



S U S T A I N A B I L I T Y H A S M A N Y F A C E S

12

Our Treasures at Risk

World Heritage in Times of Climate Change
Contributions from Youth Messengers around the Globe

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Our Treasures at Risk

World Heritage in Times of Climate Change
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Editors: Britta Heine, Nina Treu, Thora Amend and Tilman Jäger

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Linguistic review

Ralf Jäger

Series 'Sustainability Has Many Faces'

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Foreword to the series

The major inequalities between rich and poor, the awareness of the finite nature of natural resources, and the increasing threat to the ecological bases of humanity's social and economic development prompted political leaders from 178 countries, in 1992, to develop a new set of solutions. At the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, world leaders signed three international treaties – the United Nations Framework Convention on Climate Change (UNFCCC) (followed by the Kyoto Protocol in 1997), the Convention on Biological Diversity (CBD) and the Convention to Combat Desertification (UNCCD) – which pursue one common goal: sustainable human development. All three Conventions are of equal status in terms of their relevance to the preservation of our natural life-support systems, poverty reduction, and achieving more global justice.

In 2000, the United Nations adopted the Millennium Development Goals, thereby committing to halve global poverty, improve the protection of the environment and achieve equitable development within 15 years. Within the Agenda 2015 framework, Germany too has defined its contribution to supporting the developing countries' efforts to achieve the Millennium Development Goals. Protecting the environment and preserving natural resources are key elements here. We can only achieve sustainable improvements in living conditions for all the world's people if we conserve these resources. Developing countries are particularly hard hit by the impacts of climate change and the growing overexploitation and destruction of natural resources and biodiversity. The German Government has therefore substantially expanded its climate-related development programmes and its contribution to conserving biological diversity in recent years. At the same time, sustainable development strategies which incorporate environmental, biodiversity and climate elements have steadily moved up the policy agenda. The Federal Ministry for Economic Cooperation and Development (BMZ) is scaling up its activities to protect the climate, the environment and natural resources as key sectors of development policy. Thereby, development cooperation is becoming less about searching for straightforward technical solutions and more about providing support and guidance

for people and organisations and empowering them to manage challenging economic and social transformation processes.

Young people often have a strong sense of justice and are keen to understand how our actions here in Germany relate to what is happening elsewhere in the world. They actively seek fundamental, long-term solutions. The United Nations has emphasised the great importance of education for peaceful and equitable global development and has proclaimed the years from 2005 to 2014 the United Nations Decade of Education for Sustainable Development. The 'Sustainability Has Many Faces' publication series is a contribution to this Decade and is therefore primarily aimed at facilitators of development processes, staff of organisations and multipliers working in environmental and development education.

It shows how people in countries with which we are, perhaps, less familiar, are finding ways of improving their conditions of life while developing a more sustainable approach to their natural environment.

The 'faces' of sustainability portrayed are as diverse and creative as the people behind them. They encourage us to change our perspectives and take new approaches. As part of a global learning process, we can respond to their ideas and initiatives by looking at ourselves and our actions in a fresh light, and sharpening our focus on future challenges. In this way, sustainability becomes a learning experience.



Heiko Warnken

Head of Department 'Environment and Sustainable Use of Natural Resource'

German Federal Ministry for Economic Cooperation and Development (BMZ)

Foreword to the World Heritage Publication

Protected areas are cornerstones for biodiversity conservation. In order to deliver the desired results, they need to be integrated within their ecological, economic, cultural and social contexts. This new understanding of the role and management of protected areas for the benefit and well-being of both nature and people leads to many new challenges: What does it mean to integrate protected areas into the broader landscape and other sectors, and how can this be achieved? What are the conditions needed to bring new actors into decision-making? How does this new understanding of protected areas affect the planet's iconic places and features that have been protected as World Heritage sites?

Forty years after the adoption of the World Heritage Convention – in times of climate change and unprecedented biodiversity loss – the Convention is more relevant than ever, and the challenges are increasing. Natural World Heritage sites are crown jewels of the global protected areas network. While more than 13 per cent of the world's terrestrial surface is now dedicated to protected areas, much remains to be done to provide for long term conservation and sustainable development. In the realm of marine conservation we are only starting to understand the needs. The 40th anniversary of the World Heritage Convention presents a great opportunity to re-visit our achievements. What challenges lie ahead, and what does the state of these prestigious areas tell us about the state of nature conservation?

The celebrations will focus on World Heritage and sustainable development, specifically the role of local communities, and will highlight the need for capacity development. This emphasis reflects the reorientation of protected area paradigms. In line with this new thinking in nature conservation, German Development Cooperation pays much attention to the links between the preservation of biological diversity and benefits for poor communities. In fact, biodiversity conservation is a pillar of Germany's contribution to global efforts to eradicate poverty.

Often overlooked, even if increasingly accepted as important, young adults need to be engaged as part of the full range of stakeholders involved in decision-making about the future of the planet. All over the world young people are committing themselves with great

motivation and enthusiasm to the management and conservation of biological diversity. They experience nature, and the loss of it, first hand. It is their generation who will have to bear the consequences of our current actions, or inaction. The International Youth Forum Go4BioDiv, held parallel to the biodiversity conference in Japan in 2010, brought together young adults from World Heritage sites in five continents and 23 countries. Under the heading of 'Our Treasures at Risk – World Heritage in Times of Climate Change' they presented creative statements and stories from the ground, some of which are captured in this publication.

The United Nations-declared Decade on Biodiversity (2011-2020), will be crucial for the implementation of strategic action in relation to World Heritage. Committed Go4BioDiv young people from around the world will play a key role. Each and every one of us is needed to appreciate and safeguard the treasures of our Planet! This publication contributes to the effort by shedding light on diverse aspects of natural World Heritage, development cooperation and youth involvement in biodiversity conservation.

Stephan Paulus

Director 'Environment and Climate Change', Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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Director of UNESCO's World Heritage Centre

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Director General of IUCN

1 Introduction

‘In accepting the trusteeship of our wildlife, we solemnly declare we will do everything in our power to make sure our children’s grandchildren will be able to enjoy this rich and precious inheritance.’

Julius Nyerere (1922 - 1999), first President of Tanzania

Have you ever been to a World Heritage site? Even if you have not been so fortunate, you might still have heard about them: they are the **most outstanding and unique places** our planet has to offer. World Heritage is a recognition awarded to these very special places by the World Heritage Committee of UNESCO, the United Nations Educational, Scientific and Cultural Organization. Maybe the breathtaking Taj Mahal in India comes to mind, or the Egyptian pyramids, witnesses of the ancient empire of the Pharaohs. The World Heritage label is best known for man-made sites such as these, which are classified as cultural heritage. Yet they are only part of our World Heritage; other sites are outstanding for their natural attributes, and still others, known as mixed sites, embody both natural and cultural features. As flagships of protected areas, what role could these sites play in biodiversity conservation and human well-being? Can you imagine some of the particular challenges and chances for World Heritage in times of climate change?

The World Heritage Convention, adopted in 1972 by the United Nations, has the goal of conserving World Heritage sites as gifts from the past for current and future generations – as the well-known proverb of the Native Americans would say: ‘We do not inherit the Earth from our ancestors; we borrow it from our children.’

The Great Barrier Reef, the world’s biggest single structure made up by living organisms; Mt. Kilimanjaro in Tanzania, the highest peak of Africa; and the Galapagos Islands of Ecuador, showcase of the evolution of life on our planet, are all famous and emblematic examples of natural World Heritage sites. The legendary Peruvian Inca sanctuary Machu Picchu, erected on the heights of a spectacular forest mountain range, is a famous mixed World Heritage site.

Natural World Heritage sites are protected areas recognised by the world community as being of Outstanding Universal Value. By this designation, not only the unique character and intactness of the site is acknowledged, but also the need to preserve and manage the areas on a long-term basis. Most natural World Heritage sites form part of the national protected area systems and play important roles in biodiversity conservation. In territorial planning processes, for example, they can be instrumental in halting deforestation, thus preventing further habitat fragmentation and avoiding biodiversity loss, in addition to maintaining the manifold ecosystem services which we humans depend on.

Yet, despite numerous commitments to halt biodiversity loss, **human activity is still putting such a strain on nature** that our planet’s capacity to support the needs of future generations is being seriously undermined. The current global rate of biodiversity loss is unprecedented in the history of our planet, and there is no sign of this process slowing down. On the contrary, climate change is exacerbating this trend, leading to even more widespread loss of biodiversity. World Heritage sites are not immune to these pressures. Many protected areas suffer from serious deficiencies in management or lack of political will to implement the legal dispositions. In addition, there are still notable gaps in protected area coverage across the globe; certain ecosystems, particularly coastal and marine areas, are underrepresented.

Natural World Heritage sites, **the ‘treasures of planet Earth’, can act as benchmarks for human interactions with nature.** World Heritage puts our commitment to safeguard biodiversity and to reconcile conservation and development to a sharp test: are we as a global community willing and able to safeguard our treasures for the

future – to give the planet we have borrowed from our children back to them in the same or even better condition? Can we ensure that these special places survive the challenges they are facing, including climate change? To accomplish the growing task of safeguarding biodiversity and reducing climate change impacts, all sectors of society need to unite and develop sustainable strategies for the future of life on Earth. Valuing biodiversity has to become an integral part of our development path.

It is a task that has to be accomplished by developing and developed nations together.

The conservation of biodiversity for the benefit of the poor also lies at the core of **German Development Cooperation**. It is deeply enshrined in Germany's international strategy to combat poverty, the Programme of Action 2015. This national programme has the task of implementing the Millennium Development Goals – to halve extreme poverty and hunger through sustainable,



The Great Barrier Reef on the eastern shores of Australia comprises the world's biggest single structure made up by living organisms. Because of the outstanding universal value of the extremely diverse coral reef, it was declared a natural World Heritage site.

environmentally protective and equitable levels of development by 2015. The German Federal Ministry for Economic Cooperation and Development (BMZ) and its implementing agencies, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the KfW therefore support numerous partner countries in the establishment and management of protected areas, some of which are natural or mixed World Heritage sites. In order to provide more funding for international biodiversity conservation and its sustainable use, German Chancellor Angela Merkel has pledged an additional 500 million Euros until 2012 (on the basis of 2008) and from 2013 onwards 500 million Euros annually for the conservation and sustainable use of forests and other ecosystems at the occasion of the 9th Conference of the Parties to the Convention on Biological Diversity (CBD-COP 9) in Bonn. These additional resources will further strengthen the long-standing engagement of Germany as one of the main bilateral donors in this area. For more information on German ODA Commitments for biodiversity and forest conservation see page 66. When it comes to the involvement of stakeholders in biodiversity conservation, it is especially the young people who should play a significant role since it is them who will bear the consequences of today's actions and decisions. Thus it is essential that they actively participate in the development of strategies to conserve and wisely use our planet's cultural and ecological diversity for the future. The **International Youth Forum Go4BioDiv** was held in parallel to the CBD-COP 10 in Nagoya, Japan, in October 2010. At that conference, 34 young people from 25 World Heritage sites around the globe came together to share their experiences and ideas, learn from each other and articulate a clear message to governments and to society. They came from such outstanding places as the extensive mudflats of the German Wadden Sea, the Greenlandic glacier Illulissat Icefjord, the habitat of the highly endangered gorillas in Kahuzi-Biega National Park in Congo (DRC), the isolated Galápagos Islands in Ecuador, the snow-covered mountains of the Himalaya in Nepal, and the small island Kingdom of Tonga in the South Sea. With video statements, dance performances, public discussions, an exhibition and a colourful treasure box, they called upon decision-makers and society to take serious steps towards halting biodiversity loss and conserving the precious sites which are their homes. Continuing in the spirit of the first Go4BioDiv, which was held in Bonn in 2008 parallel to CBD-COP 9, the

youths in Nagoya once again inspired international decision-makers and showed them who should sit at the negotiating table with them: the younger generation of dedicated, enthusiastic people, representing their indigenous nations, local communities, ethnic minorities, and regions directly affected by climate change. All of these young people are committed to biodiversity conservation in their regions. Their stories have inspired this publication: **Our Treasures at Risk**.

