



BIODIVERSITY & ACTIONS FOR CHANGE



PUTTING THE PIECES TOGETHER TO SOLVE
THE BIODIVERSITY PUZZLE

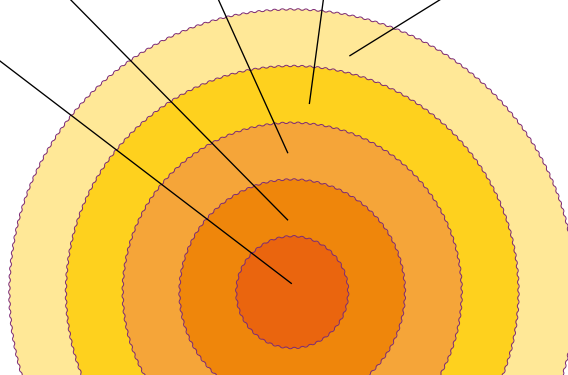
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Claudia Lewis, Plan C Initiative

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As we've seen in earlier chapters, **biodiversity** issues are complex and exist on several scales. Tackling biodiversity issues requires concerted and complementary efforts at the community, sub-national, national, regional and global levels.

HERMIT CRAB.
© Alex Marttunen (age 12)





In the previous chapter we looked at how individuals and groups affect biodiversity. In this chapter we will answer several important questions about the ways in which the world deals with the biodiversity challenge. For example:

- the different ways that biodiversity can be addressed at the international level;
- what actions can be taken at the national level, and how they are linked to grassroots actions;
- why **grassroots actions**, (actions undertaken by individuals or groups not associated with government) are essential to conserving biodiversity;
- how youth can help to bridge actions at the local, national and international levels.

BIODIVERSITY KNOWS **NO BORDERS**

The lines that divide countries on a map have **no meaning to forest trees or roaming wildlife**. These borders only become important when they turn into barriers or obstacles for biodiversity. For example, migratory herds in and around the Serengeti National Park in Tanzania and the Masai Mara National Reserve in Kenya make an extraordinary annual journey across national borders. How these two countries manage their borders and lands can mean life or death for the migrating herds of

wildebeests and many other **species** that are either migratory or whose home ranges include lands on both sides of the border.

It is crucial that countries, as well as the communities within each country, reach agreements on a myriad of matters such as land use policies, exploitation of **natural resources**, **pollution** prevention, hunting regulations, water use and many other things, in order to preserve the biodiversity they share.





BLUE WILDEBEEST (*CONNOCHAETES TAURINUS*) IN THE NGORONGORO CRATER, TANZANIA.

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WILDEBEEST HERDING AND FOLLOWING A FEW LEADING ZEBRA IN THE MASAI MARA, KENYA.

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THE MIGRATORY ROUTES OF MIGRATING WILDEBEEST TAKE LARGE HERDS ACROSS THE BORDERS OF KENYA AND TANZANIA EACH YEAR.

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WE ALL DEPEND ON BIODIVERSITY, SO WE MUST WORK TOGETHER TO MAINTAIN IT

Every country in the world depends in one way or another on biological resources. However, without careful assessment of what, how much and how often we harvest from nature, we run the risk of exhausting the planet's resources. To avoid this situation, people must work together at all levels, from local to global.

Each level of action has its own set of challenges and opportunities. What happens at one level often impacts on other levels. For example, individuals follow the conventions and regulations set in their communities, such as municipal recycling laws. Communities are bound by national legislation and laws, which regulate specific activities, such as endangered species acts or the exploitation of biodiversity. Finally, nations are bound by international agreements, such as the ones regarding the trading of wildlife species and their products. As we will see in this chapter, the laws and regulations, programmes and initiatives, treaties and informal agreements set and implemented at each of these levels can lead a country closer either to sustainability or to economic and ecological crises.

It is important to remember that whatever legislation is in place, individuals, groups or organisations can greatly influence biodiversity conservation efforts. Public opinion and campaigns can have a significant impact on policy makers and other actors, such as companies.



YUNGA BANNER AT THE WORLD SCOUT JAMBOREE IN SWEDEN.

© Maria Volodina



COMMUNITIES AND NATIONS HAVE DIFFERENT IMPACTS ON BIODIVERSITY AND RECEIVE DIFFERENT BENEFITS FROM IT

Natural resource use occurs at all scales; some communities exploit resources to subsist, while many others consume much more than they need for survival. Let's examine a fisheries example. At one end of the scale you have a local fishing village that only takes from the local waters what it needs to subsist, using hand-nets and other low impact practices; at the other end, you have international fishing fleets that take very high volumes of fish and other sea life, over large areas, using methods such as trolling, that have a great impact on the environment.

The impacts that these two groups have on biodiversity are quite different; the activities of the first leave a much smaller **footprint** than the second. It is not only a problem for wildlife, but also for people.

Inequalities and issues of fairness need to be addressed. Cooperation and negotiation can take place at the local or at the national level, but sometimes, as in the case of fishing in international waters, global action is required.

The fisheries example is mirrored at the international level. Nations consume different amounts of resources, with some countries using a disproportionate amount of both local and global natural resources. Thus, it is necessary to hold discussions and to make agreements at the international level.

There is an uneven geographical distribution of natural resources across countries and regions. Some countries, such as the United States, possess a diverse abundance of exploitable

resources, while others are not so lucky. For instance, roughly two-thirds of the Arab world depends on water sources located outside their borders. Population numbers and densities also vary widely across the world: some countries make greater demands and so impact on their natural resources more than others.

In order to have a more equitable distribution of benefits and responsibilities, and to be able to conserve biodiversity, a variety of efforts at many levels are required: establishing and enforcing agreements and treaties, implementing cooperative and assistance programmes and sharing of knowledge and technologies, are just some examples of possible action.



INTERNATIONAL ACTION

International action can occur on a regional level among several countries in a region, or on a global scale that can include many countries from several or even all continents. Such international cooperation is often critical to the success of biodiversity projects and actions (see box: “The Polar Bear Treaty”).

While plants and animals do not recognise political borders between countries, people live and act within these boundaries. Thus, addressing many biodiversity issues requires the cooperation of more than one country.



INTERNATIONAL SCIENTIFIC SYMPOSIUM ON BIODIVERSITY AT FAO HQ, ITALY.
© FAO/Giulio Napolitano

For international cooperation to be effective, all of the involved countries must agree on the solutions and commit to follow the agreements. Global level efforts are indispensable when dealing with global problems, such as **climate change** and ozone depletion. These large issues often require the creation and **ratification** (or official adoption) of an international law to which all countries who are party to (or part of) it must sign (see section below).

