

Good-bye poverty, hello biodiversity



Advance Draft



Advance Draft - not for citation

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Glossary

All **bold** words in this book are defined on this page. Be sure to check this glossary when you want to know the meaning of a word in **bold**.

Biodiversity: the variety of life on Earth, at each of the genetic, species and ecosystem levels, and the relationships between them.

Cell: the basic building block of life. All organisms are made up of one or more cells.

Climate change: long-term major changes in the average weather patterns of a specific region or of the Earth as a whole (e.g. more frequent storms or hotter or drier conditions, etc.).

Community: a group of organisms that share an environment.

Development: the process of enlarging people's choices, and enhancing human freedoms and the range of things people can do and be.

Direct driver: an immediate cause of biodiversity loss

Ecosystem: all communities living and interacting with each other within a given area.

Ecosystem diversity: the total variety of ecosystems.

Ecosystem goods and services: the benefits that people obtain from ecosystems.

Environment: the set of conditions—land, organisms and climate—in which a group of organisms live.

Exclusion: being left out.

Extreme poverty: poverty level in which a person lives on less than \$1.25 US per day.

Gene: an important structure found in all cells that contains codes that make each individual unique.

Genetic diversity: the total variety of genes.

Habitat loss: a process in which ecosystems are destroyed and thus unable to support the plants, animals and fungi that originally lived there.

Indirect driver: an underlying cause of biodiversity loss that affects direct drivers.

Invasive alien species (IAS): a biological species that spreads outside its natural past or present distribution range and threatens biodiversity in these new areas.

Livelihood: a way of supporting yourself, either through a paying job or by growing, producing and/or gathering everything you need to survive.

Millennium Development Goals (MDGs): 8 goals agreed by world leaders that respond to the world's development challenges.

Microorganism: a creature too small to be seen with the naked eye; you need a magnifying glass or microscope to see it.

Nutrient loading: an increase in chemical nutrients containing nitrogen and phosphorus that can lead to excessive plant growth and decay, lack of oxygen and poor water quality.

Organism: a living individual, such as a maize plant, a bird, a fish or a human.

Overexploitation: overuse of a species or ecosystem that can lead to habitat degradation or the inability of a natural area to renew itself.

Pollination: the transfer of pollen between flowers.

Pollution: the introduction of contaminants (e.g. chemicals, noise, heat or light) into ecosystem that causes harm.

Poverty: the condition in which a person or group lacks choices and opportunities.

Poverty line: the minimum amount of income a person needs to meet their basic needs.

Species: a group of organisms that can reproduce.

Species diversity: the total variety of species.

Sustainable: something that can last forever.

Tipping point: the point of no-return when ecosystems can no longer provide ecosystem goods and services.

Unsustainable use: the overuse of a species or ecosystem that can lead to habitat degradation or the inability of a natural area to renew itself.

Well-being: being happy, healthy and prosperous.



Artwork: Sidy Lamine Dramé

Introduction

Biodiversity, the variety of life on Earth, is quite possibly the most amazing thing on the planet. It is key to sustaining health, wealth, food, fuel and all of the vital services we depend on. Its magnificence enriches our cultural and religious traditions. Each plant and animal is part of a complex planetary puzzle, each contributing to "the big picture" and teaching us a little something about the world around us. Humans are also part of nature's rich diversity; we use this diversity to enhance our well-being.

This book investigates the theme for the 2010 International Day for Biological Diversity, celebrated worldwide on 22 May. It takes a closer look at biodiversity, development and poverty reduction. Each chapter explores a different aspect of how biodiversity is linked to human well-being. The chapters cover:

- What is biodiversity?
- What is development?
- Are biodiversity and development related?
- What is the world doing?
- What can you do?

This book has special features that will make learning fun and easy:

- Words in **bold** are defined in the glossary on page 2.
- Each chapter includes a few *Did you know?* information boxes. These fun facts are great for sharing with your family, friends and classmates.
- At the end of each chapter (except the introduction), there's a game or a puzzle that quizzes you on the chapter content. (Don't worry - they're fun activities!)

Good-bye poverty, hello biodiversity is the third in a series of children's books about biodiversity produced by the Secretariat of the Convention on Biological Diversity. Lots of people use these books - schoolteachers, students, Guide and Scout leaders, youth groups and even a university professor! Please tell us how you use this book and what you are doing for biodiversity. Visit us at www.cbd.int.

Happy reading!

--- the CBD Secretariat

I. What is biodiversity?

Biodiversity can be big, bold and beautiful. It can also be small, shy and unsightly. All the living things and their habitats in the sea, on land and in the air are part of biodiversity. The genetic codes that make each individual unique are all part of biodiversity. The interactions among all living things are part of biodiversity. Without biodiversity, humans couldn't exist.

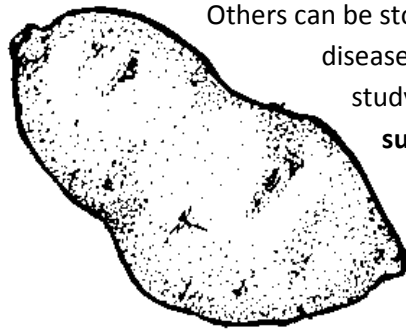
Simply put, biodiversity (or biological diversity) is the variety of life on Earth and how living things interact with each other. Biodiversity consists of all the many species of animals and plants and other life forms and the variety that exists within each species. It also includes the range of ecosystems such as deserts, oceans and tropical rainforests. Let's take a closer look at the three parts of biodiversity: genetic diversity, species diversity and ecosystem diversity.

Did you know?

Around 1000 B.C., ancient Greeks used the word "bios" to describe "one's life or way of living" as in a person's biography. They used another word – "zoe" – to describe "animal life or organic life." It was modern scientists who gave "bio" its modern-day definition of "organic life." If scientists hadn't changed the definition, would we use the word "zodiversity" instead of biodiversity?

Source: Online Etymological Dictionary etymonline.com

Genes are the units of heredity found in all **cells**. They contain special codes or instructions that give each individual **organism** a unique set of characteristics. **Genetic diversity** is total variety of genes. For example, there are many types of wild potatoes. They can be yellow, red, brown or purple. They can be small, big, round or tubular. Some can survive under drought conditions or flourish at high altitudes.



Others can be stored for long periods of time without rotting or are resistant to certain diseases and pests. Researchers at the International Potato Center in Peru are studying differences in potato genes; their results can help farmers practice **sustainable** agriculture and adapt to changing growing conditions. Such genetic diversity ensures farmers can cope with rising temperatures, drought, pests and disease outbreaks.

Artwork: International Centre for Living Aquatic Resources Management

There are millions of different **species** on the planet ranging from pelicans and mango trees to sharks and mosses. A **species** is a group of organisms that resemble each other and can reproduce. **Species diversity**, or the variety of species, provides humans with many different kinds of goods such as fruits, vegetables, grains, fibres, firewood and leather that are used for food, health, barter and trade. For some people, species diversity is essential to good health. The majority of people living in tropical Africa (80%) use more than 4000 plant species for medicinal purposes.

Did you know?

The ancient Chinese cooking spice, star anise, contains shikimic acid, one of the active ingredients in flu medication. It's too expensive to manufacture shikimic acid in the laboratory, so drug companies must isolate it from the star anise plant. Almost 90% of the world's supply of star anise comes from four Chinese provinces.

Source: NPR npr.org/templates/story/story.php?storyId=104191227

In the same way that humans live in communities, so too, do animals, plants and even **microorganisms**. Where communities of plants and animals live together, and share their space, their land and their climate, they form an **ecosystem**. Ecosystems are what many people call "the **environment**" or "nature." The Earth has lots of **ecosystem diversity**, which includes mangroves, alpine forests, freshwater lakes and savannahs. Ecosystem diversity provides people with things that they benefit from and depend on; these things are called ecosystem goods and services.

Did you know?