Structure of the publication

This publication is dedicated to the topic of natural World Heritage. It explores how these outstanding sites can function as the flagships of protected areas and thereby support biodiversity conservation as well as human well-being. A number of educational elements allow the reader to reflect on the facts and thoughts brought to light here or to discuss some aspects in greater depth. **Information boxes** (framed in grey) as well as an interview with the Director of the World Heritage Programme in IUCN highlight several issues relevant to natural World Heritage, and an interview with Heiko Warnken, Head of Division Environment and Sustainable Use of Natural Resources, German Federal Ministry for Economic Cooperation and Development (BMZ).

Following the **Introduction (Part 1)**, **Part 2** presents the conceptual basics of **biodiversity conservation**, gives a brief introduction to the important international regimes with regard to climate change and biodiversity conservation, and describes concrete efforts to protect and conserve our natural treasures. It explores the **role of World Heritage** in the context of protected areas and biodiversity conservation, including management concepts and governance categories. **Part 3** presents the **challenges that confront** natural World Heritage sites and their biodiversity values. It elaborates on **chances**, or opportunities, that the World Heritage designation can offer to tackle these challenges. **Part 4** explores the connections between **protected areas and development** on the ground. Many poverty reduction strategies today place the maintenance of ecological services at the centre of their activities. Using **practical approaches** of German Development Cooperation as examples, Part 4 shows how protected areas can become important elements within regional development strategies. **Part 5** elaborates on the **role of youth in conserving biodiversity**. It



**Go4BioDiv Messenger Avaaraq, Ilulissat
Icefjord, Greenland**

'Take a look at me. Take a look at my friends.
Our homelands are suffering the conse-
quences of climate change. We are not just
another story in the news. We are the ones
who need action now. This is personal!'

In Kalaallisut (Greenlandic):

Qiviariangga

Ikinngutikka qivialaakkit

**Silaannapallanngoriar torneratakingunerani-
nunatanger larsimaffigutnaalliupput**

Tusagassutig utnutaarsiassa annaanngilagut

Uaguttassaa vugutiliusunikpisa riaqartitsisut

Uagutsinnut inuttutpingaarute qaqaq.

presents the World Heritage Education Programme and the International Youth Forum Go4BioDiv as well as other strategic efforts, highlighting the importance of ongoing youth initiatives for successful environmental politics and biodiversity conservation.

Statements of young people from around the world who participated in Go4BioDiv 2010 illustrate the threats to the treasures of our planet. These brief statements (framed in orange) are found throughout the publication; they were originally recorded on video and presented at the CBD conference in Japan in 2010. A **map** highlights the sites represented by the youth messengers of Go4BioDiv and illustrates the relationship between **World Heritage sites and Biodiversity Hotspots**.

In addition to the short examples mentioned throughout the text, **Part 6** presents **three longer case studies** of

Go4BioDiv World Heritage sites. They illustrate topics discussed in Part 1 to 5: **Phong Nha-Ke Bang National Park in Vietnam**, established to protect extensive tropical karstic formations with huge cave systems; **Kahuzi-Biega National Park in the Democratic Republic of Congo**, which aims at protecting the outstanding tropical forest diversity and the habitat of the highly endangered lowland gorillas (Grauer's Gorilla); as well as the **bilateral World Heritage site Wadden Sea of Germany and the Netherlands**, which covers one of the world's largest intertidal ecosystems. **Part 7** summarizes the main arguments of the publication and presents an outlook on the future, exploring the necessary steps for effective nature conservation and a sustainable development path, in which youth engagement plays an important role. The **Appendix (Part 8)** contains a glossary and list of abbreviations, as well as links and suggestions for further readings on issues related to World Heritage, biodiversity conservation and climate change.

The publication's main target groups are coordinators of youth groups, facilitators for environmental communication and global learning, as well as multipliers in extra-curricular integrated education initiatives or development policy contexts. In the spirit of the UN Decade of Education for Sustainable Development, the publication provides resources for further work on the core topics addressed; it can be used as **educational material**, especially the **information boxes** framed in the margin colour of each part. These boxes contain suggestions for topics to discuss or reflect upon or use in role-plays. Information boxes framed in grey highlight additional information on a specific topic. Text highlighted in yellow contains information on sources and additional reading. A **DVD** accompanying this publication contains **background material** on the International Youth Forum Go4BioDiv (including video clips), a **collection of learning activities** provided throughout the publication in the information boxes, and selected literature on the subject in PDF format.

The statements of the Go4BioDiv messengers in a video clip can be found here: www.go4biodiv.org

The transcriptions of the statements can also be found in a PDF-file on the DVD accompanying this publication.

Selected student activity and information sheets on World Heritage, as extracts from the interactive educational kit 'World Heritage in Young Hands' can be found on the DVD accompanying this publication. The whole kit can be ordered from the World Heritage Centre: whc.unesco.org

2 Conserving biodiversity: the role of natural World Heritage

‘With unprecedented changes occurring in the world and a great deal of uncertainty about the future, we can no longer ignore the fundamental role of biodiversity as a foundation of human well-being. The development choices we make must recognise that the economy, environment and human well-being are all interconnected.’

Julia Marton-Lefèvre, IUCN Director General

Biodiversity and ecosystems services: our source of life at risk

At the Great Barrier Reef of Australia clownfish grind against rock and anemone arms flutter, while shoals of fish and shrimps seem to dance in the ocean swell. In the lush rainforest of the Central Amazon Conservation Complex, monkeys play and little fungi form symbiotic living communities with the roots of giant trees, each providing the other with important nutrients. Amongst the astonishing karstic formations of the Phong Nha-Ke

Bang region in Vietnam, cave-dwelling species have adapted to a life in darkness; they could not survive outside the caverns. These natural World Heritage sites are exceptionally beautiful and provide an outstanding testimony of earth’s history, replete with important evolutionary processes. They provide spaces for in-situ (on site) conservation of biodiversity. Yet why is that so important? What is biodiversity and why does it need to be protected?

Biological diversity – or biodiversity – is the term given to the variety of life on earth and the natural patterns it

Forests such as the Primeval Beech Forests of the Carpathians in Slovakia provide a wide range of ecosystem services.



forms. The Convention on Biological Diversity (CBD) is an important outcome of the United Nations Conference on Environment and Development, the so-called Rio Earth Summit, held in 1992. This international agreement defines biodiversity as the ‘diversity of species, genes within the species, and ecosystems’.

An **ecosystem** is a biological environment where all organisms – plants, animals, micro-organisms and humans, as well as non-living elements – interact as a functional unit. Its varieties include forests, drylands, wetlands and mountains, lakes, rivers, islands, agricultural lands, and more. **Genetic diversity** refers to the variation of genes within a population of a single species, and within different populations of the same species. Biodiversity has an inherent value, but humans also depend on it for the provision of multiple **ecosystem services**. Our whole life is connected to the services provided by the natural environment. Without them, we would have no clean water to drink and no food to eat. We would lack many of our clothes, medicines, or construction materials for our houses. Ecosystem services can be classified into four categories:

- **Provisioning services:** goods obtained directly from ecosystems (e.g. food, water, medicine, materials like timber, fibre or fuel)
- **Regulating services:** benefits obtained from the regulation of natural processes (e.g. climate and flood regulation, water purification, pollination and pest control)

- **Supporting services:** regulation of basic ecological functions and processes that are necessary for the provision of all other ecosystem services (e.g. nutrient cycling, soil formation and photosynthesis)
- **Cultural services:** psychological and emotional benefits gained from human relations with ecosystems (e.g. recreational, aesthetic and spiritual experiences).

UNEP-WCMC set up an online glossary of different areas of biodiversity importance:
www.biodiversitya-z.org

In order to provide ecosystem services, nature has to be healthy. Yet biodiversity, the foundation of ecosystem services, is threatened throughout the world. We are currently experiencing a global loss of biodiversity unprecedented in the history of our planet. The Millennium Ecosystem Assessment – a major study by the world’s leading scientists in biodiversity – showed that almost all of Earth’s ecosystems have been dramatically transformed through human actions and that nearly two thirds of ecosystem services are in decline. The situation is particularly alarming in developing countries, since biodiversity loss and ecosystem degradation happen faster in countries of the South with high population and infrastructure growth. Although everyone suffers from ecosystem degradation, **the poor are disproportionately hit** because they depend most directly on ecosystem services. Rural poor for example, who account for three quarters of the 1.7 billion poor worldwide, strongly rely on collected firewood, naturally



Mining – here at Madre de Dios in Peru – is one of the major threats to biodiversity.



Go4BioDiv Messenger Li, Wulingyuan, China

'If we give nature what it wants, it will give us what we need.'

In Chinese:

如果我们给自然它想要的，
它就会给我们想要的。

cleaned fresh water and traditionally used medicinal plants for their daily survival. Environmental income, directly generated from ecosystem goods and services, accounts for about two-thirds of their household income. Degradation therefore clearly affects their well-being. In addition, the access of the poor to ecosystem services has become restricted due to unclear property rights and through over-exploitation of resources such as land or coastal fishing grounds.

Drivers of biodiversity loss

Scientists distinguish between direct and indirect drivers (or underlying causes) of biodiversity loss. According to the Global Biodiversity Outlook 3 (SCBD 2010) the main underlying causes are population growth and unprecedented consumption levels since the second half of the 20th century. The report identifies the following direct drivers of biodiversity loss:

- habitat loss, alteration and fragmentation,
- over-exploitation and unsustainable use of natural resources,
- excessive nutrient load and other forms of pollution,
- invasive species, and
- climate change.

The livelihood of many Vietnamese farmers directly depends on ecosystem services such as the provision of water or agricultural products. This is true for a great number of the world's 1.7 billion poor people.





Go4BioDiv Messenger Fumiko, Satoyama Initiative, Japan

‘Mountains are sacred to our people. Now we see the tree lines moving up and the glaciers rapidly melting. Human lives and species, which rely on these ecosystems, are in peril. Mountain ecosystems are powerful indicators of climate change.’

In Japanese:

山は私達全員にとって神聖なものです。今、森林限界線は上昇し、氷河は急速に溶けています。これらのランドスケープをたよりに生きる人間と生物は危機にひんしています。山は気候変動をはかる有効な指標です。

Habitat loss or fragmentation is caused mostly through conversion of land for agriculture, aquaculture and industrial or urban use. Animals and plants are harvested for food, materials or medicines at a rate beyond the reproductive capacity of populations. The overfishing of our seas is an alarming example of this. Excessive use of pesticides in agriculture and aquaculture, mining and oil extraction all pollute our ecosystems. Invasive species are introduced deliberately or accidentally to different ecosystems, mainly due to travel activities and trade. Climate change – caused by rising levels of greenhouse gas emissions from burning of fossil fuels, forest clearing, and industrial processes – is adding to these pressures. A growing world population is putting even more stress on already scarce natural resources.