Sometimes environmental problems are very specific to a region and/or are better addressed at the regional level. For instance, when trying to protect a species with a restricted range, such as the polar bear, or a special, fragile ecosystem and the species living within it, such as the rainforest. However, these regional approaches should still be coordinated with the broader global ones, because on our planet all things are connected. In the case of the polar bear, for instance, regional efforts to conserve it could be in vain, if the broader issue of climate change is not tackled simultaneously (see box: “The Importance of International Level Action”).

THE POLAR BEAR TREATY

In 1973, the governments of Canada, United States, Denmark, Norway and the USSR signed a treaty that recognised the responsibilities of the countries around the North Pole for the coordination of actions to protect polar bears. The Polar Bear Treaty (Agreement on the Conservation of Polar Bears, I.L.M. 13:13-18, January 1974) commits the countries

who signed it to manage polar bear populations in accordance with sound conservation practices. It prohibits hunting, killing and capturing bears, except for limited purposes and by limited methods, and commits all parties to protect the ecosystems of polar bears, especially those areas where they den and feed, as well as migration corridors.



FEMALE POLAR BEAR (*URSUS MARITIMUS*).
© Alan Wilson (www.naturespicsonline.com)

THE IMPORTANCE OF INTERNATIONAL LEVEL ACTION



Many issues related to biodiversity transcend political boundaries, so what a particular country does or does not do affects others.

Here are some examples where international level actions are important:

- :: International fishing regulations are needed to help prevent the over-exploitation of marine resources.
- :: Pollution of water bodies or overuse of water sources often requires international action, because the affected water bodies may run through more than one country. The same situation applies to air pollution.

- :: Alien species, pests and diseases often have impacts across national borders; their movements and effects need to be addressed at the regional and/or global levels.
- :: Preventing illegal wildlife trade and the smuggling of plant species requires international treaties such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) as well as coordination between many agencies and countries.
- :: Stabilising the Earth's changing climate will require the participation of every country in the world, especially the most industrialised ones.

- :: Providing funding to support the implementation of sustainability programmes in developing countries.
- :: International organisations provide crucial training and scientific and technical advice.
- :: International agreements help ensure the access to and sharing of benefits arising from the commercial use of genetic material (**bioprospecting**), and the long-term protection of biological and genetic resources.



THE UNITED NATIONS IS A HUB FOR INTERNATIONAL ACTION

The United Nations (UN) is perhaps the organisation with the largest impact and power at the global level. It has 192 member States, and conducts both regular and special meetings to address important environmental topics. Some of the most important summits include:

- The first UN Environment Conference, held in Stockholm, Sweden in 1972, leading to the establishment of the UN Environment Programme, headquartered in Nairobi, Kenya;
- The UN Conference on Environment and Development (or the 'Rio Earth Summit'), held in Rio de Janeiro, Brazil in 1992, which brought together over 179 world leaders and over 2 400 NGO representatives. It was the largest intergovernmental gathering in history, resulting in Agenda 21 (a plan of action for sustainable development), the Rio Declaration on Environment and Development, the Statement of Forest Principles, the UN Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD);
- The Millennium Summit held in New York, USA in 2000 where the Millennium Declaration, which includes as one of its targets the reduction of biodiversity loss, was adopted.



In addition to working with nations around the world, the UN system supports partnerships with the public and private sectors and with civil society. The UN consults NGOs and CSOs on policy and programme matters, and hosts briefings, meetings and conferences for NGO representatives.

THE UN WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT TOOK PLACE IN SOUTH AFRICA.
© www.un.org



Along with other international organisations, the United Nations also provides a forum where governments can meet, discuss and agree on treaties, conventions and agreements. Such documents are known as **MULTILATERAL** (involving many participants), and must be signed and ratified by all participating parties to become legally binding. Once a document has been ratified, it becomes international law and replaces national laws. The ratification of these international documents (also known as 'instruments') is carried out by the congress or parliament of each country. Examples of such instruments are the 1992 Convention on Biological Diversity and the 1982 United Nations Convention on the Law of the Sea.

DIFFERENT KINDS OF INTERNATIONAL AGREEMENTS TO PROTECT BIODIVERSITY

Different kinds of international documents have different names, depending on the preferences of their signatories or the importance the instrument is meant to carry. Some of these terms can easily be interchanged; for example, an **'agreement'** might also be called a **'treaty'**.

'Protocols' or **'conventions'** are slightly less formal than treaties, because they usually contain additions or amendments to already existing treaties. Occasionally protocols or conventions contain specific obligations, like the 1997 Kyoto Protocol.

Governments, NGOs or other organisations can also enter into less formal agreements called **'declarations'**, where the parties typically declare goals which are not usually legally binding. The 1992 Rio Declaration is one example.

'Agendas' are like declarations of principles. They emerge during or as a result of international summits (meetings). They can be adopted during UN meetings, such as the General Assembly meeting in New York, or topic-specific meetings like the Rio Summit. In an agenda, countries establish common interests and priorities for a specified number of years. Agendas are basically work plans the countries set for themselves.

Finally, a **'forum'** is a less formal meeting than a summit in which one or more topics that countries would like to address can be discussed openly.

In addition to these formal global actions, there are all sorts of partnerships leading to short- and long-term collaboration among institutions, non-profit organisations and civil society.

Now let's examine some examples of international agreements and global actions.



Convention on
Biological Diversity

The formation of the CBD and its work

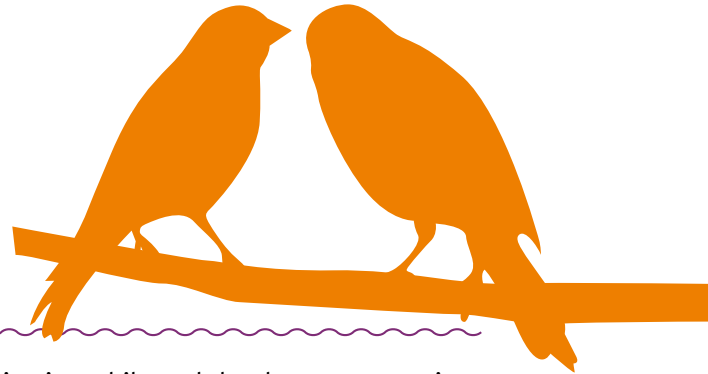
One of the agreements adopted at the 1992 Earth Summit was the Convention on Biological Diversity (CBD), the first global agreement on the conservation and sustainable use of biological diversity. The CBD has been ratified by an overwhelming majority of countries, which are now legally committed to conserve biological diversity, use it sustainably, and share the benefits arising from the use of genetic resources equitably (fairly). The Convention offers governments and decision-makers guidance on how to deal with threats to biological diversity, and set goals, policies and general obligations. The countries are required to develop national biodiversity strategies and action plans, and to integrate them into broader national plans for environment and development. Convention-related activities undertaken by developing countries are eligible for support from the financial mechanism of the Convention: the Global Environment Facility (GEF).



