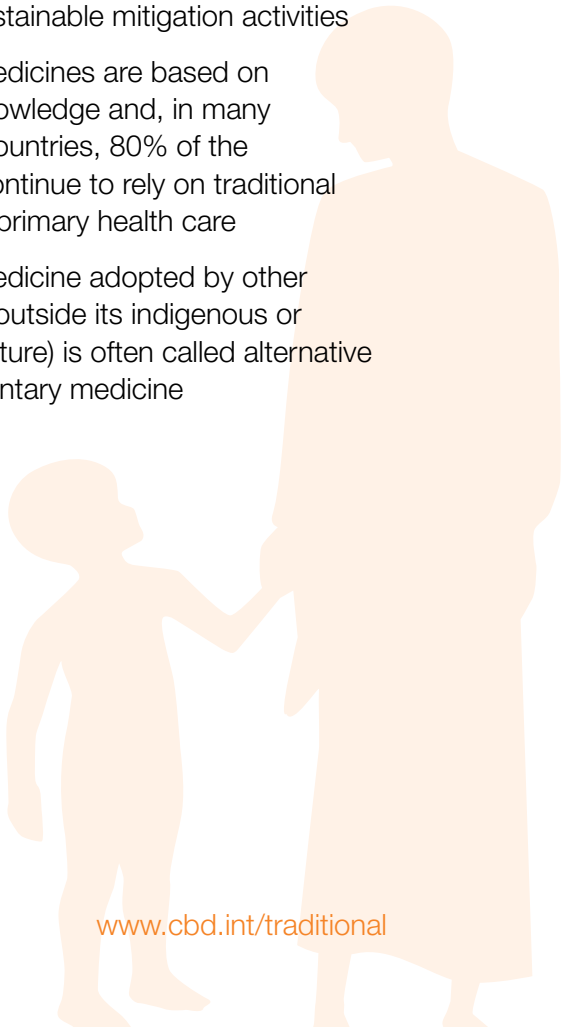
for biodiversity policies. Furthermore, as on-site communities with extensive knowledge of local environments, indigenous and local communities are most directly involved with conservation and sustainable use.

The Parties to the Convention on Biological Diversity recognize the crucial importance of traditional knowledge to the objectives of the Convention and are considering specific laws, policies and programmes to protect and to promote it, and to ensure that indigenous and local communities obtain a fair and equitable share of the benefits arising from the use of their knowledge.

Parties are committed to the effective participation of indigenous and local communities in all matters of relevance to them. To facilitate this process they have established a voluntary fund to assist indigenous and local community representatives to participate in Convention meetings and processes. Additional information, including application forms, is available in the six UN languages at: www.cbd.int/traditional/fund.shtml.

Fast Facts

- Many indigenous and local communities have lived in long term sustainable ways for millennia
- Indigenous and local communities have much to contribute to a world facing serious problems as the result of the unsustainable use of resources
- Traditional knowledge can contribute to solving serious global problems through practices such as local conservation, sustainable use of plants and animals, and addressing issues such as climate change, desertification and water quality
- Because of their close association to their environment and direct reliance on plants and animals, indigenous and local communities are often the first communities impacted by climate change. Their traditional knowledge however, provides a key for successful local level adaptation and advice on sustainable mitigation activities
- Traditional medicines are based on traditional knowledge and, in many developing countries, 80% of the population continue to rely on traditional medicine for primary health care
- Traditional medicine adopted by other populations (outside its indigenous or traditional culture) is often called alternative or complementary medicine



Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Global Biodiversity Outlook

The Global Biodiversity Outlook (GBO) series is a periodic report prepared by the Secretariat of the Convention on Biological Diversity. The third edition of the report was one of the main publications released during the 2010 International Year on Biodiversity. While the target audience for the report is policy makers, it is written to be accessible to the general public. The report is available in all six United Nations languages and Portuguese.

The third edition of Global Biodiversity Outlook (GBO-3) presents the status and trends of biodiversity at global, regional and national levels. It analysed the steps taken by the international community to implement the Convention and to reach the 2010 Biodiversity Target of significantly reducing the current rate of biodiversity loss as a contribution to poverty alleviation and to the benefit of all life on Earth.

The report examines the direct and indirect causes of biodiversity loss and the implications of current biodiversity trends for human well-being in the future. Possible actions, which can be taken to improve the status of biodiversity and to address the obstacles to the implementation of the Convention, are also presented.

The GBO-3 is based on multiple sources of information. Drawing on more than 100 national reports provided by Parties to the Convention, as well as information provided by the Biodiversity Indicators Partnership (BIP) and scientific articles and assessments, the GBO-3 was an important source of information in the development of the Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets.