Mycorrhizal fungi are soil microbes. These microorganisms help 80% of land plants grow and survive by bringing water and nutrients to the plant's roots and by transforming nutrients into a form that the plant can use. Mycorrhizal fungi also help protect plants from disease, drought and extreme temperatures and toxic metals.

Source: UNEP-WCMC 2007

Ecosystem goods and services include all the natural resources and processes that maintain the conditions for life on Earth. They provide us with the food we eat, clean the air we breathe, filter the water we drink, supply the raw materials we use to construct our homes and businesses, are part of countless medicines and natural remedies, help regulate water levels, prevent flooding, and many other things. Another important ecosystem service is the cultural value of natural landscapes to people's **livelihoods**, religious beliefs and leisure activities. If people had to do all the work done by biodiversity, we would need an enormous team of engineers, farmers, geneticists, spiritual leaders, musicians, artists, doctors, relaxation specialists and more!

Threats to biodiversity

Unfortunately, the future of biodiversity is under threat: biodiversity loss is occurring around the world at an alarming rate. When we lose biodiversity, we lose unique genes, species, ecosystem goods and services and benefits to humans. Scientists warn that biodiversity loss is approaching a **tipping point**; once this point of no-return is passed, ecosystems can no longer provide ecosystem services.

There are direct and indirect causes driving us towards this tipping point. The **direct drivers** are: **habitat loss, climate change, invasive alien species, overexploitation or unsustainable use, and pollution and nutrient loading**. Habitat loss takes away the homes of species and destroys ecosystems. Climate change can modify habitats, migration patterns, or the timing of species reproduction, resulting in increased risks of extinction for certain species. Invasive alien species can out-compete native species and drive them to extinction. Overexploitation or unsustainable use is when species and ecosystems are overused so that they cannot maintain healthy populations large enough to survive over many years. Pollution and nutrient loading (an increase in chemical nutrients containing nitrogen and phosphorus that can lead to excessive plant growth and decay in the ground, and, in water ecosystems, algal blooms followed by a lack of oxygen) both destroy habitats or make them unsuitable for species, forcing species to migrate or go extinct.

Did you know?

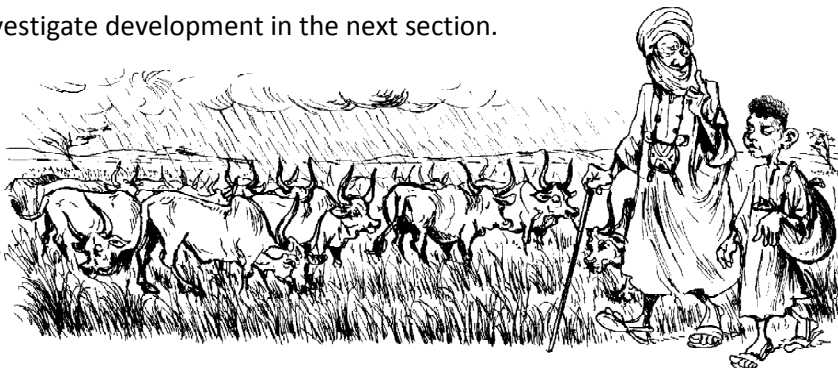
Habitat loss can be harmful to human health. After the populations of wild vertebrate species declined in the Amazon basin, more people were attacked by vampire bats and got rabies. In the Peruvian Amazon, malaria-carrying mosquitoes bit people 278 times more in deforested areas than in areas with intact forests.

Sources: UNEP-WCMC 2007, CBD 2010

These five direct drivers are influenced by **indirect drivers**, or human causes that affect the direct drivers. Examples include economic trade and the movement of goods around the world, increasing human populations and cities, scientific and technological change and growing consumption per person.

Summary

Because of what it provides, biodiversity (the variety of all life on Earth at each of the genetic, species and ecosystems levels) has always been and continues to be very important for human **well-being**. (Well-being means being happy, healthy and prosperous.) Unfortunately, human well-being is not being met everywhere around the world. To fix this problem, many people around the world are working for human **development**. We'll investigate development in the next section.



Artwork: Sidy Lamine Dramé

Ecosystem goods and services game

Biodiversity provides incredible benefits called ecosystem goods and services. What would happen if nature stopped providing these benefits? What would humans do? For each of the ecosystem goods and services listed below, draw what humans would have to do or make if nature stopped providing these benefits.

Clean the air	
Filter water	
Make and fertilise soil	
Regulate the climate	
Make seeds	
Detoxify pollutants	
Pollinate flowers	
Inspire creativity	
Provide medicine	
Decompose dead plants and animals	
Store carbon	
A place for quiet and relaxation	
Produce cotton, bamboo and other clothing materials	
Produce oxygen	
Shade	
Protect shoreline from storms	

II. What is development?

Poverty

If you visited every single place inhabited by humans on the planet, you'd find vast differences in the conditions of schools, homes, farms, gardens, hospitals, roads, sports facilities, buildings, parks, shops, restaurants, airports and garbage dumps. In some places these things will be lavish and well-kept, in other places they will be dirty and run-down, and in other places may not even exist! You might describe some places as "rich" and other places as "poor." But what exactly is "poverty?"

Poor people and poor countries cannot meet their basic needs, including food, shelter, clean water, health care and clothing. **Poverty** occurs where there is a lack of choices and opportunities. High levels of undernourishment, hunger, illiteracy, lack of education, bad health, social unrest and hopelessness often accompany poverty. One key characteristic of poverty is **exclusion**, or being left out. Excluded people don't receive economic or social benefits because they cannot participate in economic, social or political processes.

Did you know?

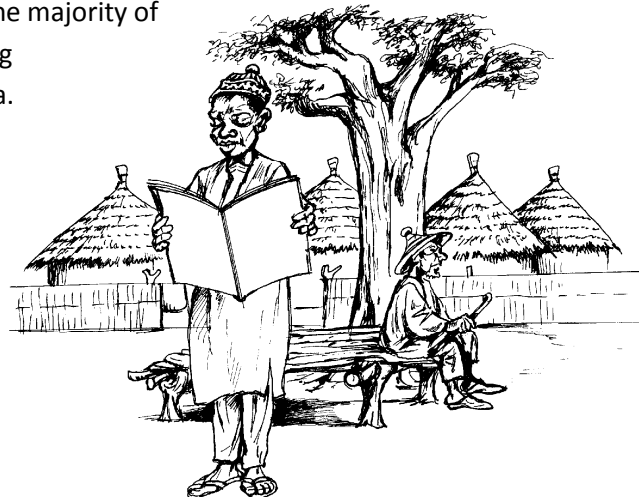
The World Bank measures poverty two ways. The first method is with a **poverty line**. The poverty line is the minimum amount of income a person requires to meet their basic needs in their country at one point in time. It is helpful for measuring poverty at a country level. A second method, used for measuring poverty at the global level, measures the number of people living on less than \$1.25 US and \$2.00 US per day. People living below the \$1.25 US per day threshold are considered to be in **extreme poverty**; People living between \$1.25 US and \$2.00 US per day are considered to be in poverty.