gef GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

The Global Environmental Facility (GEF)

Another important international initiative is the Global Environmental Facility (GEF). It was established to forge international cooperation and to finance actions to address four critical threats to the global environment: biodiversity loss, climate change, degradation of international waters and ozone depletion. It was launched in 1991 as an experimental facility, and was restructured after the 1992 Earth Summit. In 2003, two new focal areas were added: assistance for the mitigation and prevention of land degradation and persistent organic pollutants. The GEF Programme is implemented by the United Nations Development Programme (UNDP) on behalf of the World Bank and UNEP, and executed by the United Nations Office for Project Services. The GEF also has several executing agencies such as the Food and Agricultural Organization (FAO) of the United Nations and projects are supported by the UNEP, UNDP and the World Bank.



The UNDP-GEF team works with other international organisations, bilateral development agencies, national institutions, NGOs, private sector entities and academic institutions to support development projects around the world. By the end of 1999, the GEF had contributed nearly US\$ 1 billion for biodiversity projects in more than 120 countries.

The UNDP, on behalf of its GEF partnership also manages two corporate accounts: the GEF National Dialogue Initiative and the GEF Small Grants Programme, which fosters environmental stewardship while helping people create and strengthen sustainable **livelihoods**. These small grants (under US\$ 50 000) are awarded through steering committees in 73 countries. The results of three such projects are described below.

1 Testing and disseminating new technology and techniques: transforming wastes into renewable resources – Karaganda, Kazakhstan

The Karaganda Ecological Museum, an NGO in the district of Karaganda, is reducing contamination of the Nura River by providing a use for the agricultural waste that was being dumped into the river. With support from the GEF Small Grants Programme, the Museum

began using agricultural waste to generate biogas and its by-products including good quality fertiliser. The Museum worked with graduate students from a local technical university to construct a biogas digester. Farmers contributed with agricultural waste and, in exchange, received

biogas for cooking and lighting, and fertiliser, which increased their agricultural productivity. Not only did the project reduce the inappropriate disposal of organic wastes, it also mobilised young people to help clean up the riverbanks and spread information about the benefits of biogas.

2 Building partnerships and networks: private reserves come to the rescue of wildlife – The Cerrado biome, Brazil

According to Conservation International, the Cerrado is one of the most biologically diverse and most threatened biomes on the planet. About 70 percent of the Cerrado has suffered from human pressures of some kind, including the expansion of the Brazilian

agricultural frontier for grain production and extensive cattle breeding, and from the unsustainable harvesting of woody vegetation for charcoal production. Funatura, an NGO, proposed and established four wildlife sanctuaries on private lands with the participation of

other NGOs, such as the Rural Worker's Union of Formoso Municipality and the Community Association. The project is implementing mechanisms to sustain these private reserves and is disseminating the lessons learned to other landowners.

3 Developing new strategies for sustainable livelihoods in Quebrada Arroyo, Costa Rica: ecotourism for conservation and profit

Since 1992, the GEF Small Grants Programme has supported over 30 ecotourism projects in Costa Rica. The projects are all managed by community organisations, thereby linking the protection of local biodiversity with

local income generation. The village of Quebrada Arroyo, located near the Manuel Antonio National Park, one of the most visited parks in Costa Rica, is a good example of how ecotourism can protect biodiversity while generating income for a community. In 1999, a local community organisation, the Asociación de Productores de Vainilla, purchased 33 hectares that form part of the Mesoamerican

Biological Corridor and then developed them for ecotourism. Today, the community receives more than 1 000 visitors per year. Women, who formerly had few economic opportunities, now earn money as tour guides. Reports indicate increases in local wildlife populations. The preservation of this area has created an important wildlife corridor connecting the Manuel Antonio National Park with the Los Santos Forest Reserve.





THE CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS



Also known as CMS or the Bonn Convention, this 1993 international intergovernmental treaty sponsored by the United Nations Environment Programme (UNEP) seeks to conserve terrestrial, marine and avian migratory species across the planet. At present it includes 113 countries from Africa, Central and South America, Asia, Europe and Oceania.

The Convention encourages all the Range States to adopt global or regional agreements, which range from legally-binding treaties (called Agreements) to less formal documents, such as Memoranda of Understanding (MoUs). The box: “Connecting Biodiversity and Human Development: The Siberian Crane Wetland Project” provides an example of one such agreement.