UNEP

Convention on Biological Diversity

www.cbd.int/gbo

United Nations Decade on Biodiversity

Fast Facts

- Global Biodiversity Outlook 3 provides up-to-date information on the status and trends of biodiversity and the responses to its loss
- GBO-3 provides an assessment of the progress towards meeting the 2010 Biodiversity Target
- GBO-3 identifies obstacles to the implementation of the Convention on Biological Diversity and proposes several possible actions which can be taken to overcome them
- GBO-3 was an important source of information in the development of the Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets
- The findings of GBO-3 were discussed during the 14th meeting of the Subsidiary Body on Scientific, Technical, and Technological Advice (SBSTTA), the tenth meeting of the Conference of the Parties (COP-10) and at the UN General Assembly

Learn More

GBO-3 ▸ www.cbd.int/gbo3

GBO-2 ▸ www.cbd.int/gbo2

GBO-1 ▸ www.cbd.int/gbo1

Conference of the Parties ▸ www.cbd.int/convention/cops.shtml

The Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) ▸ www.cbd.int/sbstta

National reports ▸ www.cbd.int/reports

2010 Biodiversity Target ▸ www.cbd.int/2010-target

Biodiversity Indicators Partnership ▸ www.bipnational.net

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

United Nations Decade on Biodiversity

Living in harmony with nature

Global Taxonomy Initiative

Global Taxonomy Initiative

The science of taxonomy is critical as we advance our understanding of biodiversity and seek informed policy decisions to ensure its sustainable use. Taxonomists provide us with the tools necessary to distinguish between organisms that appear similar but are biologically distinct, and between those that threaten human health and those that can contribute to our well-being. This data is also essential to climate change adaptation and mitigation, the fight against habitat loss, pollution, overexploitation, and avoiding the spread of invasive alien species.

Taxonomists use units called *taxa* as universal identifiers to classify organisms. For example, the term water hyacinth, an invasive aquatic plant, actually refers to the genus *Eichhornia*, of which there are seven species, with such diverse names as 'aguap', 'bekabe kairanga', 'bung el ralm', 'riri vai', and 'water orchid' among others. Nature is intricately complex and scientists believe we have yet to even discover the vast majority of organisms on earth.

Taxonomic information includes: up-to-date taxa, characteristics of each taxon, natural occurrences of each organism, invasive occurrence of each organism, location of the standard specimen of the taxon, images of each organism, DNA sequences of the whole genome or DNA barcoding.

The development of robust taxonomic information systems is essential to addressing environmental challenges. Taxonomy is evolving with technology. Genome sequences and DNA barcoding increasingly broaden the understanding of biodiversity. Taxonomic information is also important to computer simulations used to predict future patterns of biodiversity.

Applications of taxonomic information include: early detection of invasive alien species, identification and monitoring of biodiversity in protected areas, monitoring of biodiversity responses to climate change, predicting the sustainability of biological resources, and raising public awareness of biodiversity.

The **Programme of Work for the Global Taxonomy Initiative** (GTI) provides guidance on how to develop capacity to generate and share taxonomic information for each thematic area and cross-cutting issue under the Convention. Taxonomic capacity-building is crucial to the success of the Convention and Strategic Plan for Biodiversity 2011-2020.

UNEP

Convention on Biological Diversity

www.cbd.int/gti

United Nations Decade on Biodiversity

Fast Facts

- In the past 250 years of research, taxonomists have identified type specimens of approximately 1.78 million animals, plants and micro-organisms.
- The predicted number of species globally has been estimated at 8.7 million eukaryotic species (single-celled or multicellular organisms containing a nucleus), excluding primitive organisms without a nucleus). This total includes some ~2.2 million marine species.[1]
- In spite of 250 years of taxonomic classification and over 1.2 million species already catalogued in a central database, some 86% of existing species on Earth and 91% of species in the ocean still await description.[1]
- There are no more than approximately 20,000-30,000 people with taxonomic qualifications worldwide, of which between 5,000 and 7,000 are professionals.[2]

[1] Mora C, Tittensor DP, Adl S, Simpson AGB, Worm B, 2011 How Many Species Are There on Earth and in the Ocean? PLoS Biol 9(8): e1001127. doi:10.1371/journal.pbio.1001127

[2] www.senckenberg.de/odes/Haas_Haeuser.pdf

Learn More

GTI Programme of Work ▸ www.cbd.int/gti/pow.shtml

COP decisions about the GTI ▸ www.cbd.int/gti/decisions.shtml

The Global Biodiversity Information Facility (GBIF) ▸ www.gbif.org

Encyclopedia of Life ▸ http://eol.org

Census of Marine Life ▸ www.coml.org

Biodiversity Heritage Library Assessment ▸ www.biodiversitylibrary.org

International Barcode of Life ▸ http://ibol.org

BioNET International ▸ www.bionet-intl.org

CONABIO ▸ www.conabio.gob.mx

National Biodiversity Institute - InBIO ▸ www.inbio.ac.cr/en/

South African National Biodiversity Institute (SANBI) ▸ www.sanbi.org

Secretariat of the Convention on Biological Diversity

413, Saint Jacques Street, suite 800
Montreal, Quebec, H2Y 1N9
Canada

Tel.: +1 514 288 2220
Fax: +1 514 288 6588
UNBiodiversity@cbd.int

www.cbd.int/gti