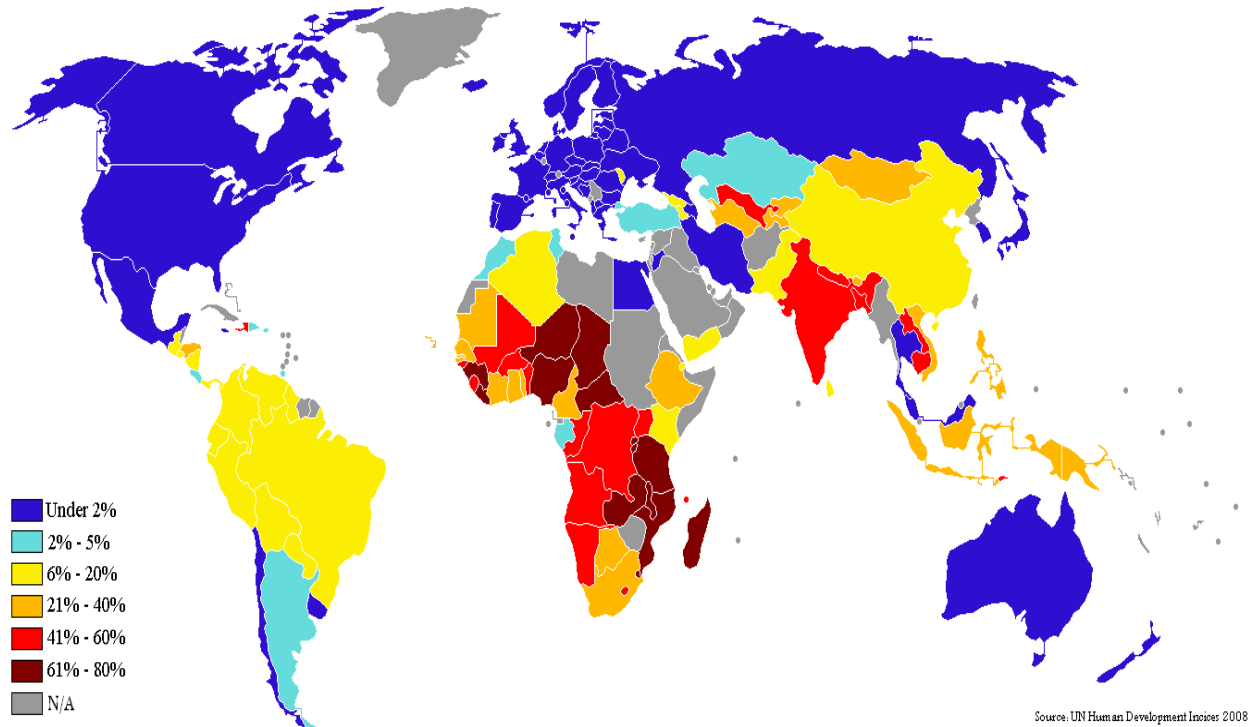
Source: World Bank

web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTPA/0,,contentMDK:22397595~pagePK:210058~piPK:210062~theSitePK:430367,00.html

Poverty and excluded people exist in all regions of the world – even in rich or "developed" countries such as the United States, Japan and Germany. The majority of people living in extreme poverty live in developing countries, mainly in Africa, Latin America and Asia.

Artwork: Sidy Lamine Dramé



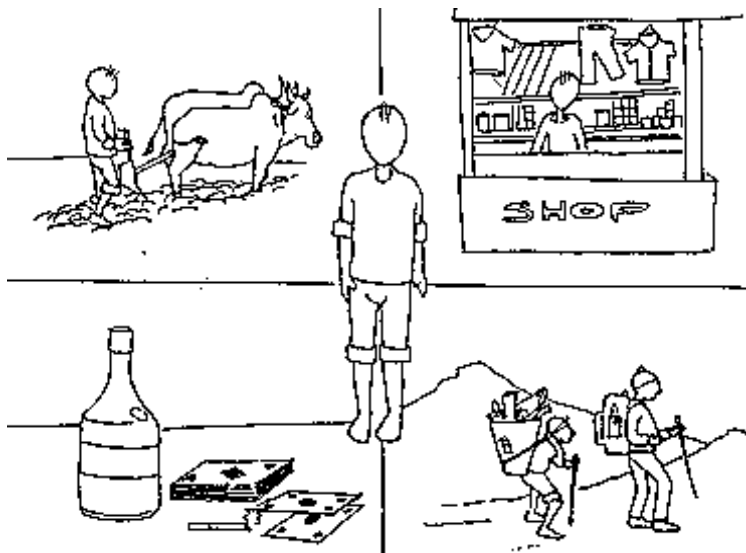


This map shows the percentage of people in each country who live on less than \$1 US per day. Source: UN Human Development Indices 2008.

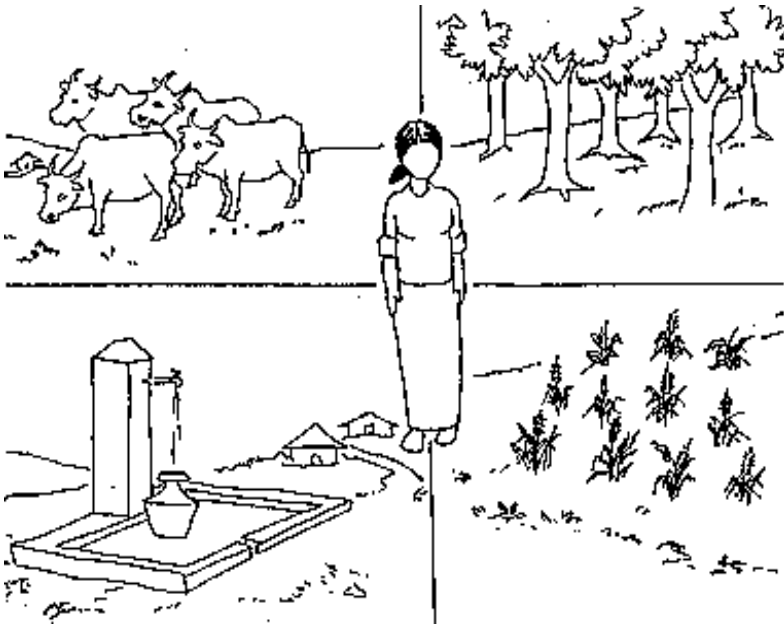
There are many reasons why people cannot satisfy their basic needs; it is not just a lack of money. So, any solution to solving global poverty needs to recognise the complex nature of poverty. One such solution currently being used is something called “**development.**”

Development

The United Nations Development Programme (or UNDP for short) defines human development (or development for short) as the process of enlarging people’s choices and enhancing human freedoms and the range of things people can be and do. The goal is for everyone to live long and healthy lives, to be educated and to have a decent standard of living. Development ensures that people can participate in community life and in decision-making. It aims to keep a high quality of life for the future generations (like you!) and to ensure men and women are equal.



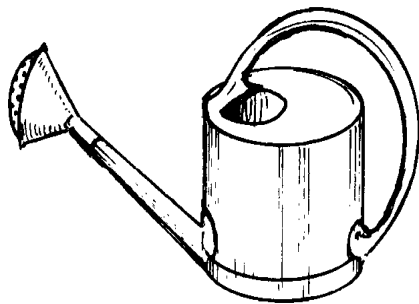
Artwork: Asha Kaji Thaku



Artwork: Asha Kaji Thaku

Development is a means to bring **well-being** to people. There are five main parts of human well-being: security, health, good social relations, basic materials and freedom of choice and action. The security component includes personal safety, secure resources assets and security from disasters. Health includes strength, feeling well and access to clean air and water. Good social relations include social cohesion, mutual respect and the ability to help others. Basic materials for a good life include adequate livelihoods, sufficient nutritious food, shelter and access to goods. Freedom of choice and action means having the opportunity to be able to achieve what you want to be and do.

Did you know?



Almost 20% of people lack access to clean water, leading to major problems in health and well-being. Runoff from forest ecosystems provides some or all of the water for two thirds of the global population. Water sources near well-managed natural forests almost always deliver high quality water with less sediment and fewer pollutants than water sources near degraded lands.