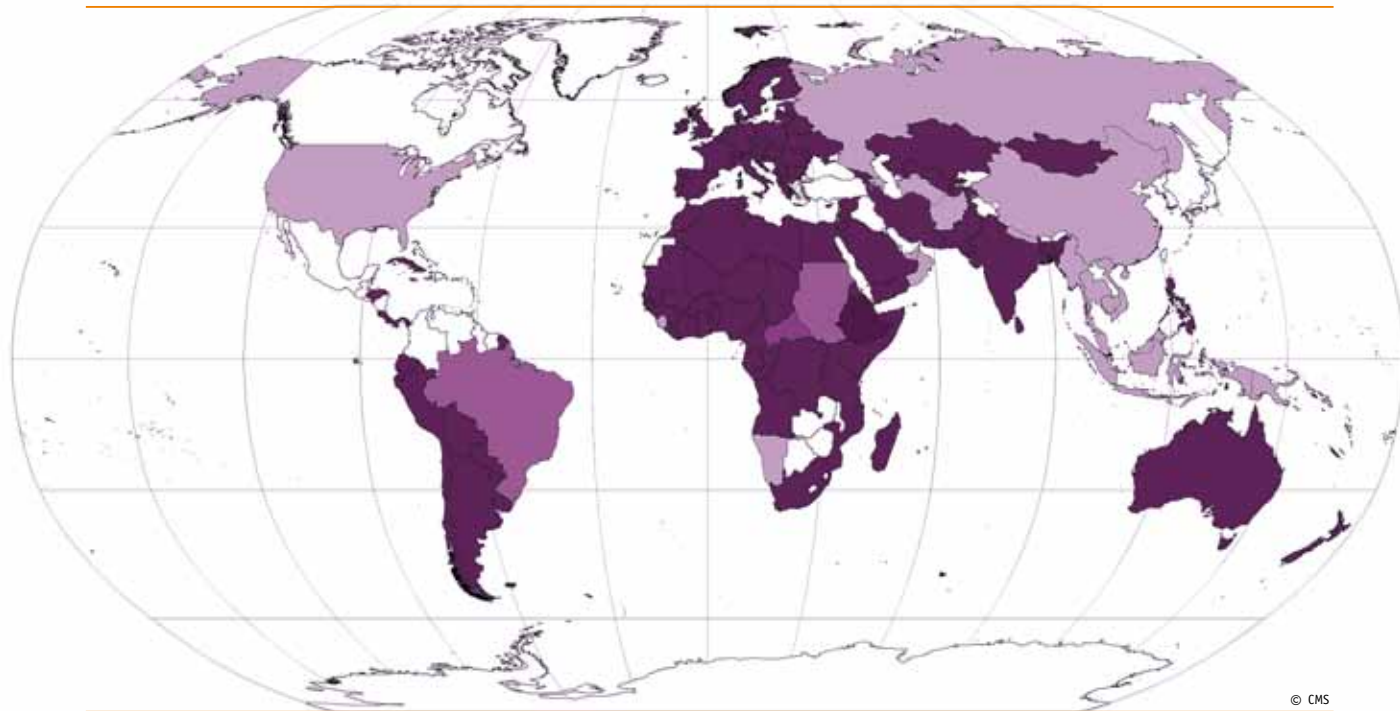
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CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS

Map of 116 Parties (as of 1 October 2011)

:: The Convention of Migratory Species of Wild Animals has a global reach ::



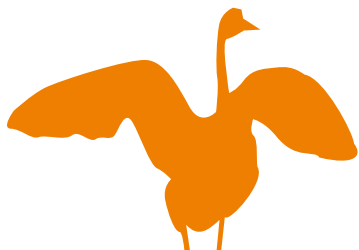
■ CMS Party ■ CMS Signatory ■ Agreement Party ■ MoU Signatory □ Non-Party

© CMS
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The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.



See CMS video with your smart phone



CONNECTING BIODIVERSITY AND HUMAN DEVELOPMENT: THE SIBERIAN CRANE WETLAND PROJECT

The Siberian crane is the third most-endangered crane species in the world; only 3 000 to 3 500 birds remain. During its annual migration, the Siberian crane travels 5 000 km from its breeding grounds in Yakutia and western Siberia, intermediate resting and feeding places, to its wintering sites in southern China and Iran. In the last century, many of their habitats – 60 percent in Europe and 90 percent worldwide – were destroyed due to agriculture, dams, pollution and inappropriate water management, oil extraction and urban development. Additionally, unsustainable and illegal hunting led to the near **extinction** of the Western and Central Asian populations.

The CMS provided the framework for an ambitious conservation plan for the crane, covering its entire range and migration routes. The Siberian Crane Wetland Project (SCWP) is supported by UNEP's Global Environmental Facility (GEF). Government officials, experts and conservationists, such as the International Crane Foundation and Wetlands International, have worked together to use strategies to reduce hunting, to improve water management, and to mitigate the impact of climate change.

Threats to the Siberian crane and to other migratory water birds along their flyways continue to be addressed through



THE SIBERIAN CRANE.
© BS Thurner Hof/Wikimedia Commons

management, monitoring, exchange of information and education of diverse audiences at local, national and international levels.

NATIONAL AND SUB-NATIONAL ACTION

Each country in the world is unique; even neighbouring countries often have different histories, customs, forms of government, needs, languages and sometimes unique ecosystems. Given this, conservation programmes must therefore be tailored to the specific conditions of a country.

For instance, in developed countries, it is often enough to buy the land and turn it into a refuge or reserve in order to protect the wildlife of a particular area.

In other countries, it is critical to secure the involvement of the local communities in the development and management of these protected areas. It often requires some form of sustainable use of the refuge, be it ecotourism, collection of seeds or plant parts, or extraction of hardwoods.

FAO GOODWILL AMBASSADOR, CARL LEWIS, TREE PLANTING IN THE DOMINICAN REPUBLIC.
© FAO/Pedro Farias-Nardi



YUNGA WORLD FOOD DAY EVENT ON BIODIVERSITY.
© FAO/Alessia Pierdomenico





WHAT CAN COUNTRIES DO TO PROTECT BIODIVERSITY?

There are many types of actions that can be implemented at national or sub-national level to tackle biodiversity issues.

These include:

Developing strategies, techniques and regulations to control pollution.

AFRICAN COUNTRIES LIKE KENYA, UGANDA AND TANZANIA HAVE BANNED PLASTIC BAGS IN AN EFFORT TO CURB THEIR NEGATIVE IMPACT ON WILDLIFE.
© www.dailymail.co.uk

Developing incentives and rewards for individuals and local communities who use sound practices in the conservation and management of their biodiversity.

COFFEE GROWERS ARE REWARDED FOR USING NATIVE SHADE SPECIES IN THEIR PLANTATIONS WHICH SUPPORT BIRDS AND OTHER WILDLIFE.
© FAO/Giuseppe Bizzarri

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Developing plans and techniques for the management of natural resources.

MEMBERS OF THE KHARGISTAI-BAYANBURD FOREST USER GROUP, IN MONGOLIA, CLEARING TREE BRANCHES FROM THE FOREST FLOOR TO PREVENT FIRE HAZARDS.
© FAO/Sean Gallagher

Integrating biodiversity conservation with sustainable use, such as ecotourism.

A TOURIST PREPARING TO RIDE THE ZIPLINE AT ADVENTURE PARK IN THE PHILIPPINES. THE SUCCESS OF THE ASSISTED NATURAL REFORESTATION (ANR) PROJECT HAS HELPED THE TOURIST INDUSTRY THROUGH THE REFORESTATION OF THESE NATURAL PARKS.
© FAO/Noel Celis

Developing protected areas, such as parks, reserves and sanctuaries.

THE MGAHINGA GORILLA NATIONAL PARK, BWINDI IN UGANDA.
© FAO/Roberto Faidutti

Providing appropriate techniques, tools and training to communities to reduce their impact on natural resources.