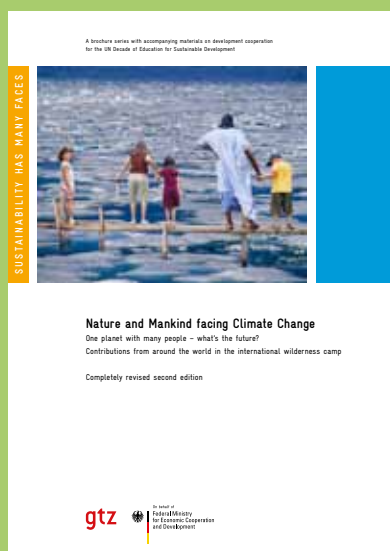
Climate change is most likely to become the main driver of biodiversity loss in the near future. Scientists expect, for example:

- major habitat shifts leading to displacements for many species to higher elevations or closer to the polar regions,
- changes in species composition,
- increasing risk of invasive species,
- changes in ecosystem structure and functions,
- modifications in growth and reproduction rates,
- variations in timing of seasonal events, such as the earlier appearance of leaf shoots or earlier flowering,
- and, in consequence, many plant and animal species to be threatened with extinction.

Source and further reading:

- IPCC (2007): 4th Assessment Report. Summary for Policymakers.
- SCBD (2010): Global Biodiversity Outlook 3.
- WRI (2005): Millennium Ecosystem Assessment
- WWF (2010): Living Planet Report.

These texts are available as PDF files on the DVD accompanying this publication.



Further information on the causes and impacts of global warming as well as the linkages between climate change and biodiversity can be found in the publication ‘Nature and Mankind facing Climate Change’, Vol. 8 of the series ‘Sustainability Has Many Faces’ (available as PDF files on the DVD accompanying this publication).

Tackling climate change and safeguarding biodiversity: international approaches

After a long period of increasing environmental degradation in the 1970s and 80s and mounting political pressure on the world's governments to act on the most pressing global ecological and social challenges, we are now witnessing considerable and increasing worldwide efforts to conserve biodiversity, to bring climate change to a halt and to adapt to many of its unavoidable consequences. The most important international frameworks which are guiding our responses to these challenges are the three so called Rio Conventions which were negotiated and agreed upon at the Earth Summit in Rio in 1992. For the first time, the global problems of climate change, the loss of biodiversity, and increasing desertification and land degradation were recognised as serious threats to human development and the future stability of our planet. Of the three international agreements adopted in Rio, the main treaty for tackling climate change is the United Nations Framework Convention for Climate Change (UNFCCC), which entered into force in 1994. With the adoption of the Kyoto protocol in 1997, the UNFCCC created a mechanism for the attainment of its goals. The protocol, in force since 2005, is the first international treaty to include binding targets for the reduction of greenhouse gas emissions under international law: the industrialised countries are required to cut their emissions by at least 5 per cent below 1990 levels, by 2012.

In December 2011, the UN Climate Change Conference in Durban, South Africa, concluded with the adoption of the 'Durban Platform', a roadmap for a global climate



Go4BioDiv Messenger Sudeep, Sagarmatha, Nepal

'We strongly urge for compliance of international agreements that protect the integrity of indigenous lands. They should be effectively enforced to stop ecologically and culturally destructive practices in their territories!'

In Nepali:

'Adivasi jananati ko chetra lai samrachan pradan garney antarastriya sandhi samjhauta haru lai palana garna, hami jor dar mag garda chaun. Paryawaran ra sthaniza sanskriti haru lai hani garney abhyash haru lai rokna pani yi samjhauta haru ko palana garna awashyak chan!'

Mangrove forest such as the World Heritage site Sundarbans in India, wetlands, coral reefs, cloud forests, mountainous regions and arctic ecosystems are considered to be particularly vulnerable to the impacts of climate change.



agreement. A working group is now working on a **new universal legal agreement to be adopted by 2015 and implemented from 2020**. This will also include the reduction of greenhouse gas emissions from deforestation as well as financing mechanisms for adaptation measures. Until then, the Kyoto Protocol will remain in force: governments agreed on a second commitment period starting in 2013. Also, the Green Climate Fund was launched, which will funnel some of the USD 100 billion that industrialised countries have promised to make available to developing countries by 2020, to help them cut emissions and adapt to climate change. For 2012 and 2013, Germany will provide EUR 40 million to facilitate the fund's start-up phase.

Additional information: www.unfccc.int

The **Convention on Biological Diversity (CBD)**, also adopted in 1992 in Rio and in force since 1993 is now the most important international regime with regards to biodiversity conservation. With 193 signatory members, the CBD is truly universal in scope. The only countries

that have not ratified the Convention are the United States of America, Andorra and the Vatican. The three main objectives of the CBD are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. These goals are thus closely related to human well-being. In 2002, the **World Summit on Sustainable Development (WSSD, Rio+10)** in Johannesburg endorsed the CBD target of achieving a significant reduction of the rate of biodiversity loss by 2010 as a key contribution to reaching the **Millennium Development Goals (MDGs)** on alleviating poverty.

In 2004, the CBD parties adopted the **Programme of Work on Protected Areas (PoWPA)**, which involves 'the most comprehensive and specific protected area commitments ever made by the international community' (CBD-PoWPA). By 2010, the Programme had already had significant impact, with nearly 6,000 newly established protected areas covering some 60 million hectares – equivalent to about double the size of Italy



In 1998 and 2002, coral bleaching events affected more than 50 per cent of the Great Barrier Reef. According to the Great Barrier Reef Marine Park Authority, temperature increases of only 1.5–2° C lasting for six to eight weeks are enough to trigger bleaching. When high temperatures persist for more than eight weeks, corals begin to die.



Go4BioDiv Messenger Sven, Wadden Sea, Germany

‘Do we need to put a price tag to every species and ecosystem before we are able to value and conserve them?’

In German:

‘Müssen wir erst ein Preisschild auf jede Tier- und Pflanzenart oder Ökosystem kleben, damit wir ihren Wert erkennen und sie schützen können?’

or the Philippines. In total, 130,000 protected areas now cover 13 per cent of the world’s terrestrial surface and six per cent of territorial marine areas. The Strategic Plan 2020 (Aichi Biodiversity Targets, see page 21), adopted at COP 10 of the CBD in October 2010, reinforced the enormous importance of protected areas as cornerstones of biodiversity conservation. Target 11 of the Plan calls for at least 17 per cent of terrestrial and inland water areas and ten per cent of coastal and marine areas to be conserved by 2020 through protected areas.

In addition, two protocols have been developed to foster the implementation of the Convention’s three objectives: the **Cartagena Protocol on Biosafety** (adopted in 2000, in force since September 2003), and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (**ABS-Protocol**, adopted in 2010 and at present in the ratification process by the signatory countries). The Cartagena Protocol governs the movements of living modified organisms resulting from modern biotechnology, better known as genetically modified organisms (GMO), between countries. The ABS-Protocol is considered to be a remarkable breakthrough towards a global scheme

Valuing biodiversity

For centuries, ecosystem services have been taken for granted and used without any compensation. This undervaluing of services and goods has led in many cases to distortions of economic effects and in political priority setting, for example, in land-use planning and infrastructure development. It has also brought about the depletion of resources such as clean water and air, fish, non-timber forest products, and bush meat; this has sometimes caused difficult situations for indigenous and other local communities.

In general, little is known about the broad economic value of biodiversity and the financial implications of its loss on a global scale. ‘**The Economics of Ecosystems and Biodiversity**’ (TEEB), published in 2010, was the first large international study to shed light on this.

The TEEB report was inspired by the so-called ‘Stern Review’ produced by the UK climate policy advisor and former World Bank chief economist Sir Nicholas Stern. Stern had calculated the economic cost of

climate change implications versus the cost of reducing greenhouse gas emissions. He estimated the total cost of climate change consequences as potentially equivalent to an annual loss of 20 per cent of the global gross domestic product. In comparison, the cost of taking action and reducing greenhouse gas emissions would amount to no more than 1 per cent of the global gross domestic product annually. The TEEB report highlights the strong linkage between biodiversity loss and ecosystem degradation and human welfare. The report emphasizes the need for urgent conservation action. By raising public awareness about the multiple values of biodiversity and ecosystems and by highlighting the economic relevance of biodiversity, the TEEB initiative has enabled a dialogue across different sectors, all of which have an impact on biodiversity and ecosystem health and in many cases depend on them.

Sources: TEEB (2010): The Economics of Ecosystems and Biodiversity; Stern (2007): The Economics of Climate Change

for access and benefit sharing regulations, which aims at sharing the benefits arising from the utilization of genetic resources such as plants, animals or micro-organisms in a fair and equitable way, thereby supporting livelihoods of local communities, establishing new partnerships with the private sector, and providing incentives for the conservation of biological diversity and the sustainable use of its components.

Despite all of these international initiatives, the global community is falling short of achieving the target of halting biodiversity loss: on a global scale, nearly all indicators show negative trends. This is why in 2010, at the tenth Conference of the Parties (COP 10) in Nagoya, Japan, the CBD-member countries adopted a revised and updated **Strategic Plan for Biodiversity**, including the Aichi Biodiversity Targets, for the 2011-2020 period. The mission of this plan is to enhance effective and urgent action to halt the loss of biodiversity. By 2020, the resilience of ecosystems, the continuous provision of essential ecosystem services, and the planet's variety of life shall be secured, thus contributing to human well-being and eradication of poverty.

The Aichi Biodiversity Targets for 2020 include – among others – the following important objectives:

- to at least halve and, where feasible, bring close to zero the rate of loss of natural habitats, including forests;
- to conserve 17 per cent of terrestrial and inland water realms and ten per cent of marine and coastal regions as protected areas;
- to enhance ecosystem resilience and the contribution of biodiversity to carbon stocks, including the restoration of at least 15 per cent of degraded ecosystems through conservation and restoration measures;
- to make special efforts to reduce the pressures on coral reefs;
- to safeguard ecosystems that provide essential services, including water, and contributions to health, livelihoods and well-being;
- to develop and apply positive incentives for the conservation and sustainable use of biodiversity.

The United Nations declared 2010 the **International Year of Biodiversity** to globally promote biodiversity conservation and its sustainable use. Through this action, progress was made in conveying the many ways in which biodiversity is related to human well-being. The message was / is: the protection of our planet's diversity is not just about saving a few cute animals and some attractive plants; it is about preventing risks to entire ecosystems,

economies and, ultimately, human life. The report 'The Economics of Ecosystems and Biodiversity' (TEEB), initiated during COP 9 in Germany and officially launched during COP 10 in Japan, is an important element in getting this message across (see information box page 20). In view of the ongoing loss of biodiversity, the United Nations have declared the coming ten years as decisive for political will and societal actions: January 2011 therefore marked the beginning of the United Nations Decade on Biodiversity 2011-2020.