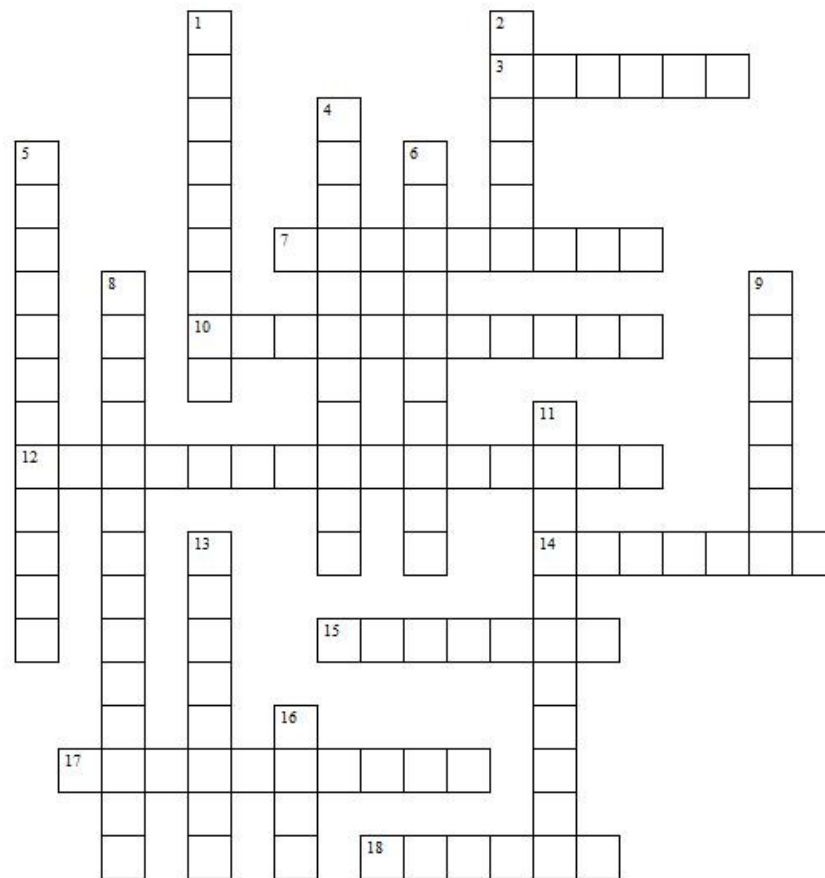
Source: UNEP-WCMC 2007

Artwork: Sidy Lamine Dramé

Summary

Development is a process to lift people out of poverty, to enlarge people's choices, and to enhance human freedoms. The goal is to improve human well-being for everyone. If you've carefully read the first two chapters, you might be thinking "hmmm, there may be a link between biodiversity and development." Let's explore that link in the next chapter.

Development crossword



Horizontal

- 3. 80% of people living in tropical Africa use natural remedies to achieve this development goal
- 7. Being happy, healthy and prosperous
- 10. A chance
- 12. Component of well-being that includes respect and the ability to help others (2 words)
- 14. Type of poverty in which a person lives on less than \$1.25 US per day
- 15. Condition in which there is a lack of choice and opportunities
- 17. Things you need to live such as food, shelter and clean water
- 18. Problem when there is a lack of food

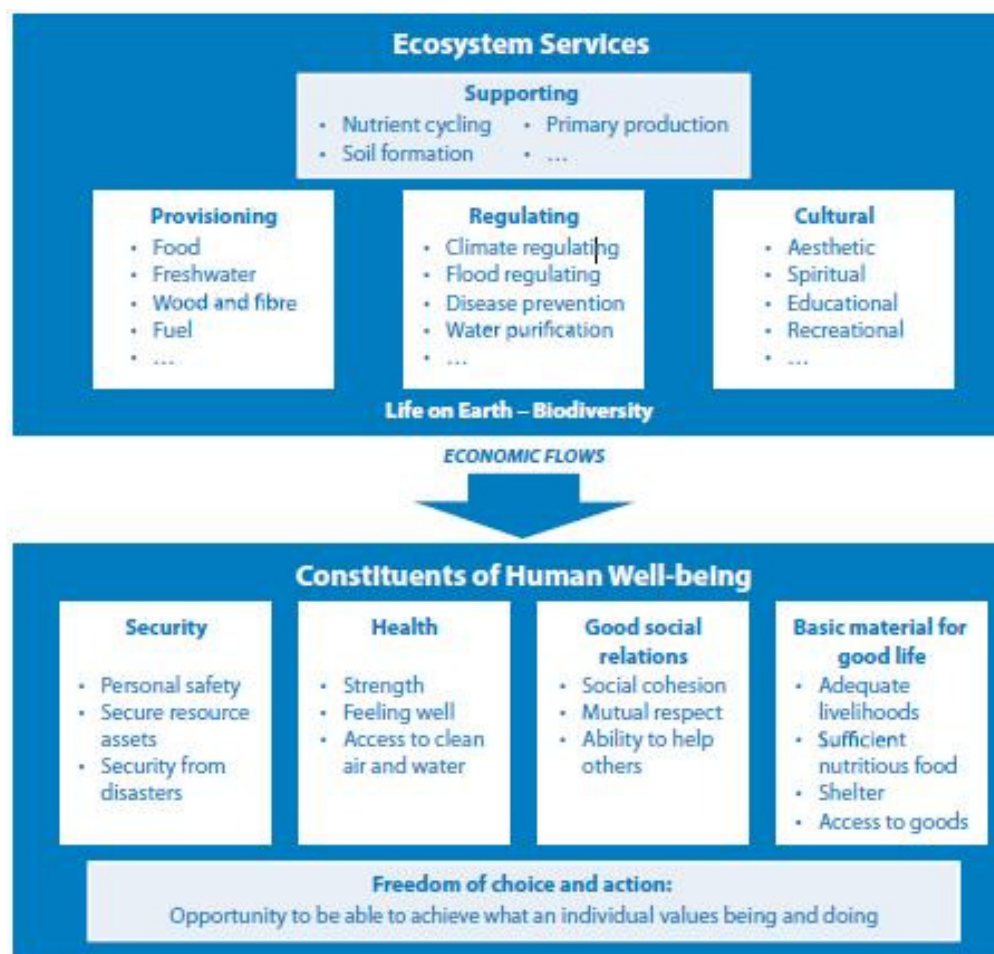
Vertical

- 1. Being left out
- 2. Option
- 4. Process of widening people's choices and enhancing human freedoms and the range of things that people can be and do
- 5. Feeling that often accompanies poverty
- 6. Problem when people cannot read or write
- 8. Component of well-being that includes livelihoods and access to goods (2 words)
- 9. Something enhanced by development
- 11. Minimum amount of income a person needs to meet their basic needs (2 words)
- 13. Component of well-being that includes personal safety
- 16. United Nations agency that focuses on development

III. Are biodiversity and development related?

You've probably guessed the answer to the question "are **biodiversity** and **development** related?" Yes, they are! Biodiversity helps to ensure human **well-being**, and human well-being is one of the goals of development. But how does biodiversity match up with development goals? Is biodiversity equally important to everyone in a country? How can different paths of economic development affect the biodiversity in a community or a country? What are some real-life examples? Read on to find the answers to these questions!

How can biodiversity help achieve development goals? Let's examine some development goals and how the various components of biodiversity can advance these goals. As we discovered in chapter 1, biodiversity is necessary for the **ecosystem goods and services** that all people, rich and poor, depend on. The diagram below divides ecosystem goods and services into four broad categories. See if you can match the ecosystem services with components of human well-being.