TELEFOOD CHILI PROCESSING PROJECT USES SOLAR DRYERS TO PRESERVE CHILLIES.
© FAO/Giampiero Diana

Capacity-building within communities by increasing people's knowledge, skills, networking abilities and the availability of resources needed for conservation.

THE PAPUA FOREST STEWARDS INITIATIVE TRAINS LOCAL INDIGENOUS GROUPS TO SERVE AS STEWARDS OF BIODIVERSITY AND COLLABORATE WITH SCIENTISTS.
© Nomadtales/Wikimedia Commons

Providing incentives to encourage the development of wind, solar and geothermal and other more appropriate technologies and renewable energy sources.

WIND TURBINES IN NEW ZEALAND.
© Reuben Sessa

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Passing stronger and wiser laws and regulations regarding land use, conservation easements, green corridors and urban development, to reduce habitat destruction and fragmentation.

AERIAL VIEW OF THE SHARP EDGE BETWEEN A HOUSING DEVELOPMENT AND A NATURAL AREA IN FLORIDA, USA.
© Pinellas County Government

Landscaping public urban areas to support biodiversity, and the provision of tools and incentives for urban communities to do the same.

GREEN ROOFS.
© iStock



LOCAL COMMUNITIES AND GRASSROOT ACTIONS

The success of conservation programmes and measures, whether government-initiated or not, ultimately depends on human behaviour and community action.

This is especially true of international-level programmes. No matter how clever a strategy to conserve biodiversity may be, or how strict the international treaties ratified are, unless people in the relevant areas

embrace them, success is impossible or short-lived at best. The involvement of civil society can take place in many forms. Sometimes grassroots movements lead the way, other times they get involved

after international and/or national organisations decide to implement a programme. In other cases, all parties may work at the same time to evaluate issues or devise and implement solutions.

© FAO/Giulio Napolitano



LOCAL COMMUNITY INVOLVEMENT IS KEY

Governments and organisations working directly with local communities in the development of sustainable practices are more likely to be successful and have a lasting effect on the **conservation** of biological resources.

Communities are closest to these resources and are their true 'managers'. The communities are often very knowledgeable, and can provide critically important information for the development of programmes to conserve biodiversity. When communities are an integral part of the development and implementation of conservation programmes, they become empowered and have a sense of ownership of the programmes, making them more likely to care, inform and/or help other communities to follow suit. Also, by having a say in the decisions that affect biodiversity, communities can

ensure that they will derive direct or indirect benefits from the conservation measures.

On the other hand, if communities are indifferent about nature, or if they lack the incentives, knowledge, resources or means to help conserve it, biodiversity pays the price.

The more informed the public are about issues and the impact of their own actions, the better they understand what constitutes harmful practices and the more

willing they will be to utilise more sustainable practices, thus lessening their impact. Informed citizens can also influence environmental policies, elect politicians who will protect the environment, and remain vocal and active in keeping biodiversity issues on the agenda.

The following examples will illustrate the importance of local communities and other stakeholders in biodiversity conservation efforts.



© FAO/Riccardo Gangale

Environmental disasters caused by a lack of involvement

The Cuyahoga River in Northeast Ohio, USA, is an example of what can happen when the public doesn't get involved in the stewardship of their resources. This river was once one of the most polluted rivers in the United States, and a large portion of it was totally devoid of fish and other wildlife. The Cuyahoga became famous for being the river that caught fire, and not just once but more than a dozen times! The first fire occurred in 1868, and the largest one was in 1952. In those days, burning

rivers in industrialised areas were common; rivers flowing through urban centres served as convenient sewers for industrial and human wastes. When the Cuyahoga's worst fire occurred, the citizens of Cleveland said the fire was no big deal and the chief of the fire department called it "strictly a run-of-the-mill fire"! In 1969, a fire on the river captured the attention of the Times magazine, which described it as the river that "oozes rather than flows" and in which a person "does not drown but decays".

This last fire, and the publicity it generated, finally spurred an avalanche of water pollution regulations, including the Clean Water Act, which sets limits on the amounts of pollution acceptable in all freshwater systems across the USA. Although these dramatic events occurred at a time when there were no water pollution regulations, it was the apathy and lack of involvement of the local citizens that allowed the situation to escalate to the point where it developed into an ecological catastrophe.

THE CUYAHOGA RIVER ON FIRE IN 1952.
© James Thomas, Cleveland Press Collection, Cleveland State University Library



Communities help protect threatened species in Sri Lanka

The Srinharaja Forest Reserve is Sri Lanka's last piece of fairly intact and viable tropical rainforest. The communities that depend on this forest for their subsistence have created village-level community organisations that have a say in biodiversity conservation decisions. Working in partnership with government organisations, these community CSOs actively manage

and promote projects such as special zoning for various types of uses, research on selective logging and conservation of endemic flora and fauna. These organisations help change attitudes of other local residents about conservation and lead to observable results. Since the project began, for instance, illegal logging in the area has been reduced by up to 75 percent.



FARMING IN SRI LANKA.
© FAO/Ishara Kodikara



INHABITANTS OF THE BIOSPHERE RESERVES.
THREE-TOED-SLOTH.
© Stefan Laube

MANTLED HOWLER
MONKEY.
© Leonardo C. Fleck



Conservation areas protected by indigenous communities in Honduras and Nicaragua

When local communities take on leadership roles and make decisions that affect their future, their actions can have national and even international conservation repercussions. The indigenous communities in the Mosquito Coast of Honduras and Nicaragua demonstrated this potential. Members of five ethnic groups (Miskito, Tawahka, Pech, Garifuna and Ladino) got together with The Nature Conservancy and its local partner NGOs to protect a corridor between two important conservation areas - Rio Plátano in Honduras and Bosawas in Nicaragua.

Together, they addressed a myriad of problems: overfishing by commercial companies and other local communities, illegal harvesting of hardwoods from the forests and clear-cutting of mangroves and other lands for firewood, crop production and cattle ranching. They co-developed a long-term plan for the sustainable management of the resources on which these communities depend, including specific actions for watershed protection and sea turtle conservation. Today, these two areas the Rio Plátano (Honduras) and the Bosawas (Nicaragua) are Biosphere Reserves.

Haiti: once a lush tropical island and now an ecological disaster

The Island of Hispaniola in the Caribbean is divided into two countries. About one third of it makes up Haiti, to the west; the remaining two thirds form the Dominican Republic. Part of the border is shaped by the Libon River. But this border shows much more than the line between the two countries (see satellite image on the right): in less than a century, Haiti lost over 98 percent of its forests! As a result, over 6 000 hectares (15 000 acres) of topsoil have washed away every year, eventually leading to **desertification**, and increased pressure on the remaining land and trees. Deadly landslides, water pollution, and negative impacts on marine ecosystems are only a few of the consequences of deforestation.