Sources and additional information:

- www.cbd.int
- **CBD Programme of Work on Protected Areas:** www.cbt.int/protected
- **UN Decade on Biodiversity 2011-2020:** www.cbd.int/2011-2020
- **Interactive web cast: The UN Decade on Biodiversity 2011-2020**
- **Dr. Ahmed Djoghlaif, former CBD Executive Secretary and Monique Barbut, CEO of the Global Environment Facility, discusses the concept of biodiversity:** www.youtube.com > search 'Live, interactive UN web-cast: The UN Decade on Biodiversity 2011-2020'

Further information on the Convention on Biological Diversity can be found in the publication 'Development Needs Diversity', Vol.1 of the series 'Sustainability Has Many Faces' (available as PDF files on the DVD accompanying this publication).

GIZ has launched the Pilot-Initiative TEEB on incorporating the costs of ecosystem services into development cooperation programmes. Fact sheets on biodiversity, economic valuation and TEEB can be found on the DVD accompanying this publication.

The Rio Conventions, their protocols and the various work programmes established under the agreements, serve as legally-binding guidelines for national processes and international cooperation to address biodiversity conservation, climate change and to support a more sustainable global development path. They establish

Reflection and discussion: Valuing biodiversity

What ideas occur to you for placing a value on biodiversity, including both its material and immaterial assets? How would you proceed if you were given such a task?

Do you think nature and its 'services' should be valued in financial terms at all? Discuss the benefits and downsides of such a valuation.

common objectives and targets, provide concrete policy and scientific advice, and support and inform the implementation of activities on the ground and help to mobilize sufficient resources and funding. In addition, national governments as well as civil society are engaged in a large number of programmes and initiatives implementing these intergovernmental agreements on the national and local level. Measures range from grassroots to national and from regional to international levels, and involve a wide range of stakeholders such as governmental organisations, research institutions, NGOs, indigenous and local communities as well as the private sector.

Protected areas as a strategy to conserve nature

Human beings have been protecting certain species or land and sea areas since long before the beginning of recorded history. They sought to protect grazing pasture, to provide game for hunting or to preserve hatching zones and spawning areas for fish. In addition, some places were considered sacred or aesthetically attractive and thus worthy of preservation. Today, protected areas have become the cornerstone of virtually all national and international strategies for biodiversity conservation. They are set up and managed to enhance the resilience of ecosystems, to provide refuges for species and to maintain ecological processes that generally suffer from intensely used landscapes and seascapes. These measures of **in-situ (on site) conservation** are complemented by ex-situ conservation strategies, where plants, animals or

Protected Areas

According to the International Union for Conservation of Nature, IUCN, a protected area is a 'clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values'.

Source: IUCN (2008): Guidelines for Applying Protected Area Management Categories.

genetic material are conserved in zoos, botanical gardens or gene banks.

Protected areas cover nearly 13 per cent of the world's land surface and about six per cent of the territorial marine area, but only 0.5 per cent of the high seas. They help to maintain intact ecosystems and their services, and **secure the livelihoods of nearly 1.1 billion people worldwide**. Thus protected areas have great potential not only to conserve biodiversity, but also to help alleviate poverty (see Part 4). In addition, they provide manifold cultural and spiritual benefits ranging from sought-after tourism destinations, to local icons of identity, motifs for painters, sacred sites for indigenous peoples or in the preservation of spiritual values.

In view of the ever increasing climate challenges, protected areas can offer '**natural solutions**' to address

Cultural highlights such as the Taj Mahal in India form a significant part of the national heritage.



Research: Protected Planet

Protected Planet is a new website that was launched in 2010 by the UNEP World Conservation Monitoring Centre (UNEP-WCMC) and IUCN. This 'new face' of the previously established World Database on Protected Areas (WDPA) now also provides an online platform to explore protected areas and to support their conservation. 'We have created protectedplanet.net not only to showcase the wealth of information of the WDPA but also give tools to willing 'citizen scientists' who can feed their knowledge about protected areas into the database' (Craig Mills, UNEP-WCMC).

Additional information:
www.protectedplanet.net

changing environmental conditions: many of them contain huge carbon stocks, estimated to comprise about 15 per cent of the planet's terrestrial carbon. Resilient, healthy ecosystems have greater potential to withstand and buffer the impacts of climate change. They provide space for floodwaters to disperse, to stabilize soils against landslides and to block storm surges. In many regions, protected areas contain the last remaining large-area natural habitats, providing important ecosystem services such as water supplies, fisheries, disease control, and agricultural productivity.

IUCN management categories and governance of protected areas

To provide guidance for managers and planners and to strengthen the protection of our planet's most special places, the International Union for Conservation of Nature (IUCN) distinguishes six types of protected areas. Their classification is based on management objectives as well as uses of the land- or seascape compatible with



Nahanni National Park in the north-western Territories of Canada is a protected area of IUCN category II. The primary management objective of this World Heritage site is to protect the biodiversity with its underlying ecological structure and supporting environmental processes, and to promote education and recreation.

these objectives. The IUCN protected area management categories comprise the following:

- Category Ia: Strict nature reserve
- Category Ib: Wilderness area
- Category II: National park
- Category III: Natural monument or feature
- Category IV: Habitat / species management area
- Category V: Protected landscape / seascape
- Category VI: Protected area with sustainable use of natural resources

International bodies such as the United Nations and many national governments recognise the IUCN categories as **the global standard and reference for the planning, establishment and management of protected areas**. As such, these categories are increasingly incorporated into national legislation in the respective countries. Areas in categories I to IV are considered to be protected spaces with rather restricted resource use. In Category Ia type areas (strict nature reserves), human visitation, direct resource use and environmental impacts are rigorously limited and controlled to ensure maximum protection of conservation values; while in protected areas of category V and VI, a wider range of sustainable use of the natural resources is allowed. Protected landscapes / seascapes, for example, are sites where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value.

The categorising of areas according to their characteristics and conservation objectives is fundamental to the establishment of national systems of protected areas. Some extensive areas can encompass a combination of management categories – ranging, for example, from very strict protection areas in the core zones of biosphere



Go4BioDiv Messenger Saningo, Kilimanjaro, Tanzania

‘The erosion of traditional cultures leads to a degradation of the natural environment. Whoever feels truly concerned about nature conservation should support the continuity of traditional knowledge and cultural values.’

In Kiswahili:

‘Mmomonyoko wa maadili na tamaduni zetu imesababisha uharibifu wa mazingira tunamoishi. Ni wakati wa kila mtu anayehisi kuguswa na tatizo hili kusimama kwa nafasi yake kutetea mazingira pamoja na tamaduni zetu.’

reserves (i.e. a national park) to buffer zones allowing for sustainable resource use (i.e. a protected landscape). The management categories do not imply any kind of hierarchy of nature protection; also, they do not indicate

The World Heritage site Nanda Devi and Valley of Flowers in Northern India combines two protected areas: in the IUCN classification of management categories Ib and II.





Go4BioDiv Messenger Jenn, Chipewyan Métis, Nahanni, Canada

‘I would like to honour all those indigenous and local peoples who were displaced or adversely affected by conservation initiatives all over the world. Many protected areas are on traditional homelands. Historical mistakes should be acknowledged as a way of moving forward.’

that sites in some categories are more important than those in others. Categories should be chosen according to the particular situation and management needs in order to facilitate conservation while addressing short- and long-term threats to nature.

Ideally, protected areas would form part of integrated conservation approaches on a broader scale: The so-called **Ecosystem Approach** which was endorsed and recommended for application by the CBD, offers a conceptual framework for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. The approach considers functional and spatial relationships and interdependencies as well as their implications for the ecological and socioeconomic spheres; it also takes into account their connections and impacts over time.

The six IUCN management categories do not distinguish ownership of the land, control over resources or responsibility for the management of a protected area. However, these are very important factors for the



Machu Picchu is an iconic mixed World Heritage site. It is of sacred value to the traditional population and portrays well the close interlinkages between cultural and natural values.

effective management of these areas. Thus, since 2003, both IUCN and the CBD officially recognise the legitimacy of a range of **governance types**. Based on the six known categories, IUCN has developed a matrix, which in addition to the management objectives distinguishes four broad types of governance according to the different forms of management authority and responsibility that can exist for protected areas:

- Type A: Governance by government (on national or sub-national levels);
- Type B: Shared governance (of at least two different entities, i.e. national authority together with a local community or enterprise);
- Type C: Private governance (ranging from a tourism operator with a private protected area, to a scientific station managed by a University or an NGO, with field labs and natural areas for animal observation);
- Type D: Governance by indigenous peoples and local communities (allowing for a vast range of traditional and non-traditional forms of resource use and protected area management).

Any of these governance types can be associated with any of the six IUCN management categories.

Source and additional information:

- IUCN (2008): *Guidelines for Applying Protected Area Management Categories*.
- IUCN Global Protected Areas Programme: www.iucn.org > about IUCN > how we work
- Dudley, Nigel et al. (2009): *Natural Solutions* (available as PDF file on the DVD accompanying this publication).
- Phillips, Adrian (2004): *The history of the international system of protected area management categories*.
- WWF (2008): *Safety Net. Protected areas and poverty reduction*.

Further information can be found in the publication 'Who Protects What for Whom? Participation and governance for nature conservation and development in the Brazilian Amazon region', Vol. 7 of the series 'Sustainability has Many Faces' (in German, available as PDF file on the DVD accompanying this publication).

Local communities are safeguarding their heritage

Text written by Tatjana Puschkarsky, Go4BioDiv Messenger 2008 and IUCN liaison person for Go4BioDiv 2010

Good and effective governance includes communities.

Yet very often local and indigenous communities who live in and around protected areas are marginalised, impoverished and discriminated against by the majority population. Their deep connection to the land and direct knowledge of natural processes are often underappreciated; traditional subsistence activities like hunting, fishing and collecting of medicinal herbs or fire practices that further the vitality of the ecosystem are often seen as incompatible with conservation objectives. Human rights violations – such as displacement, and restricting of access to resources or culturally meaningful places, oppressive enforcement measures, little or no tenure security and limited participation in decision-making processes – have occurred in protected areas worldwide, including World Heritage sites. Communities are sometimes not consulted on the establishment of a park or World Heritage site within their traditional homeland, there are few mechanisms for conflict resolution, and benefits resulting from the World Heritage status are often not shared equally.

Local women of Manas World Heritage site (India) with their collected firewood: traditional communities often rely strongly on the resources of protected areas; their vision of the site's protection should be taken into account when establishing governance structures for the sites or elaborating management plans.



A UNESCO student information and activity sheet on the role of indigenous peoples in World Heritage conservation in the Uluru-Kata Tjuta National Park, Australia can be found as PDF file on the DVD accompanying this publication.