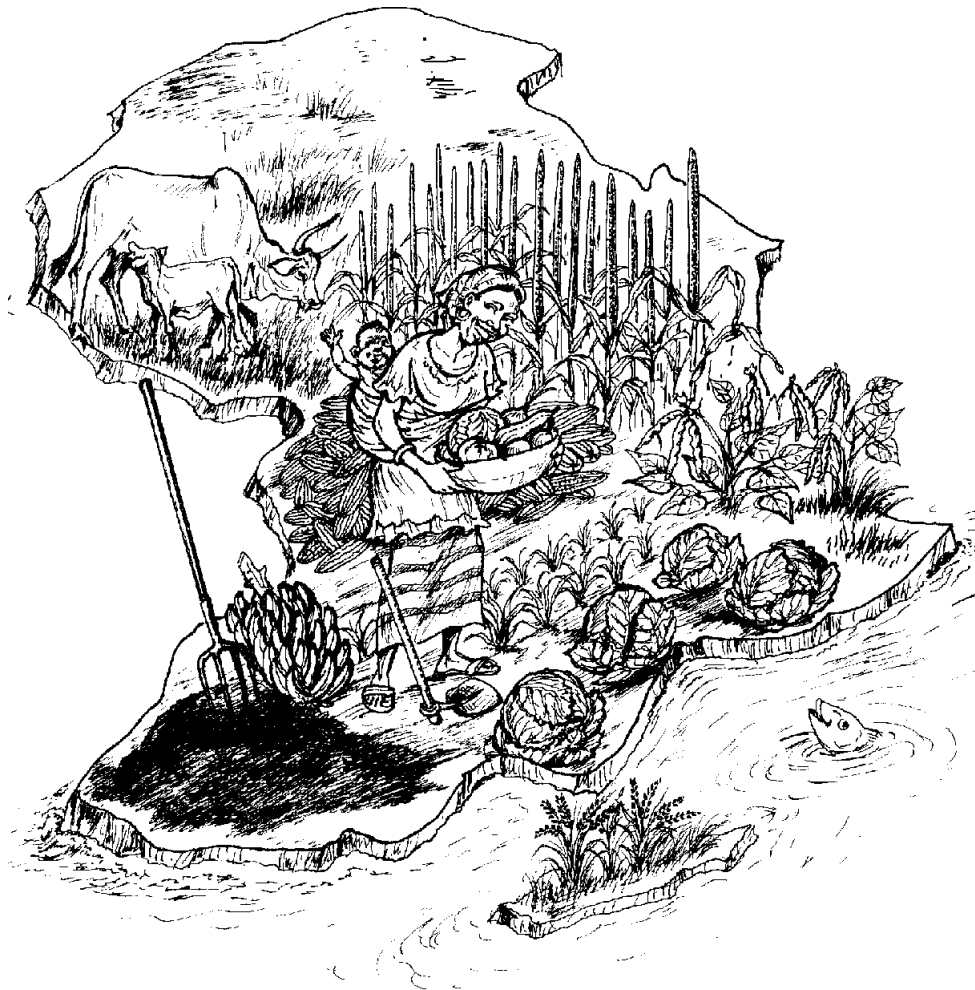
Source: Adapted from MA 2005

Who needs biodiversity?

The importance of biodiversity for well-being is stronger for some people than for others. While everyone benefits from ecosystem goods and services, poor people and communities rely more heavily on biodiversity for their **livelihoods** and survival than rich people and communities. The rich can buy services that are scarce or they can replace them with substitutes. The poor cannot. For example, if a river basin is polluted and cannot provide clean drinking water, wealthy communities build water treatment facilities. Poor communities cannot afford to build such facilities and must drink the unsafe drinking water or find another source of water.

Poor people are especially reliant on certain ecosystem services for:

- food production, **pollination**, pest and disease control and soil fertility, which provide food for a varied diet, famine foods and food security;
- water quality and availability and erosion control;
- supply of natural medicines and regulation of diseases; and
- cultural and spiritual services.



Artwork: Sidy Lamine Dramé

Did you know?

There are about 300,000 pollinator species worldwide, including 25,000-30,000 bee species! Most pollinators are bees, wasps, beetles, butterflies and moths. Some species of birds, bats and other mammals are pollinators.

Source: UNEP-WCMC 2007

Biodiversity benefits both the rural and urban poor. Poor people living in rural areas often depend directly on ecosystem services for their well-being. Poor people living in cities also depend on ecosystem services, both locally and from a distance, for waste processing and detoxification, regulation of water and air quality and small-scale agriculture.

For poor people, it is important to have biodiversity available at the local level. If a country has pockets of biodiversity-rich lands, but all the poor people live in parts of the country where there are low levels of biodiversity and they have to travel for several days to access the biodiversity-rich areas, they don't receive the benefits of biodiversity.

Biodiversity and economic development

Biodiversity can shape the path economic development takes in a country. In other words, the plants, animals and ecosystems within a country influence the type of livelihoods available to people and the types of industries that emerge. For example, countries with vast forests are more likely to have a forestry industry than countries without forests; countries with extensive coastlines are more likely to have fisheries than land-locked desert countries. Industry growth (in forestry, fisheries or other area) is one way to expand people's skills and bring money into communities. The money can be used for schools, hospitals and communications, or for starting other industries. This expansion of people's choices is part development.

Just as biodiversity can affect economic development, economic development can affect biodiversity. When buildings, roads, hydroelectric dams or other types of infrastructure are built, the homes of plants, animals and insects disappear. When a forest is converted into a farm, the type of species found in the area will change from forest species to agricultural species. Some types of development can

enhance biodiversity. In Namibia, for example, the creation of new protected areas allowed wildlife species including elephant, zebra, oryx, kudu and springbok to recover. At the same time 230,000 Namibians found jobs, learned new skills, received small payments and hunted game meat.



Artwork: IIRR Africa

Did you know?

The impacts of environmental disasters such as floods, landslides, drought, crop failure and disease are worse if ecosystems are already degraded. Poor communities in degraded ecosystems were hit the hardest by Hurricane Mitch – the catastrophic storm that caused more than 6,000 deaths and an 80 per cent drop in the gross domestic product of Honduras in 1998.

Source: Science and Development Network scidev.net/en/opinions/conserving-biodiversity-for-development.html

Biodiversity and crises

In recent years, our print, radio, television and online media have bombarded us with news stories about global crises. There's the climate crisis, the food crisis, the fuel crisis and the financial crisis. Each one of these is linked to both development and biodiversity.

Did you know?

Before the recent food, fuel and financial crises, 1.1 billion people lived on less than \$1 US a day and 923 million were undernourished.

Source: World Bank worldbank.org/foodcrisis/bankinitiatives.htm

The climate crisis refers to the negative medium to long-term effects of global climate change, such as rising temperatures, more frequent extreme weather events and ocean acidification, which threaten the planet's ability to support life (including human life). For example, climate change brings hotter growing seasons and increased water scarcity to parts of the world. These effects destroy crops, which makes food scarce and increases the likelihood of famine. The good news is that maintaining biodiversity and healthy ecosystems can mitigate climate change, protect against its impacts and help us to adapt.

Between 2005 and mid 2008, the price of food staples such as wheat, corn and rice skyrocketed by 300 to 500%! This food crisis triggered food riots in over 20 countries and pushed 75 million more people into poverty. High food prices affect poor people: they eat less, switch to cheaper lower quality foods, or spend less on health and education. Even though global food prices have come down since 2008, there are many food production, distribution and consumption issues that need to be solved – including how to promote biodiversity in agriculture.



Artwork: Asha Kaji Thaku

Did you know?

Fisheries are important sources of wild food for the poor. Worldwide, one billion people rely on fish as their main source of protein.

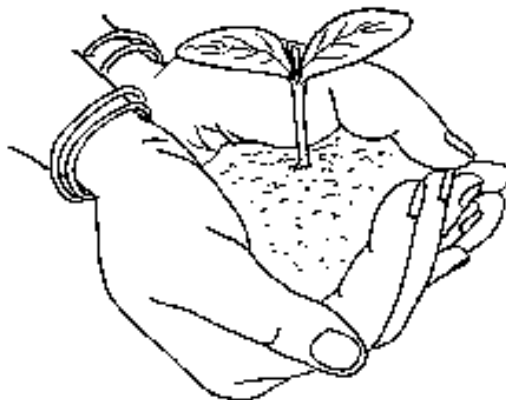
Source: UNEP-WCMC 2007

In recent years, it has become harder and more expensive to obtain fuel, be it fossil fuels such as oil, gas and coal or other fuels such as firewood and charcoal. The fuel crisis impacts poor people. It makes transportation and agricultural inputs such as fertiliser more expensive. It also affects biodiversity. The fuel crisis can make it profitable for companies open new hard-to-reach oil extraction sites, which ends up destroying ecosystems. It can also encourage people to explore other sources of energy such as solar, wind and biofuels.