Biodiversity loss has been great. USAID's Agroforestry Outreach Programme was the country's major reforestation programme in the 1980s. Local peasants planted more than 25 million trees, but for every tree planted, seven were cut. Late-coming government plans promoting alternative sources of energy for cooking to replace fuelwood and to stop deforestation have proven ineffective due to political instability and lack of funding.

This has left the communities to fend for themselves. The Dominican Republic, on the other hand, has had a more stable political climate and a better set of environmental regulations and laws. While deforestation is still an issue in the country, it has not been as devastating as in Haiti because the Dominican Republic has promoted non-extractive industries, like ecotourism, in its forests.



SATELLITE IMAGERY SHOWING DEFORESTATION IN HAITI. THE RIVER CUTTING ACROSS THE IMAGE IS THE BORDER BETWEEN HAITI (LEFT) AND THE DOMINICAN REPUBLIC (RIGHT).

© NASA USGS Landsat 7

Local community involvement in biodiversity protection in Mexico

The Sian Ka'an Biosphere Reserve in Mexico is home to some 2 000 people, mainly of Mayan descent. Its mission is to integrate human activities with the rich biodiversity of the region without harming the natural environment. Including local people in its management helps to maintain the balance between pure conservation and the need for sustainable use of resources by the local community.

Without the agreement and collaboration of the resident population, the area could have suffered great losses through unsustainable development.

Initiated by a presidential decree in January of 1996, it became a source of national pride when UNESCO declared it a World Heritage Site a year later.



BIOSPHERE RESERVE OF SIAN KA'AN, LOCATED IN STATE OF QUINTANA ROO, YUCATÁN PENINSULA, MEXICO.
© Tim Gage/Wikimedia Commons

Indigenous groups setting their own course in Brazil

The development of the Xingu Indigenous Park, a 2.6 million hectare (6.5 million acre) area of tropical rainforest in Brazil, is an example of a national NGO (the National Indian Foundation or FUNAI) and an international NGO (the Amazon Conservation Team or ACT) who worked with the Brazilian government's environmental agency and a coalition of 14 **indigenous** groups to achieve an unprecedented conservation milestone.

Together, they developed a series of maps describing and delineating traditional territories, fishing and hunting areas, and even sacred sites, which were incorporated into

the park's management plan. The indigenous tribes participated fully in the mapping project and will be the managers of their own protected area.

Source: www.terralingua.org



BRAZIL'S XINGU INDIGENOUS PARK.
© Amazonian Conservation Team



BIODIVERSITY CONSERVATION INVOLVES ALL STAKEHOLDERS

As you can see from this chapter, biodiversity conservation activities involve numerous actors at all levels (global to local), including:

National governments and decision-makers within ministries, agencies (e.g. ministries of environment, forestry, agriculture, fisheries and aquaculture, and regional planning) can:

- raise awareness and support education on the importance of biodiversity
- ensure that laws and policies are in place to protect biodiversity
- support collaboration and coordination between agencies at all levels (international, national, regional and local)
- support capacity building for biodiversity conservation at the local level
- ensure that local authorities have access to information
- ensure participation of all stakeholders
- provide financial resources to implement biodiversity conservation activities
- demonstrate a political commitment to implementing sustainable biodiversity management.

Local governments can:

- ensure that biodiversity considerations are included in local planning and decision-making
- promote collaboration with various stakeholders
- support local action and collaborate with **NGOs, CSOs** and local communities.



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© FAO/Giulio Napolitano

Universities and research institutes:

- undertake research and analysis to support improved conservation strategies and initiatives
- can provide scientific information and findings that can support awareness campaigns on informing the general public about the current state of the planet's biodiversity.

Media and celebrities can:

- highlight the perspectives of different stakeholders
- undertake independent research that gives a new view on the topic
- form, shape and influence public opinion on the importance of biodiversity conservation
- raise awareness and put pressure on decision-makers.

Environmental NGOs and CSOs can:

- act and provide support for sustainable biodiversity management at all levels
- collaborate with various stakeholders (see box: "How Non-governmental and Civil Society Organisations Help to Conserve Biodiversity").

Farmers, livestock holders, fisherfolk, land owners and local communities:

- are the local managers of biodiversity and are key to conservation actions on the ground.

The private sector can:

- provide financial resources for biodiversity initiatives
- ensure sustainable use of biodiversity products
- coordinate and collaborate with various stakeholders on biodiversity actions (see box: "Companies Can also Play a Role in Biodiversity Conservation").

The general public can:

- check and evaluate the actions of governments and other stakeholders
- demand for further action to be undertaken.

YOU! Yes, you!

yes you! Every individual can make a difference at the local, national or even international level.



WE ARE MANY
WE ARE YUNGA!

[WWW.YUNGA.ORG]



HOW NON-GOVERNMENTAL AND CIVIL SOCIETY ORGANISATIONS HELP TO CONSERVE BIODIVERSITY

At the core of many biodiversity efforts are **non-governmental organisations**, or NGOs. An NGO is an organisation that is not part of a government; it exists for the purpose of advancing and promoting the common good, working in partnership with communities, governments and businesses to realise important goals that benefit all of society (see box: “The Cadbury Cocoa Partnership”).

These organisations can work at the local, national and/or international levels. Worldwide, there are hundreds of thousands of biodiversity-related NGOs at national and local level. Examples at the international level include the World

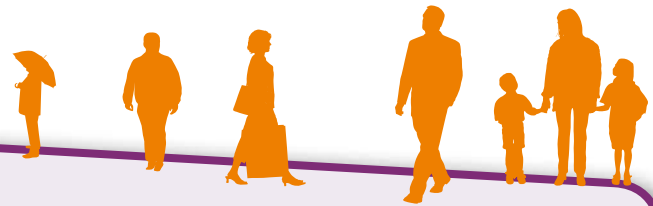
Wide Fund for Nature, The Nature Conservancy and the International Union for the Conservation of Nature (a list of these organisations is provided at the end of the chapter). NGOs are part of what the World Bank calls “**Civil Society Organisations**” or CSOs, which also include trade unions, faith-based organisations, indigenous people movements, foundations and many others. NGOs and CSOs sometimes work independently but often collaborate with governments.