In protected areas worldwide, we can see a reorientation in the management of sites. This new, evolving conservation paradigm sees nature and humans with their cultural concerns not as two separate entities but as part of a continuum, as connected in an intricate and

interdependent web of life that includes local communities. This has been fuelled by the insight that exclusionary 'fortress conservation', or 'fences and fines', as it has been practised for many decades, are in many circumstances counterproductive to conservation objectives. Especially when human activities and conservation objectives are not aligned with each other, this approach can result in conflict, or non-compliance and expensive protection mechanisms for the sites. Conservation

Hands-on example: Co-Management in Nahanni National Park Reserve, Canada

Nahanni National Park Reserve (NNPR) is a natural World Heritage site that protects a significant portion of Naha Dehé, the traditional homeland of the Dene people (indigenous to the area). Cooperative management of the Park was formally introduced in 2000 with a Consensus Team made up of four appointed members from the Dehcho First Nations and three from the Parks Canada Agency, overseeing all major decisions and directions in park management and research. The following principles illustrate some key cooperative management practices at Nahanni:

- **Recognising and respecting traditional use in the Park:** Traditional hunting, trapping and fishing activities by First Nations and Métis people are permitted in the Park. The ecological vision for Naha Dehé states: 'Traditional subsistence harvesting will continue to be an integral and sustainable part of the ecosystem and will occur in accordance with Dene law and principles. Dene are inseparable from the land.'
- **Sharing the stories and traditions of Naha Dehé:** Interpretive programs that present First Nations history and culture to Park visitors are offered at the Park, acknowledging traditional use as an important element of the ecosystem.
- **Using traditional knowledge in Park management and science-based monitoring:** Traditional knowledge is recognised as an important source of information. Community members and harvesters are provided with opportunities to assist on research at the Park, providing their valuable local insight.
- **Community involvement and education:** Through cooperation with First Nations and others, NNPR management board continues to support opportunities for youth to learn about Dene culture and traditions, through school river trips in the Park,

mentoring opportunities and cultural camps. The youth are seen as the future stewards of Naha Dehé.

- **Local and First Nations employment opportunities:** Parks Canada supports this goal through summer student work experience opportunities, specialised training, and successful recruitment and leadership programs. A large section of Nahanni's staff is made up of qualified local and / or First Nations people. The NNPR management board also supports local businesses and tourism opportunities related to Park operations.

Overall, Nahanni National Park Reserve is a good example of indigenous involvement in natural World Heritage site management.

Source: Parks Canada (2010): Nahanni National Park Reserve Naha Dehé Management Plan.



Go4BioDiv Messenger Jennifer Redvers, a Chipewyan Métis and member of the park staff, contributed this article about the co-management of Nahanni. Her community forms part of the indigenous Dene people, who co-manage Nahanni World Heritage site.

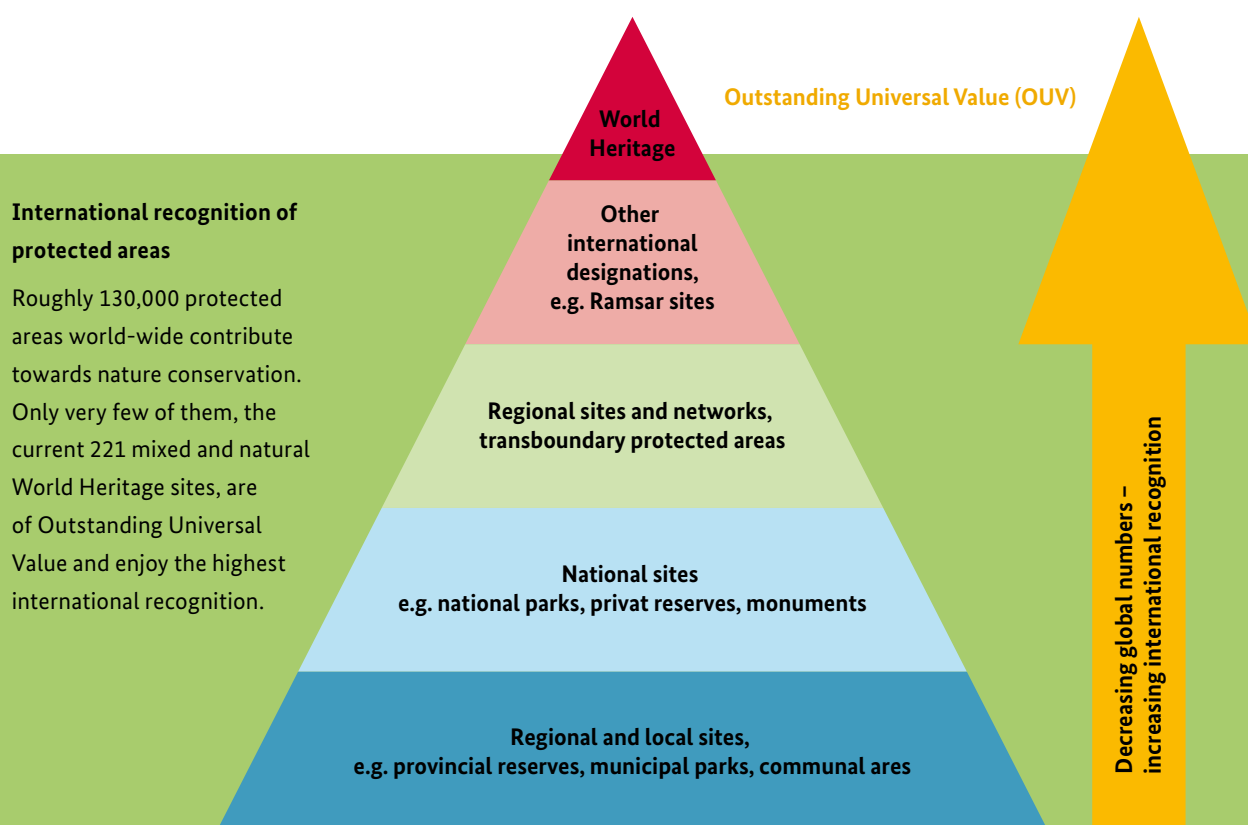
driven by local interests and by the people who have strong links to the land and deeply identify with it, is therefore increasingly seen as an alternative approach to reduce conflicts of interest and to gain more widespread acceptance of conservation efforts. It also helps to improve management techniques and complement established protected areas management through valuable local contributions such as traditional ecological knowledge.

Sources and further reading:

- Beltrán, Javier (ed., 2000): *Indigenous and Traditional Peoples and Protected Areas*.
- Borrini-Feyerabend, Grazia (2010): *Bio-cultural diversity conserved by indigenous peoples and local communities*.
- Oviedo, Gonzalo, Tatjana Puschkarsky & Nigel Crawhall (2011): *World Heritage, Local Communities and Human Rights*.
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Natural World Heritage sites – flagships of protected areas

World Heritage sites are seen as the **flagships for protected areas**. Because they have been recognised as unique by the world community, these sites are at the frontline of nature conservation. They attract particular societal attention and may thus receive a high degree of protection also in the political agendas. This is why World Heritage sites have the potential to become models in demonstrating best practices of protected area management, including optimal governance structures. The central ideas and objectives of World Heritage are defined in the Convention Concerning the Protection of the World Cultural and Natural Heritage, generally known as the **World Heritage Convention**, which was adopted in 1972 by the General Conference of UNESCO. It is unique in character since it brings conservation efforts for both natural and cultural sites under one single roof. The Convention is based on the premise that some of the world's features are of universal value and extraordinary importance to humanity, transcending limits of both time and space. Article 4 of the Convention





Go4BioDiv Messenger Dhritiman, Manas, India

'Natural World Heritage sites are the treasure house of biodiversity and local people are an integral part of the landscape. If we really want to conserve biodiversity, equity and fair sharing of the resources require to include local communities.'

In Assamese:

প্ৰাকৃতিক বিশ্ব ঐতিহ্যক্ষেত্ৰবোৰ আমাৰ সম্পদ আৰু ওচৰৰ স্থানীয় সম্প্ৰদায় ইয়াৰ অবিচ্ছেদ্য অংগ। সম্পদৰ সম অংশদ্বাৰিত্ব স্থানীয় ৰাইজৰ বাবে আমি কৰিব লাগিব, তেতিয়াহে আমি ইয়াক ভৱিষ্যতৰ বাবে সংৰক্ষণ কৰিব পাৰিম।

thus aims to ensure the 'identification, protection, conservation, presentation and transmission to future generations of the [outstanding] cultural and natural heritage.'

UNEP-WCMC has published 'World Heritage site Information Sheets', that can be found on the UNEP-WCMC website.

Go4BioDiv World Heritage site Information Panels can be found as PDF files on the DVD accompanying this publication.

In 2012, the World Heritage Convention is celebrating its 40th anniversary. Information on the celebrations including a timeline of the Convention's development can be found under: whc.unesco.org > Activities > World Heritage Convention 40th

World Heritage sites are acknowledged for their **Outstanding Universal Value (OUV)**. According to the Operational Guidelines (OGs) of the Convention, this means that they are of 'cultural and / or natural significance', which is so exceptional as to transcend national boundaries. In addition, they have to be 'of common importance for present and future generations of all humanity.' Thus the definition of World Heritage links universality and uniqueness, selecting the 'best of the best' of particular cultural phenomena or natural features. But the recognition of a site also includes the responsibility for its long-term conservation: 'To be deemed of outstanding universal value, a property must also meet the conditions of integrity and / or authenticity and must have an adequate protection and management system to ensure its safeguarding' (OGs Art. 78).



Cape Floral Region is one of the richest areas for plant-diversity: It is home to more than 9,000 vascular plant species, of which 69 per cent are endemic. This serial World Heritage site is made up of eight protected areas located near the southern tip of South Africa, between the coast and the Cederberg and Swartberg Mountain ranges.

Although World Heritage sites must possess outstanding universal qualities solely in global terms for designation, their international significance usually **correlates with local or national values**. The Convention itself bears no specific reference to the rights of local communities and indigenous peoples, or other human rights. Nevertheless, because of their high visibility and convergence of cultural and natural elements, World Heritage sites provide the opportunity to spearhead a new, inclusive approach in conservation and development. The signatory states of the Convention have committed to support efforts that contribute towards this heritage having a 'continuing function in the life of the community'. The Operational Guidelines acknowledge that 'human activities, including those of traditional societies and local communities, often occur in natural areas' and that these can be compatible with conservation objectives if they are organised in a sustainable way.

Sources and additional information:

- Scovazzi, Tullio (2008): **World Heritage Committee and World Heritage List.**
- UNESCO (2004): **Linking Universal and Local Values: Managing a Sustainable Future for World Heritage.**

Making World Heritage work

Since the adoption of the World Heritage Convention, criteria have been established to determine whether a property – in its cultural or natural heritage, or both – is of Outstanding Universal Value (see figure page 28). A property can be nominated and inscribed on the World



The World Heritage Convention was adopted by the General Conference of UNESCO in 1972 and is universal in scope.

Criteria for the assessment of Outstanding Universal Value

Criteria numbers and descriptions
(blue = cultural / green = natural)

1	represent a masterpiece of human creative genius
2	exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town planning or landscape design
3	bear a unique or at least exceptional testimony to a cultural tradition or to a civilisation which is living or which has disappeared
4	be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history
5	be an outstanding example of a traditional human settlement, land use, or sea use, which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change
6	be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance (the Committee considers that this criterion should preferably be used in conjunction with other criteria)
7	contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance
8	be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features
9	be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals
10	contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of Outstanding Universal Value from the point of view of science or conservation

Heritage List only if it meets at least one of the World Heritage criteria (see page 30). For instance, it may embody superlative natural phenomena, or it may be home to the most important natural habitats for in-situ (on site) conservation of given elements of biological diversity. World Heritage sites are recognised for their **cultural, natural or mixed values**. The latter applies in instances where sites merit inscription for at least one of each of the cultural and natural criteria. As of 1992, cultural landscapes, which are characterised by the interaction between humans and nature, can be nominated as a form of cultural property. Such landscapes may possess natural significance but are inscribed solely under cultural criteria.