In 2008 and 2009, many of the world's banks and large investment institutions collapsed. Governments quickly responded to this financial crisis by creating economic stimulus packages and giving trillions of dollars to banks and businesses, to save them from bankruptcy. Imagine what could be achieved if our politicians took biodiversity and poverty challenges as seriously as economic challenges, and responded with equal amounts of money, speed and political will! The impact of the financial crisis was felt by more than just investors who saw the value of their stock portfolios drop. The World Bank estimates that the financial crisis prevented 53 million people in developing countries from escaping poverty, partly because there was less money available for development and biodiversity initiatives. During financial crises poor people cut down more trees and use more natural resources to make up for lost income.

Summary

Biodiversity is critical to development. When it is done thoughtfully and with consideration for people and their **environment**, development can benefit biodiversity. In turn, biodiversity can both ensure the gains of development and help people, especially poor people through difficult times. The next chapter examines some of the actions being taken at local, national and international levels to promote such biodiversity for development.



Artwork: Asha Kaji Thaku

Biodiversity, development and industry game

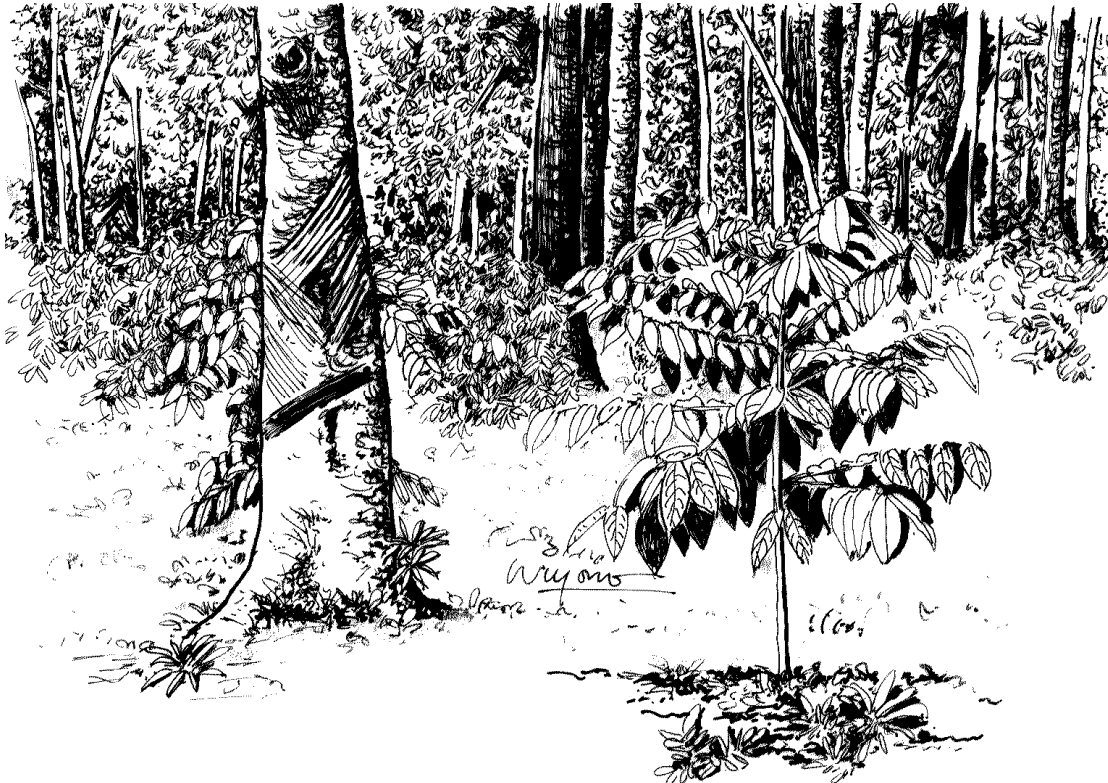
The biodiversity in a country can affect the types of industries that develop there. For each blank, fill in the right word to describe the biodiversity and industry in the countries listed below.

1. In _____, there are vast _____, which support the _____ industry. If not done sustainably, this industry will no longer be able to provide an important source of building materials.
2. _____, in East Africa, has many different cultures and types of landscapes such as _____, _____ and _____. This diversity is good for its _____ industry.
3. The island country of _____ is surrounded by _____, which may explain why the country developed a large _____ industry.
4. The fertility of the _____ and irrigation facilities have helped _____ develop its _____ industry.
5. In the _____ industry, many of the products are inspired by biodiversity, in particular the _____ component. The biodiversity in countries such as _____ and _____ is currently being used by the industry.

Countries: Armenia, Brazil, Costa Rica, India, Japan, Kenya

Biodiversity: freshwater lakes, genetic diversity, highland forests, mountains, ocean coastline, plains, rainforests, savannah, seas, soil,

Industry: agriculture, fisheries, forestry, pharmaceutical industry, tourism

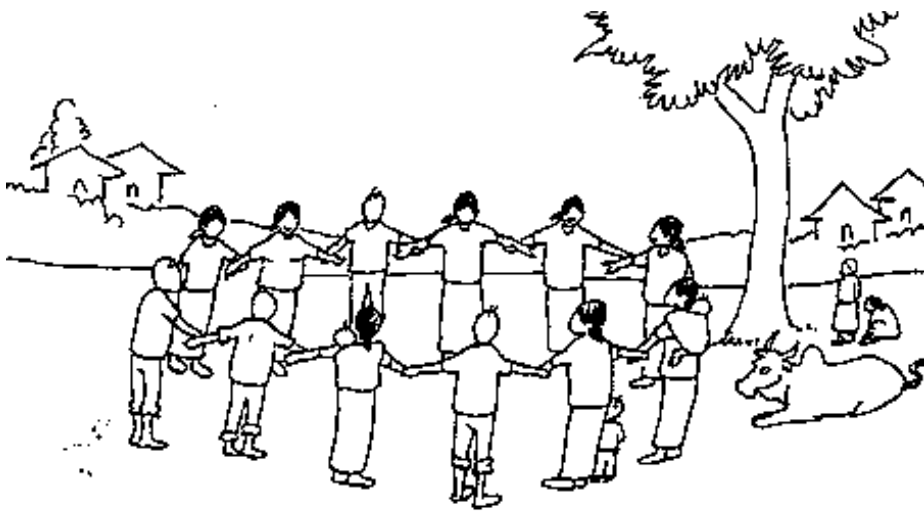


Artwork:
Wiyono

IV. What is the world doing?

Many individuals and groups are taking action at the community, country and global levels to help **biodiversity** and **development**. The work done at each level both depends upon and supports the work done at the other levels. This chapter takes a closer look at who is taking action and how they are doing it.

Community organisations work on biodiversity, development and **poverty** reduction issues at the local level. These groups can be led by schoolchildren, local business owners, municipal politicians, religious groups or small non-governmental organisations (NGOs). Often, local residents identify a problem then set out to solve it. For example, in Peru, the Association of Women Artisans of Arbosol and Huaca de Barro from the Mórrope District are restoring traditional eco-friendly methods of cotton production. The Association oversees the planting and harvesting of native cotton varieties using only pesticides made from natural sources. The members manage water resources and sell high quality handicrafts, which provide income for families. There are many benefits to the community: the recovery of traditional colours of native cotton, the cleaning of water resources through improved management and the availability of organic cotton for local markets.



Artwork: Asha Kaji Thaku

Did you know?