Civil society organisations help to conserve biodiversity in various ways. They:

- 1) Empower local communities
- 2) Stimulate public awareness and action
- 3) Shape policy
- 4) Develop new strategies for sustainable livelihoods
- 5) Test and disseminate new and improved technologies and techniques
- 6) Build partnerships and networks

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COMPANIES CAN ALSO PLAY A ROLE IN **BIODIVERSITY CONSERVATION**

The private sector can also make an important contribution to the conservation of biodiversity, for example by reducing their impact through sustainable production and business practices or by directly supporting biodiversity initiatives. Support can also be provided through public-private collaboration in which companies work with government institutions, international organisations, research centres or NGOs on biodiversity-related initiatives. Companies, especially those in sectors such as food and beverages,

are highly dependent on biodiversity and ecosystem services to develop their products and undertake their operations. Hence, these biodiversity-dependent industries should have an interest in maintaining their resource base.

Public opinion and consumer choices can also influence private sector actions by putting pressure on companies to improve their social and environmental credentials.



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THE CADBURY COCOA PARTNERSHIP

For over 100 years, Cadbury, a world-famous chocolate and candy company, has traded cocoa with Ghana. Recently however, cocoa production has dropped significantly, which in turn has greatly reduced the incomes of cocoa farmers.

To address the problem, Cadbury, together with local government institutions, NGOs, universities and research centres and the United Nations Development Programme (UNDP), established the Cadbury Cocoa Partnership in 2005. Two key elements of the Cadbury Cocoa Partnership are the ongoing involvement of local communities and farmers in the planning and decision-making processes

and the commitment to working with local organisations to turn these plans into action. Cadbury is investing £45 million pounds in the project, which will run for at least a decade.

The overall objective of the project is to directly support the economic, social and environmental sustainability of one million cocoa farmers and their communities, not only in Ghana but also in India, Indonesia and the Caribbean. To achieve this objective, the partnership is working to improve farmers' incomes by increasing yields, the quality of cocoa beans and farmers' access to fair trade schemes, providing microfinance, business support and alternative

income schemes, and investing in community-led development including education projects, such as libraries and teacher training, and the building of wells for access to safe water. Cadbury has also helped produce easy-to-read illustrated newspapers containing articles about farming practices and technologies to increase cocoa production. 75 000 copies of each edition are printed and distributed to local farmers for free. Cadbury is also involved in biodiversity issues through the Earthshare programme, which it developed in partnership with the international environmental charity Earthwatch and the Nature Conservation Research Centre in Ghana.

HARVESTED MATURE CACAO FRUITS (YELLOW) AND
FRESH COCOA BEANS (WHITE).

© FAO/K. Boldt

The Earthshare programme assesses the impact of cocoa farming on biodiversity. Universities, students and volunteers work together to collect scientific information needed to help preserve biodiversity, to improve farming practices and to increase productivity.

The programme also identified additional livelihood opportunities, such as ecotourism. As a result, some farmers built simple ecotourism facilities and now earn additional income so that they are less dependent on cocoa farming.

For more information, visit:

www.innovation.cadbury.com/ourresponsibilities/cadburycocoapartnership/Pages/cadburycocoapartnership.aspx





PUTTING THE PIECES TOGETHER – **YOU CAN MAKE THE DIFFERENCE**

We can all make a contribution in supporting biodiversity conservation efforts. While most of us would be content to act locally on biodiversity issues that are most accessible to us, we all have the potential to make a difference at both the national and global level.

You can also find out and contribute to local, national and international programmes and projects in a variety of ways:

- Volunteering for organisations and projects that address biodiversity issues.
- Doing internships with organisations that focus on biodiversity.
- Starting a group or club to tackle a specific issue such as invasive plants in your neighbourhood.
- Remaining informed and sharing that information with others.
- Adopting an environmentally-friendly lifestyle.
- Leading by example.

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You can also help by encouraging your government to:

- Join some of the major biodiversity protocols if your country has not already done so.
- If your country is a party to the various treaties, contact the national focal point for the Protocols to find out what is being done to implement them and how you can contribute to the process.
- Work towards strengthening national biodiversity and biosafety laws, and fostering compliance with the provisions of their protocols. Inform everyone you know on biodiversity and sustainability issues and things they can do to contribute to the conservation of biodiversity.
- Reach out to local media and write articles, including letters to the editor.



FAO and CBD have developed a number of initiatives and activities

in collaboration with youth organisations, such as the World Association of Girl Guides and Girl Scouts (WAGGGS), to involve children and young people in biodiversity issues. For example, they created the biodiversity challenge badge which complements this guide book. You can download the challenge badge booklet at:

www.fao.org/climatechange/youth/68784/en



You can also get many ideas and connect with other young people at CBD's Green Wave campaign:

<http://greenwave.cbd.int>

Education for Sustainable Development, a UNESCO initiative,

has an important youth component. On its website, youth can participate in various activities related to sustainable development and biodiversity conservation, and share ideas on how to get others involved in the discussion and solutions.

www.unescobkk.org/education/esd/esdmuralcontest

You may think:

'This is all well and good, but how do I actually start some of the above activities?'

Well, the next chapter will give you some background information, advice and ideas on how you can address biodiversity issues.





MAJOR CONVENTIONS, TREATIES, AND ORGANISATIONS THAT WORK ON BIODIVERSITY GLOBALLY

CONVENTIONS	NICHE
Convention on Biological Diversity (CBD) and its <i>Cartagena Protocol on Biosafety</i>	The first global agreement on the conservation and sustainable use of biological diversity. The Cartagena Protocol aims to ensure the safe handling, transport and use of living modified organisms (LMOs) www.cbd.int
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Seeks to ensure that international trade of wild animals and plants does not threaten their survival. www.cites.org
Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention) and its various agreements	Aims to conserve terrestrial, marine and avian migratory species throughout their ranges on a global scale. www.cms.int
International Treaty on Plant Genetic Resources for Food and Agriculture (International Seed Treaty)	Aims to guarantee food security through the conservation, exchange and sustainable use of the world's plant genetic resources. www.planttreaty.org
United Nations Framework Convention on Climate Change (UNFCCC) and its <i>Kyoto Protocol</i>	Sets an overall framework for intergovernmental efforts to tackle the challenges posed by climate change. The Kyoto Protocol committed 55 industrialised nations to make significant cuts in the emission of greenhouse gases, such as carbon dioxide, by the year 2012. http://unfccc.int/2860.php
The United Nations Convention to Combat Desertification (UNCCD)	Tackles the problem of desertification around the world and promotes sustainable development at the community level. www.unccd.int
World Heritage Convention and its <i>Regional Natural Heritage Programme (RNHP)</i>	Promotes cooperation among nations to protect the heritage around the world which has universal value for current and future generations. The RNHP was a 4-year (2003-07) US\$ 10 million programme that allocated funds to NGOs and other agencies to protect outstanding biodiversity hotspots in Southeast Asia and the Pacific. www.unesco.org/new/en/unesco