Typically, natural World Heritage sites comprise single extensions of land within one country. However, sites can also be serial, transboundary, or both. A **trans-boundary** property is a continuous land or sea area that

is spread out over different countries. **Serial sites** are made up of several physically separated entities, in one or more countries, which share the same characteristics or ecological function. Some of them together ‘tell a story’; for example, evolutionary stages of a feature. A serial and / or transboundary listing can thus bring together geographically or nationally separated sites, their fragmentation being natural or caused by human action. In some cases, the World Heritage requirement of an Outstanding Universal Value can only be obtained through the joint listing.

UNESCO’s manual on ‘Managing Natural World Heritage’ (2012) aims to help practitioners understand and make the best possible use of the World Heritage requirements and procedures when managing the sites. The manual will be available for download at: whc.unesco.org/en/resourcemanuals

A UNESCO student activity sheet on ‘Understanding the World Heritage Criteria’ can be found as a PDF file on the DVD accompanying this publication.



Lake Baikal in Russia is the second-largest inland World Heritage site (almost nine million hectares). The sustainable development of the Baikal region with the deepest and oldest freshwater reserve of the planet has been central to Russo-German environmental cooperation since its inscription on the World Heritage List in 1996.

All properties must satisfy the conditions of **integrity** and, in the case of cultural sites, also of **authenticity**. Integrity refers to the wholeness and intactness of the natural and / or cultural heritage, and the continuation of its traditional uses and social fabric.

The future site must furthermore display adequate measures that reflect the long-term interest of the state party to ensure continued protection of the unique values. In the case of natural sites this is often done in form of a protected area management plan, including specific elements to attend to these features. The property's values for inscription therefore serve as the reference for the quality of its future protection and management; the inscription is only one step toward conservation in a long process.

The protection measures requested by UNESCO, however, **do not necessarily imply the designation of the site as a formal protected area**. Nevertheless, most of the recently nominated World Heritage sites do have the status of a protected area: within the IUCN classification, most of them fall into the categories of strictly protected areas (categories Ia, Ib and II, see page 23f.). More important than the legal status of an area is evidence that State Parties convincingly address conditions of integrity and the requirements for protection and management.

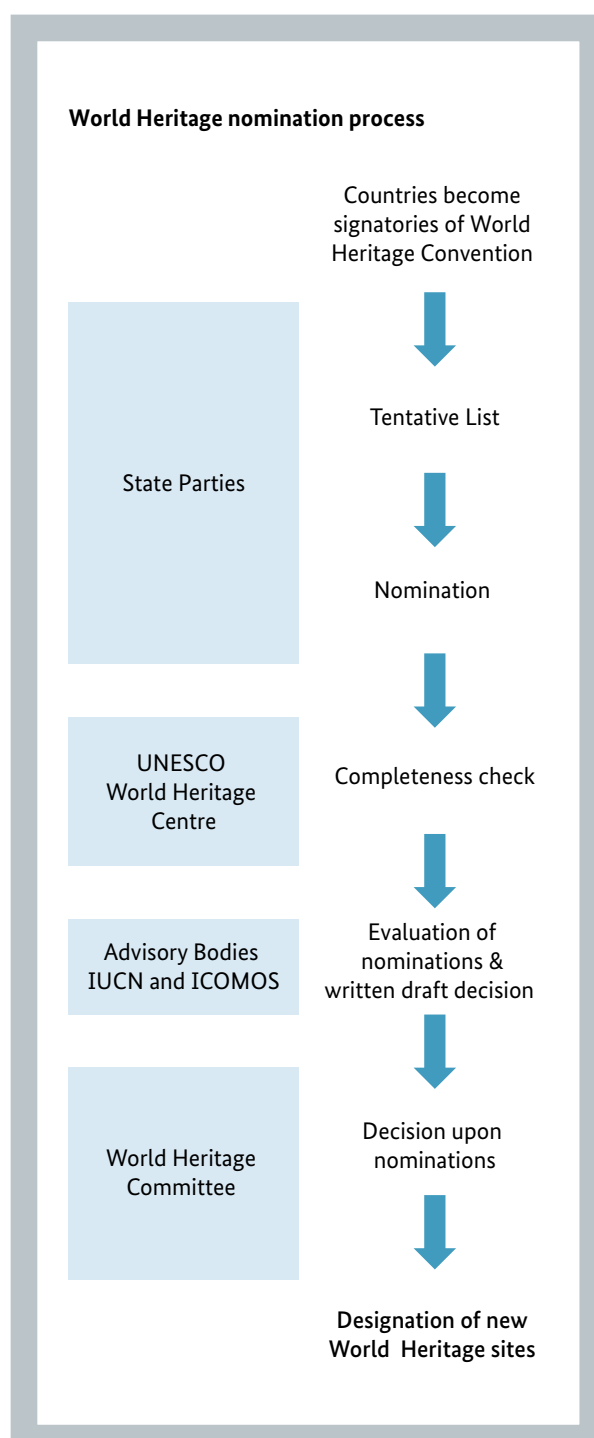
Sources:

- UNESCO (2010): *Preparing World Heritage Nominations*
- IUCN (2008): *Guidelines for Applying Protected Area Management Categories*.

Becoming a World Heritage site

For inscribing a World Heritage site, governments have to go through a **long** and sometimes tedious **process**, illustrated in the table on the right. First of all, countries wishing to have a property listed as a World Heritage site have to be signatories to the World Heritage Convention (State Parties). They then prepare a Tentative List, an inventory of suitable properties on their national territory for inclusion on the official World Heritage List. From this Tentative List, each State Party can select one site per year for nomination and prepare documentation regarding its worldwide significance as well as the protection and management measures applied in order to support the property's nomination. This document is subsequently sent to UNESCO's World Heritage Centre (WHC) to verify its completeness. About 30 per cent of all submissions are not complete and are dropped from the nomination process. An assessment of the nomination by impartial, non-governmental **advisory bodies** with

scientific and technical expertise follows. These advisory bodies are the International Council on Monuments and Sites (ICOMOS) for cultural and mixed heritage nominations and the International Union for Conservation of Nature (IUCN) for natural sites. The advisory bodies present recommendations for consideration by the World Heritage Committee, which meets once a year. It consists of representatives from 21 of the States Parties to the Convention, who are elected for four years by the



Reflection and discussion: World Heritage Nomination

Do you think an international political body can best decide which sites should be recognised as World Heritage? If not, who could? Can you think of any alternatives to the World Heritage label in order to identify and protect our planet's treasures? Could the use of market-based incentives – e.g. a limited number of World Heritage certificates, the establishment of quality standards and a reward system, or an obligatory renewal of the recognition process after a certain time span provide advantages? Explain your reasoning.

General Assembly. Since November 2011, Germany has been a member of this Committee.

Although the recommendations of the advisory bodies are taken into consideration, **the final decision is political** and rests with the Committee. Its members can also defer a decision and request further information on properties from the States Parties. They examine reports on the state of conservation of inscribed properties and also decide on the inscription or deletion of properties on the List of World Heritage in Danger. A maximum of 45 nominations can be considered for review annually. Therefore, not every nomination makes it on the List; the average rate of success for natural and mixed sites lies at around 40 per cent.

Source and additional information:

- **UNESCO (2010): Preparing World Heritage Nominations:** [whc.unesco.org > publications > resource manuals](http://whc.unesco.org/publications/resource-manuals)
- **World Heritage List Nominations:** whc.unesco.org/en/nominations



Traditional grazing practices are an important element of the conservation of the cultural landscape in the Orkhon Valley, Mongolia.

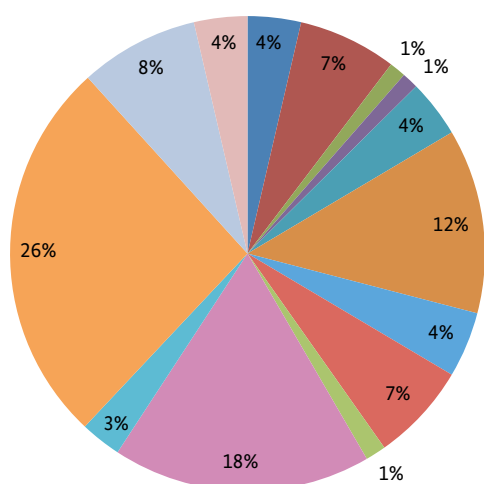
World Heritage and biodiversity conservation

Natural and mixed **World Heritage sites contribute to biodiversity conservation and directly relate to the work of the Convention on Biological Diversity (CBD)** in different ways. Since in most cases these sites form part of national systems of protected areas, they also contribute towards the Programme of Work on Protected Areas of the CBD and help achieve the 2020 biodiversity targets (see page 19f.). Because of their extraordinary characteristics and often emblematic features, World Heritage sites can also contribute to greater understanding of and visibility for protected areas and biodiversity conservation needs in general.

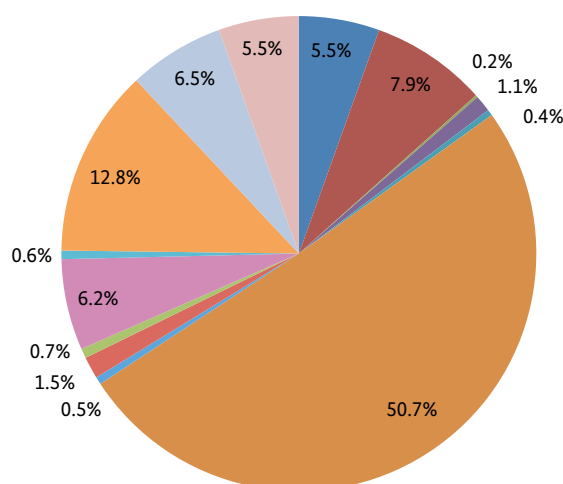
A strength of the concept of World Heritage is that it is not restricted to any one geographical region, biome, habitat or species group. World Heritage sites cover almost all geographical regions and ecosystems and marine and terrestrial sites have been designated on all continents except for Antarctica. Despite their relatively small number – 211 natural and mixed World Heritage sites out of more than 130,000 protected areas registered in the WDPA – these **constitute a fairly large percentage of the extension of world-wide protected areas** (eight per cent), reflecting the large size of some of the natural World Heritage sites. In the marine realm, the listed sites even make up 21 per cent of the total area of all registered protected areas.

Distribution of natural and mixed World Heritage sites by biome

Numbers in per cent



Areas in per cent



In 2011, the World Heritage List included 936 properties of outstanding universal value. These are 725 cultural, 183 natural and 28 mixed properties in 153 States Parties. The 211 natural and mixed properties inscribed on the List encompass almost all ecosystems and habitats of the planet (hereby classified in the WWF biomes). However, some ecosystems are better represented than others. The comparison of distribution per number and per area reveals that the sites differ significantly in size: marine sites are generally very large in size, while sites with temperate forests, for example, are rather small.