In the Torghar mountains on northwestern Pakistan, tribal elders created a wildlife conservation and trophy hunting area called the "Torghar Conservation Program." Since the program began, trophy hunting has brought \$1,716,800 US to local communities. The money is used to improve the water supply and health care, to provide education and vocational training, and to plant fruit and firewood trees.

Source: CBD 2010

At the national level, it is often the government, businesses or large NGOs who take leadership roles. The work done at this level includes designing strategies, training people, coordinating activities and



Artwork: Richard Iriga

funding the activities of community groups. Protected areas, such as parks and reserves, often feature in national strategies. Protected areas are places to protect biodiversity and promote **sustainable** development. Protected areas play a number of important roles in conserving the world's species and ecosystems, sustaining local livelihoods, contributing to local economies and to human **well-being**, reducing the risks of natural disasters, counteracting the impacts of **climate change**, and maintaining **ecosystem services**.

Did you know?

Biodiversity inspires great ideas, designs and models in business and development. Here are some examples:

- Engineers designed the air conditioning system in the Eastgate Building in Harare, Zimbabwe on termite mounds! The building uses 90% less energy for ventilation and costs \$3,500,000 US less than a comparable building with normal air conditioning.
- The world's fastest train mimics a kingfisher beak! The Shinkansen Bullet Train in Japan is quieter, uses 15% less electricity and is 10% faster than the original model.
- Galapagos shark skin denticles (scales) are helping hospitals fight unwanted bacteria! The bacteria don't stick to surfaces covered with the patterns found on shark denticles, so people in the hospital don't catch as many infections.

Source: CBD 2010

Action also takes place at the international level. International cooperation is necessary for initiatives such as the **Millennium Development Goals** (MDGs) to succeed. The people who tackle biodiversity and development at the global level focus on developing policy, coordinating and supporting actions taken at national and local levels, organising meetings for decision-makers and using scientific research.

Did you know?

The Global Environment Facility's Small Grants Programme (GEF-SGP) uses community-based approaches in 122 countries to achieve global biodiversity conservation and other environmental goals, while simultaneously promoting economic and social progress.

Source: Small Grants Programme sgp.undp.org

The table below lists the eight MDGs and why biodiversity is critical to each one. The MDGs are the action items that emerged from a document called the “Millennium Declaration.” This document was produced in September 2000 when world leaders came to New York City, USA for the United Nations Millennium Summit. There, 189 countries discussed how they could collectively eradicate poverty and solve major development problems.

MDG	Why is biodiversity critical?
1. Eradicate extreme poverty and hunger	<p>Poor people depend on biodiversity for up to 90% of their livelihood needs. When biodiversity is lost, their incomes and livelihoods are compromised. In parts of the world where there is a focus on sustainable use of biodiversity, poverty is being reduced.</p> <p>Biodiversity is the source of all the food production, and so is vital to the 800 million people currently suffering from extreme hunger. Getting rid of hunger depends on sustainable and productive agriculture, which in turn depends on conserving and maintaining soils, water, genetic diversity and ecosystem services.</p>
2. Achieve universal primary education	<p>When ecosystems are intact and healthy, children spend less time collecting water and firewood so they have more time to go to school.</p> <p>Because biodiversity can be a source of income – such as through farming and fishing – it can provide income for a family to pay for school fees. Being properly nourished also helps proper growth and learning.</p>
3. Promote gender equality and empower women	<p>In many developing countries, women are responsible for collecting water and fuel. When ecosystems are intact and healthy, their work is easier, and they have more time to go to school and do other activities.</p> <p>Women tend to have unequal and insecure access to land and other natural resources, limiting their opportunities to use them.</p>
4. Reduce child mortality	<p>33% of childhood diseases are linked to environmental factors. Healthy ecosystems can reduce childhood deaths. Genetic diversity also inspires scientists to create vaccines for deadly childhood diseases such as measles.</p>
5. Improve maternal health	<p>25% of global diseases are linked to environmental factors. Healthy ecosystems can reduce the deaths of mothers by ensuring an adequate supply of clean drinking water and nutritious food.</p>
6. Combat HIV/AIDS, malaria and other diseases	<p>Human health depends on healthy ecosystems. Genetic and species diversity are important for both traditional and modern medicines used to prevent and treat diseases. Biodiversity also filters toxic substances from the air, water and soil, and breaks down wastes that can cause sickness.</p>
7. Ensure environmental sustainability	<p>Biodiversity loss directly affects the quality and quantity of ecosystem services. Biodiversity offers low-cost nature-based technological solutions to development challenges such as access to water and sanitation.</p>
8. Develop a global partnership for development	<p>International agreements can help promote biodiversity and its benefits for the poor. These agreements cover development aid and international trade rules. They can enable countries to pay for environmental safeguards and create pro-biodiversity markets.</p>

Did you know?

In 1969, the World Bank requested the Prime Minister of Canada to study whether or not the efforts of rich countries to bring development to poor countries were working. As a result of the study, in 1970 the United Nations General Assembly asked each donor country to spend 0.7% of the total income of their country to help developing countries. This “official development assistance” (or ODA for short) includes all financial and technical help given to countries to promote their economic and social progress. ODA still exists today and can be used to pay for biodiversity and poverty projects.

Source: World Bank

web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/EXTARCHIVES/0,,contentMDK:20121526~pagePK:36726~piPK:36092~theSitePK:29506,00.html

What about the Convention on Biological Diversity?

In 1992, governments, indigenous groups and NGOs from around the world gathered in Rio de Janeiro, Brazil, to discuss the environment. The Rio Earth Summit was the largest international environmental meeting ever. At the meeting world leaders agreed that it was important to protect the **environment** for all people, including future generations. (That's you!) The leaders decided to create the Convention on Biological Diversity (CBD) to achieve this goal.

A convention is an agreement or a contract. The Convention on Biological Diversity is an agreement between countries based on protecting biological resources. The CBD has three main goals: to protect biodiversity; to use biodiversity without destroying it; and, to share any benefits from genetic diversity equally.

On 10 December 2009, Somalia became the 193rd Party to join the CBD. The Parties (the governments of the countries) include 192 countries plus the European Community. That means that almost all of the world's governments have committed to achieving the goals of the Convention. The Convention is like a textbook that explains how Parties should turn these goals into action. It suggests ways for Parties to help each other by sharing resources and technology so that all biodiversity benefits.

The Convention on Biological Diversity's office is called a Secretariat. It is located in Montreal, Canada. Almost eighty scientists, economists, lawyers, programme assistants and administrative staff work at the Secretariat. Their job is to help the Parties carry out their biodiversity work. Some of the Secretariat staff members dedicate their time to finding solutions to biodiversity and development challenges. You can learn more about their initiatives on the CBD website.

Summary

Solving biodiversity and development problems is no small feat. It's a challenge that demands work at the community, national and international levels done by many people and organisations around the world. Their work is very important, for both people and the planet. But what are some concrete things that young people can do? Let's explore this question in the next chapter.

Groups that help biodiversity and development word search

Find the words listed below in the word search. The remaining letters spell out a secret message.

B I Y * Y E S * * V * S G P A
 I N T G C E * G R * T N R N E
 O S I L I * * * D O I O O G R
 D T N O L Y * O O M B I O L A
 I I U B O * * R A L T V L E D
 V T M A P * S E E A E P I A E
 E U M L N S R M V R C O V D T
 R T O E A T S R N P O L E E C
 S I C R S O E M L * U I L R E
 I O G N L S E S O G N T I S T
 T N I V N N A * Y A T I H H O
 Y A I O T R * * O * R C O I R
 M N C P O V E R T Y Y I O P P
 G L A U D I V I D N I A D L *
 S E S S E N I S U B E N D B C

biodiversity
 businesses
 CBD
 community
 conservation
 country

global
 government
 grassroots
 individual
 institution
 leadership

livelihood
 mainstreaming
 MDGs
 NGOs
 policy
 politician

poverty
 problem solving
 protected area

Artwork: Elijah Njoroge



V. So what can you do?

While it's encouraging to know that the adult world is trying to solve **biodiversity** and **development** issues, you probably want to take action yourself. After all, young people want a healthy thriving planet in which to live, just like their parents and grandparents had. In which case, it may not be enough to wait until you're old enough to vote or get a job. But where can you begin?