EXAMPLES OF UN-RELATED AGENDAS

Agenda 21 of the United Nations Conference on Environment and Development (UNCED)

Comprehensive action programme that covers all areas of the environment. It specifically calls for youth involvement.
www.un.org/esa/dsd/agenda21

Goal 7 of the Millennium Development Goals (MDGs): Ensure Environmental Sustainability

Adopted by world leaders in 2000 and set to be achieved by 2015, the MDGs are both global and local, tailored by each country to suit specific development needs. Goal 7 focuses on environmental sustainability and biodiversity.
www.un.org/millenniumgoals

EXAMPLES OF REGIONAL CONVENTIONS and TREATIES

Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (WCR, also known as the Cartagena Convention) and *the Protocol Concerning Specially Protected Areas and Wildlife (SPAW)*

Legal framework for cooperative regional and national actions in the WCR for the protection and development of the marine environment. SPAW's objective is to protect rare and fragile ecosystems and habitats.
www.cep.unep.org/cartagena-convention

Framework Convention for the Protection of the Marine Environment of the Caspian Sea (known as the Teheran Convention)

Protect, preserve and restore the marine environment of the Caspian Sea.
<http://ekh.unep.org/?q=node/2452>

Polar Bear Treaty

Coordination of actions between Canada, Denmark, Norway, Russian (former USSR) and the USA to protect polar bears.
www.fws.gov/laws/lawsdigest/treaty.html#POLAR

Pacific Salmon Treaty

US and Canada agreement to cooperate with regards to the management, research and enhancement of Pacific salmon stocks of mutual concern. (Amended to include the Yukon River Salmon Agreement.)
www.psc.org

North Atlantic Salmon Treaty (Convention for the Conservation of Salmon in the North Atlantic Ocean -NASCO)

International organisation for the conservation and protection of Atlantic salmon. [sedac.ciesin.columbia.edu/entri/texts/salmon.north.atlantic.1982.html]

Northwest Atlantic Fisheries Treaty (International Convention for the Northwest Atlantic)

Investigation, protection and conservation of the Northwest Atlantic fisheries.
<http://treaties.un.org/doc/Publication/UNTS/Volume%201082/volume-1082-I-2053-English.pdf>



EXAMPLE OF A FORUM

United Nations Forums on Forests (UNFF)

Non-legally-binding document to promote the management, conservation and sustainable development of all types of forests.

www.un.org/esa/forests

EXAMPLE OF INTERNATIONAL PARTNERSHIPS

Global Invasive Species Programme (GISP)
Founded by: the Centre for Agricultural Bioscience International (CABI), the Nature Conservancy, the South African National Biodiversity Institute, and the World Conservation Union

Aimed at conserving biodiversity and sustaining livelihoods by minimising the spread and impact of invasive species.

www.gisp.org/about/index.asp

Global Taxonomy Initiative

Created to remove the taxonomic knowledge gaps of the CBD.

www.cbd.int/gti

Census of Marine Life

Scientific initiative to assess and explain the diversity, distribution, and abundance of life in the oceans.

www.coml.org

EXAMPLES OF ORGANISATIONS

MISSION

DIVERSITAS

To address the questions posed by the loss of and change in global biodiversity.

www.diversitas-international.org

Food and Agriculture Organization of the United Nations (FAO)

To promote the conservation and sustainable use of biodiversity for food and agriculture as a means of fighting world hunger.

www.fao.org

Global Environmental Facility (GEF)

To protect the global environment.

www.thegef.org/gef

United Nations Environment Programme (UNEP)

To promote environmental concerns, including for biodiversity.

www.unep.org

United Nations Educational, Scientific and Cultural Organization (UNESCO)

To contribute to the building of peace, the eradication of poverty, sustainable development and intercultural dialogue.

www.unesco.org

World Agroforestry Centre (ICRAF)

To generate science-based knowledge about the diverse roles that trees play in agricultural landscapes.

www.worldagroforestry.org

EXAMPLES OF NON-GOVERNMENTAL ORGANISATIONS

MISSION

Birdlife International

To conserve birds, their habitats and global biodiversity, working with people towards sustainability in the use of natural resources.
www.birdlife.org

Conservation International (CI)

To protect life on Earth and to demonstrate that human societies will thrive when in balance with nature.
www.conservation.org

Fauna and Flora International

To act to conserve threatened species and ecosystems worldwide, choosing solutions that are sustainable, based on sound science and take into account human needs.
www.fauna-flora.org

International Union for Conservation of Nature (IUCN)

To secure living in a just and healthy environment.
www.iucn.org

The Nature Conservancy

To protect ecologically important lands and water for nature and people around the world.
www.nature.org

World Resources Institute (WRI)

To move human society to live in ways that protects the Earth's environment and its capacity to provide for the needs and aspirations of current and future generations.
www.wri.org

World Wide Fund for Nature / World Wildlife Fund (WWF)

To preserve the diversity and abundance of life on Earth and the health of the ecological systems.
www.worldwildlife.org

EXAMPLES OF OTHER CONVENTIONS, CODES OF CONDUCT AND INSTRUMENTS RELEVANT TO FOOD AND AGRICULTURE

Global Plan of Action on the Conservation and Sustainable Utilisation of Plant Genetic Resources for Food and Agriculture

www.fao.org/agriculture/crops/en

International Plant Protection Convention

www.fao.org/biodiversity/conventionsandcodes/plantprotection/en

International Treaty on Plant Genetic Resources for Food and Agriculture

www.fao.org/biodiversity/conventionsandcodes/plantgeneticresources/en

Code of Conduct for Plant Germplasm Collecting and Transfer

www.fao.org/biodiversity/conventionsandcodes/plantgermplasm/en

Code of Conduct for Responsible Fisheries

www.fao.org/biodiversity/conventionsandcodes/responsiblefisheries/en

Global Plan of Action for Animal Genetic Resources and The Interlaken Declaration

www.fao.org/docrep/010/a1404e/a1404e00.htm