Source: IUCN & UNEP-WCMC (2011)

The management of natural and mixed World Heritage focuses on biodiversity conservation. However, some **cultural sites, especially cultural landscapes, also contribute to nature conservation**. In cultural landscapes, the interactions between humans and nature play a central role. Through their traditional way of living, indigenous peoples and local communities often contribute very significantly to conserving their region's natural values. This is the case, for example, in the Richtersveld Cultural and Botanical Landscape in South Africa, one of the Earth's richest reservoirs of plant and animal life. Some ten years ago, the historically disadvantaged Nama people of the Richtersveld united, reclaimed title to their traditional land, and decided to preserve it for future generations as a nature conservancy for the benefit of research and sustainable tourism operations. The **Richtersveld Community Conservancy**, which was established with support from German Development Cooperation, is the last refuge of Nama people living what is known as the transhumance lifestyle – migrating seasonally with their livestock from mountains to the river and so making sustainable use of the fragile succulent ecosystem. In recognition of this vanishing lifestyle, and of the rare botanical diversity it helps protect, the Conservancy has been declared the core of the World Heritage site.

World Heritage often protects biodiversity in particularly **vulnerable places**: In their classification system of **Biodiversity Hotspots**, Conservation International combines biodiversity values and exposure to threats: to be identified as a hotspot, an area must be home to at least 1,500 endemic plant species and must have lost over 70 per cent of its natural habitat due to anthropogenic change. Until now, 34 such hotspots have been identified worldwide. They cover only 16 per cent of the Earth's surface but count for more than 50 per cent of the world's plant species. Cultural and natural World Heritage sites can be found in all of these major Biodiversity Hotspot regions: a total of 381 World Heritage sites fall into them, among them 93 natural and mixed sites, which is almost half of all natural and mixed sites (these figures correspond to 2010 nominations; see map page 60). This overlap confirms the importance of World Heritage for biodiversity conservation. However, it also points to gaps as well as potential places for future nominations in the World Heritage system and – since the sites are never as large as the Hotspots – shows where these should be combined with other approaches.

When judging the contribution of World Heritage to **biodiversity conservation on the ground**, one always has to keep in mind that World Heritage is above all a recognition or a label. It shows that a place is globally outstanding and that its protection is important to the world community. The higher visibility and international recognition associated with the World Heritage status can help to raise awareness of and funding for conservation efforts for a protected area.

The mandatory reporting system of the Convention allows for the comparison of different World Heritage sites; this can be a helpful tool for improving conservation efforts and site management. However, the Convention provides hardly any practical means for intervention in poorly managed sites; thus the most active leverage is political and societal pressure. One very important aspect of the World Heritage label is that it attracts tourism, which may also bring revenues necessary to foster both development and conservation, or communication about the site. However, more visitors are not only a benefit to World Heritage sites, they can also be a burden; (mass) tourism often has negative impacts on the site, particularly if not sufficiently managed.

Sources and further reading:

- Engels, Barbara & Winkler, Sebastian (2008): *World Heritage and the 2010 Biodiversity Target*.
- Foster, Matthew et al. (2010): *Synergies between World Heritage areas and Key Biodiversity Areas*.
- IUCN (2010): *World Heritage Facts and Figures*.
- Strahm, Wendy (2008): *World Heritage and the IUCN Red List*.
- World Heritage Centre (2006): *Natural Strategy*.

A UNESCO student sheet including activities on ecosystems and landforms represented in World Heritage sites can be found on the DVD accompanying this publication.

A video clip from UNESCO World Heritage Centre about the special character of World Heritage and the importance of its conservation can be found on the DVD accompanying this publication: *Unite in Diversity* (5'50 min.).

A UNESCO student activity sheet about the importance of good management of World Heritage sites can be found as a PDF file on the DVD accompanying this publication.

A large format full-colour map featuring World Heritage sites (English, French or Spanish Language) can be ordered from the World Heritage Centre or downloaded at: whc.unesco.org >Activities > World Heritage Map

3 Our treasures at risk: challenges and chances

‘The World Heritage Convention is a living instrument which must evolve in line with our understanding of heritage and heritage protection. It must adapt to wider global concerns.’

Tumu Te Heuheu, Chairperson of the World Heritage Committee 2006/2007

Threats to World Heritage sites

The drivers of biodiversity loss (e.g. habitat fragmentation, over-exploitation of natural resources, pollution, invasive species or climate change, see Part 2 page 16) do not stop at borders of protected areas. Many World Heritage sites and their ecosystems are under direct and indirect pressure from human activities that threaten the very characteristics for which a site was inscribed in the World Heritage List. The UNESCO World Heritage Centre names armed conflicts, poaching, mining, uncontrolled infrastructure development, unregulated tourist development and climate change as the most prominent challenges World Heritage sites have to cope with, differing in magnitude and intensity from site to site. These threats are described in more detail below.

Armed conflicts have immense and long lasting direct and indirect impacts on natural World Heritage sites. These include displacement of local communities, destruction and / or displacement of animals, plants and their habitats, breakdown of conservation management

and overuse of natural resources. As a result of the civil wars in the Great Lake Region of Africa during the 1990s, the protected areas in the region were faced with a multitude of new threats. For example, over-exploitation of resources and habitat destruction occurred because parks were used for shelter and food by refugees and armed militia. The case study on the Kahuzi-Biega National Park in the Democratic Republic of Congo, which was threatened by a combination of civil unrest, destructive ways of coltan mining, and poaching, further illustrates the issue of armed conflicts (see Part 6).

Commercial poaching and subsistence hunting both pose direct threats to biodiversity. Since commercial poaching targets particular species with high commercial value, such as elephants for their ivory tusks and rhinos for their horns, it is worth billions of USD annually and can lead to serious over-exploitation, threatening species with extinction. Subsistence hunting by local communities often occurs, and it intensifies biodiversity losses in the event of armed conflict, when people are displaced from their usual settlements. Both types of

As in many natural World Heritage sites, poaching is a serious threat in the Dja Faunal Reserve in Cameroon. Many poor people in the region have few alternative livelihood options and supplement their diets or their incomes with bushmeat. Logging roads give poachers access to the protected primates and other animals in the park.





Go4BioDiv Messenger Roger, La Amistad, Costa Rica

‘Our World Heritage label is in danger due to mining, hydroelectric and infrastructure projects. This threatens the last refuge for the survival of the great felines of Central America.’

In Spanish:

‘La etiqueta de sitio de Patrimonio Mundial peligra por los proyectos mineros, hidroeléctricos y de transporte. Esto pone en riesgo el último reducto de supervivencia para los grandes felinos de Centro América.’

hunting can be very intense, but they require different approaches, which may involve targeting the poaching or hunting itself, or addressing its underlying causes like the lack of alternative livelihood options.

Mining is considered to be one of the major threats to natural World Heritage sites. Mining refers to the extraction of valuable materials from the Earth such as copper, gold or uranium. It also encompasses the extraction of oil and natural gas. Mining often leads to habitat destruction in the mined area, as well as to pollution, particularly of water resources. Secondary effects occur when people migrate to mining areas in pursuit of real or perceived livelihood opportunities; this may lead to illegal hunting, uncontrolled settlements, or introduction of alien species, among other problems. In 2003, after extensive consultations with IUCN and the World Heritage Committee, the International Council on Mining & Metals (ICMM, comprises fifteen of the world’s largest mining and metal-producing companies), signed an undertaking to recognise World Heritage sites as ‘no-go’ areas: they agreed that these unique sites would not be explored or mined. This is widely regarded as a success and an important contribution towards securing the integrity of the areas. However, many smaller companies that account for a large part of the mining sector have not signed this agreement. The number of cases where World Heritage sites are threatened by mining or oil and gas projects is rapidly increasing: According to IUCN, one out of four natural World Heritage sites in Africa is already negatively affected.

Infrastructure development can have detrimental and irreversible effects on the Outstanding Universal Values of World Heritage sites. Infrastructure includes not only transport infrastructure, urbanisation, and dam constructions, but also the development of renewable energy sources such as wind farms or hydropower stations. Since renewable energy sources are currently on the rise, such projects are becoming increasingly popular.



Gold mining in Guacamayo / Madre de Dios, in the Amazon forest of Peru. The nearby World Heritage site Manu National Park is a place of world records in biodiversity. But six tons of rainforest soil have to be displaced to retrieve one gram of gold. In past years, an estimated 40 tons of toxic metal have been released into the air and rivers, poisoning the environment and food chain, which affects especially the indigenous communities and local forest dwellers.

Hands-on example: Extension of the Kakadu National World Heritage site in Australia limits pollution from Uranium mining

In 1981, Kakadu National Park was inscribed as a mixed site in the World Heritage List, based on its outstanding natural and cultural values. The cave paintings, rock carvings and archaeological sites in the park record the skills and way of life of the region's inhabitants. With regard to its biodiversity, the park is a unique complex of coastal ecosystems, including tidal flats, flood plains, lowlands and plateaux, which provide habitats for a wide range of rare or endemic species of plants and animals. The traditional Aboriginal owner of the region, the Mirarr clan, holds some enclaves inside the National Park that is now part of the World Heritage site. In one of these enclaves, at the so-called Ranger mine, the company Rio Tinto was authorized to mine for uranium. This metallic chemical element has the potential to be a highly dangerous substance when not treated in the proper manner, since it remains radioactive for hundreds of thousands of years. In the past, uranium mining in Kakadu has already severely damaged the environment: Since the 1980s, more than 150 leaks and spills have occurred. In 2004, scientists estimated that the mine's tailings dam was leaking 100,000 litres of radioactive water every day.

After struggling for more than 30 years to protect the park and their ancestral lands from the threat of uranium mining, the Mirarr people can finally breathe a sigh of relief: In June 2011 the World Heritage Committee, at its 35th session in Paris, announced

that it would redraw the borders of the Kakadu World Heritage site so that the Koongarra region, where a uranium deposit was about to be mined, is included. However, the ongoing operations at Ranger mine continue to threaten the natural and cultural values for which Kakadu is listed as a World Heritage, and the Mirarr people are eager to see this mine as well as the nearby Jabiluka uranium deposit included in the Kakadu World Heritage site, just like Koongarra. Jeffrey Lee, the sole survivor of the Djok clan (Gundjeihmi) and Custodian of Koongarra, attended the WHC-meeting in Paris, alongside several representatives of the Mirarr: 'I would like to thank the Committee for inscribing Koongarra, my country, on the World Heritage List. I want to ensure that the traditional laws, customs, sites, bush tucker, trees, plants and water at Koongarra stay the same as when they were passed on to me by my father and great-grandfather. Inscribing the land at Koongarra as World Heritage is an important step in making this protection lasting and real.'

Sources and further information: Brisbane Times (2010): Kakadu being poisoned by Rio Tinto mine, group warns: www.brisbanetimes.com.au > National > May 24, 2010; Gundjeihmi Aboriginal Cooperation (2011): UNESCO includes Koongarra into Kakadu's World Heritage listing: www.mirarr.net; World Heritage Committee (2011): Decision 35COM 8B.49 Examination of minor boundary modifications – Kakadu National Park (Australia): whc.unesco.org/en/list > Kakadu



Reflection and discussion: Kakadu World Heritage site in Australia

Some of the uranium mined in Kakadu World Heritage site of Australia is exported to the European Union, where it fuels nuclear power plants. In February 2011, the Mirarr clan met with delegates of the European Parliament. The Mirarr people believe: It is important that Europeans understand the problems uranium mining causes in their ancestral lands. What do you think: Are Europeans – and other nations using uranium, copper, gold or oil – responsible for the problems at Kakadu or other World Heritage sites? How could the European Union help to find sustainable solutions for these threatened treasures? What role should World Heritage play in this respect?