Good question! There are many, many options out there. It's important to identify an activity and issue that you're passionate about.

Some of you might want to educate and inform other. Become an online activist. Partake in web-based actions. Post information and show your support for an issue on your Twitter, Facebook or other social media pages. Join relevant groups. Contribute to discussion boards. Build an avatar that goes out and saves biodiversity while eliminating poverty.

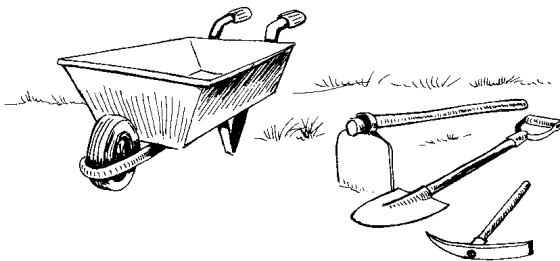
Others among you may wish to take more practical action. It could be a lifestyle choice such as buying fair trade eco-friendly products that promote people and the planet. Or, it could aim to engage other people through activities such as fundraising, cleaning up and protecting local.

Yet others might prefer to participate in youth conferences and debate issues with other young people in your region or even from around the world. Or, if you're politically inclined you could meet with your elected official, write letters to the editor or circulate a petition.

Whatever you decide, encourage others to join you.

Did you know?

The Mathare No. 10 Youth Group Organisation (MANYGRO) in Kenya are greening the Mathare slum. They've started a community garden in an abandoned plot and are growing nutritious sukuma wiki (kale), spinach, onions, tomatoes and other vegetables in large bags suitable for high-intensity urban



farming. Neighbourhood families now have access to fresh vegetables and sell the excess vegetable at the local market. MANYGRO members plan to clean up a small area currently used as a garbage dump and convert it into a small chicken-raising farm.

Source: Mobile Movement

mobilemovement.tv/projects/details/33

Artwork: IIRR 1998

Develop an action plan

Once you've learned about biodiversity and development, you're ready to start taking action. Here are some questions to think about, then discuss with your family, friends and teachers. Write down your answers in the space below, they will form the basis of your action plan.



Artwork: Asha Kaji Thaku

These steps are adapted from the "Getting Started" chapter in The Millennium Development Goals Youth Action Guide by TakingITGlobal.

I. *Get the facts*

Find out what is happening at your school or in your community. There may already be groups working on biodiversity and development issues that you could join.

What do you want to do? _____

Where is the greatest need? _____

What already exists? _____

II. *See the bigger picture*

Your country probably has poverty and biodiversity related projects and policies. Learn about them in your local and national newspapers, government websites and other media.

What is your country doing for biodiversity and development? (Government websites can be a good source of information.) _____

What major community, national and international events are coming up that address relevant issues?

How could you get involved? _____

What are the media covering that related to biodiversity and development? _____

III. *Start planning*

Good planning is vital to your success.

What problem needs to be fixed? _____

Who will join your team in your action project? _____

What are you objectives? (Make sure they are clear, specific and reasonable.) _____

What jobs need to be done, and **who** will do each one? _____

What do you need, and **where** might you find it? (Include tools, supplies, money, etc.) _____

If you need a location, **where** will it be? _____

If your plan involved fundraising, **how** will you fundraise? _____

How will you promote your event(s)? _____

Which media will you reach out to? _____

IV. *Manage your work*

Being flexible and keeping track of your work are important factors in making your project work.

What are your deadlines? _____

How can you best match the tasks that need to be done with everyone's individual interests and schedules? _____

How will you keep track of money? _____

IV. *Follow up*

This is an important step to learn from both your successes and your mistakes.

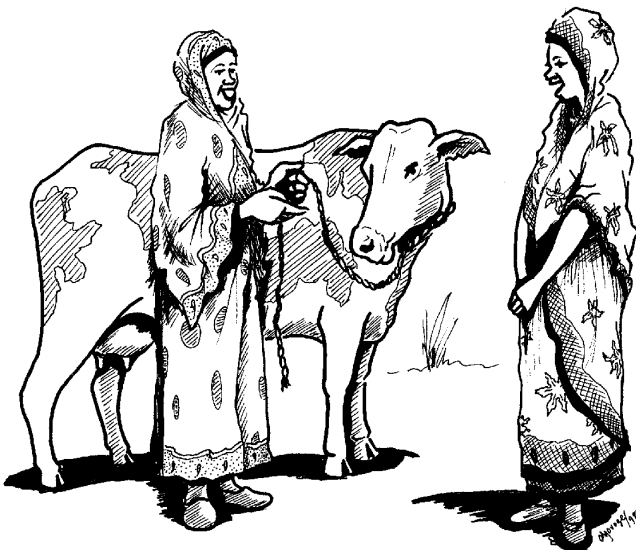
What did you learn? _____

Did everyone follow through with their responsibilities? If not, **what** could you have done? _____

Write the contact information of everyone who contributed to the project. _____

Are there opportunities to repeat your action? _____

What is your long-term objective? _____



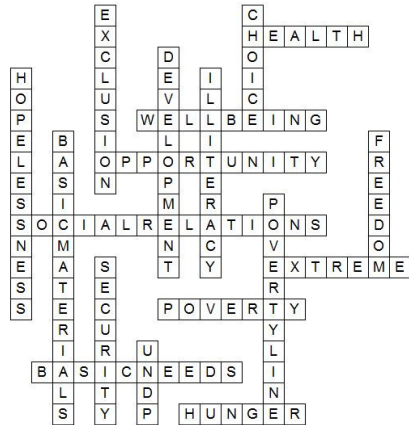
Artwork: Elijah Njoroge

Final notes

Answers:

Chapter 1: Various possibilities

Chapter 2:



Chapter 3:

Brazil-rainforests-forestry

Kenya-(many answers possible) rainforest, savannah, freshwater lake, highland forests, plains, mountains, ocean coastline -tourism

Japan-seas-fisheries

Armenia-soil-agriculture

Pharmaceutical industry -genetic diversity- Costa Rica/India

Chapter 4: Everyone plays a role

Chapter 5: Various possibilities

Additional resources:

- Convention on Biological Diversity: cbd.int
- *The Green Wave*: greenwave.cbd.int
- United Nations Environment Programme for Children and Youth: unep.org/tunza
- United Nations website on the MDGs: un.org/millenniumgoals

References:

- Millennium Ecosystem Assessment (2005) Millennium Assessment Reports. millenniumassessment.org/en/index.aspx
- Secretariat of the Convention on Biological Diversity (2010) *Biodiversity, development and poverty alleviation: recognizing the role of biodiversity for human well-being*. Montreal, 50pp. cbd.int/doc/bioday/2010/idb-2010-booklet-en.pdf
- TakingITGlobal (2005) *Only with your voice: MDG youth action guide*. Toronto, 28pp. tig.phpwebhosting.com/themes/mdg/action_guide_en.pdf
- UNEP-WCMC (2007) *Biodiversity and poverty reduction; the importance of biodiversity for ecosystem services*. Cambridge, 36pp. unep-wcmc.org/latenews/Biodiversity%20and%20Poverty%20Reduction%20UNEP-WCMC.pdf

Other books in this series:

- Secretariat of the Convention on Biological Diversity (2009) *Living in an ecosystem near you: invasive alien species*. Montreal, 30pp. cbd.int/doc/bioday/2009/idb-2009-childrens-booklet-en.pdf
- Secretariat of the Convention on Biological Diversity (2008) *Biodiversity, food and farming for a healthy planet*. Montreal, 30pp. cbd.int/ibd/2008/youth/