Although significant progress has been made in applying participatory planning approaches for such projects which help to reduce negative social impacts, many of them still proceed without adequate consideration of the negative effects they can have on the environment and local people. While in most countries an environmental impact assessment is a necessary step for the approval of infrastructure development projects, such assessments are often made without in-depth research at the site or consultations with local communities and are frequently not properly implemented on the ground. Examples



Go4BioDiv Messenger Mikelita, Lake Turkana, Kenya

‘My people fish in Lake Turkana. It is important for our culture to conserve it. Today the lake is at risk through the construction of a dam. Our economy will be destroyed, migration will follow, with the result of conflict or even war.’

In Elmolo:

‘Ziwa turkana ni chanzo cha maisha kwa jamii yetu, hali ya ziwa ni mbaya kwa sasa sababu ya ujenzi wa bwawa, viumbe vyote vitaharibiwa na uchumi utachuka kama hatua haitachukuliwa.’

of such developments include the construction of the Gibe3 hydroelectric dam on the Omo River in Ethiopia, which threatens the lower valley of the Omo, a cultural World Heritage site, as well as Lake Turkana in Kenya,



Pastoralist tribes like the Turkana and the El Molo have lived in northern Kenya over countless years. Their traditional lifestyle and subsistence economy is threatened through the construction of the Gibe3 dam, a major hydropower infrastructure in Ethiopia.

Hands-on example: Serengeti shall not die

Serengeti National Park, the world-famous Heritage site in Tanzania, is embedded in the Serengeti ecosystem, an incomparable wilderness representing the African savannah like no other. The pristine status for which Serengeti was designated a World Heritage site in 1979 is a source of national pride and identity and attracts visitors from all over the world. After high-level international discussions in June 2011, the Tanzanian Government declared at the 35th session of the World Heritage Committee in Paris that a previously planned road across the park would not be built. Initially, the Tanzanian Government had planned to build a 54 km road across the Serengeti National Park to advance the development of poor rural northern areas in the country. However, scientists, conservationists and the international community objected that the road would block the world-famous migration of almost two million gnus, zebras and antelope, creating a barrier in the northern part of their migration route. Thereby the animals would have lost access to water during the dry season, potentially resulting in the end of the great migration. The ensuing effects on predators like lions, as well as on local flora, would have eventually threatened the famous ecosystem as a whole. In 2010, the World Heritage Committee had warned: 'In terms of potential environmental deterioration, the damage to the park by the north road threatens to be severe enough as to prompt inscription of the site in the List of World Heritage in Danger.'

In an effort to find an alternative solution, the German Development Minister Dirk Niebel (BMZ) - in cooperation with other development partners and civil society - engaged in discussions with the Tanzanian Government to identify an approach which would still contribute to economic and infrastructure development but which would maintain the integrity of the Serengeti ecosystem. As part of a potential solution, the BMZ commissioned the KfW with starting the appraisal for a development project in the region of Loliondo, which borders the Serengeti. This project is intended to foster economic development in a previously neglected region without disregarding the interests of nature conservation in this ecologically sensitive area. Given both the international pressure for the preservation of the Serengeti and the availability of options to balance economic development with nature conservation, the Government of Tanzania subsequently - during the World Heritage Committee Meeting in Paris in June 2011 - stated its willingness to consider alternative plans to the originally planned road in order not to affect the conservation values of the Serengeti.

Sources and further reading: BMZ (2011): Minister Niebel commissions study on alternative to Serengeti road project. Press release 28.06.2011: [www.bmz.de > Press room > 28.06.2011](http://www.bmz.de/Pressroom/28.06.2011); World Heritage Committee (2010): Information note on proposed highway in Serengeti National Park: [whc.unesco.org/en/list > Serengeti](http://whc.unesco.org/en/list/Serengeti); World Heritage Committee (2011): State of conservation of World Heritage properties inscribed on the World Heritage List: [http://whc.unesco.org > 35 COM Documents > WHC.11/35.COM/7B.Add](http://whc.unesco.org/35COMDocuments/WHC.11/35.COM/7B.Add)

Lions and other large mammals can continue their migration across the famous Serengeti plains.



Discussion: How would you decide?

Imagine yourself to be Tanzanian president Jakaya Kikwete. The planned road was a campaign promise in 2005, which the administration is determined to carry out. The hope for locals and politicians – and at the same time the fear of some conservationists – is that the road will bring major development to the poor northwest region of the country. Now the plans for the road have been stopped. However, they could be taken up again at a later stage if no convincing alternatives can be found. Do you think that conservation needs and development aspirations can be combined? Find arguments for and against this assumption. What options can you imagine?

the world's largest permanent desert lake and a natural World Heritage site.

Tourism is one of the world's largest industries, with an estimated USD three trillion in annual revenues. The industry is expanding at an average rate of four to five per cent annually. The label of World Heritage acts as a tourist magnet, often leading to unanticipated mass tourism. This growth confronts the sites with both chances and challenges. On the one hand, tourism can contribute to improvements in livelihood for local communities by generating jobs, increasing incomes, or enhancing their quality of life through improved infrastructure. It can also foster intercultural understanding and the valuing by local people of their natural and cultural heritage and thus an appreciation of conservation efforts. On the other hand, unregulated tourism can lead to increased pollution or destruction of ecosystems from tourism-related activities or the construction of facilities on-site, or of nearby hotels, roads and airports. Sometimes local populations are exploited or cultural values disregarded, all of which can threaten the specific values of the World Heritage sites.

An example of negative consequences of tourism is the **Sian Ka'an Biosphere Reserve in Mexico**, where visitor numbers have steadily increased since its nomination as a World Heritage site in 1987. The site aims to protect lowland tropical forests, wetlands, and coastal and

marine habitats. Sian Ka'an, which means 'gateway to heaven' in Mayan (the language of the native Maya people living in Mexico), is only two hours south of Cancun and very close to one of the world's prime beach tourist destinations. So the visitor numbers increase and new jobs cause migration to the area. As a consequence, the site's biodiversity is threatened by urban sprawl, water pollution, over-fishing (especially of lobster), forest fires and uncontrolled resource extraction. Machu Picchu, the world-famous sacred site of the Incas in the Peruvian Andes, is challenged by similar developments. Phong Nha-Ke Bang National Park in Vietnam is seeking solutions to cope with such problems (a case study of this park is presented in Part 6).

Climate change impacts can be seen in many cultural and natural World Heritage sites already, and many more will be affected in the near future. The protected areas face a series of increasing, often interrelated threats, which vary according to factors such as geographical location, altitude, and type of ecosystem. In 2005, the UNESCO World Heritage Centre launched a survey among all State Parties to assess the extent and nature of the impacts of climate change on World Heritage properties. It also assessed the actions taken to deal with such impacts. A total of 125 World Heritage sites were considered as threatened by climate change, 79 of them listed as sites of natural or mixed heritage. The graphic below (page 43) illustrates the threats that were reported for natural World Heritage properties.

A well-known recurrent example of the effect of climate change in mountainous World Heritage sites is the **melting and retreating of glaciers**, for instance, in the **Kilimanjaro National Park in Tanzania, the Sagarmatha National Park in Nepal and the Jungfrau-Aletsch region in the Swiss Alps**. The melting of the glaciers will affect ecological, aesthetic and sometimes also spiritual values, and can lead to tourism decline. Even more critical is the decrease in water supplies that is threatening the lives of both humans and wildlife living downstream from these iconic sites. In the Himalayan region alone, it has been estimated that glacier-fed rivers supply water to one third of the world's total population. Glacier melting also leads to the increase of existing lake levels and the formation of new glacier lakes. Increased water levels and pressures upon natural or artificial dams can lead to so-called glacial lake outburst floods (GLOF): As many banks of glacial lakes are made of moraines (accumulated earth and stones deposited by a glacier),

Hands-on example: Hydropower projects threaten ecosystems and villages in India's Western Himalayas

Located in the western Himalayan region of India – a biodiversity hotspot – the World Heritage site Nanda Devi Biosphere Reserve protects an important wilderness with fragile mountain ecosystems. Because of its rich natural resources, this area has been subject to rapid development, leading to undesired environmental degradation and the decline of both the diversity and productivity of ecosystems such as forests, alpine pastures, or aquatic systems (lakes and rivers) with their native fisheries. Along the Alaknanda River, a major Himalayan glacial stream, five hydroelectric power projects are in progress. Major impacts stemming from the construction of large dams include: biodiversity loss, habitat fragmentation and modification, increasing water scarcity, as well as social and cultural changes. Many villages in the region are facing serious problems because blasting and the construction of the dams have cracked virtually every house in this area.

Sources and further information: Nanda Devi World Heritage site: www.ndwhs.org; World Heritage List: whc.unesco.org/en/list > Nanda Devi



Shazia Quasin, Go4BioDiv Messenger 2010 from the site, says: 'For me personally these cracks have more meaning than just a physical damage. It is the crack that we have caused by forgetting to appreciate what nature has to offer and carelessly trying to modify our surroundings. The destruction that is being caused by our negligence and greed will lead to irreversible losses of our unique ecosystems of outstanding universal value!'

they may collapse when the lakes fill up, leading to sudden and violent flooding in the downstream valleys with potentially disastrous consequences for the humans as well as the biodiversity of the region downstream. The World Heritage site Sagarmatha National Park is already facing such a risk. Rising temperatures have led to a 30 per cent decrease in the snow and ice cover since the 1970s; thus a lake now replaces a 4,000 m high glacier in the Mount Everest massif.

Other **World Heritage sites at particular risk from climate change are to be found in coastal areas**, for example the extensive **Sundarbans mangrove forests in Bangladesh and India**, which comprise the largest mangrove area in the world. Scientists now project that sea levels could rise between half a meter and two meters by the end of this century. This will lead to flooding of low-lying deltas, retreat of shorelines and salinisation of land and ground water resources. This will have serious

The Sundarbans mangrove forests, recognized as a natural World Heritage site both in Bangladesh and India, is at high risk due to sea level rise and increasing intensity and frequency of tropical cyclones. Erosion of riverbanks and coastlines is already a major problem.



consequences for the well-being of the local population and coastal ecosystems, especially since more than 60 per cent of the human population live on or near the coast, and 80 per cent of tourism activities are concentrated in coastal areas.

Sources and further information:

- Borges, M.A. et al. (2011): Sustainable Tourism and natural World Heritage.
- Gillespie Economics & BDA Group (2008): Economic Activity of Australia's World Heritage Areas.
- ICM (2003): Position statement on mining and protected areas: www.icmm.com > Search > World Heritage
- IUCN Media Statement (June 2011): Mining threats on the rise in World Heritage sites.
- IUCN (2011): State of Conservation Reports: iucn.org/worldheritage > Our Work > Monitoring



Go4BioDiv Messenger Yeny, Machu Picchu, Peru

'Machu Picchu has outstanding spiritual and natural values. We are putting them at risk if we forget our conservation goals and only think about short-term economic benefits like mass tourism. Let us value our protected areas!'

In Spanish:

'Machu Picchu posee valores naturales y espirituales increíblemente sobresalientes. Los estamos amenazando con desaparecer si olvidamos nuestras metas de conservación y solo pensamos en beneficiarnos a corto plazo, como por ejemplo mediante el turismo masivo. Por eso, por favor, valoremos nuestras áreas naturales protegidas!'

- UNESCO (2007): World Heritage. Challenges for the Millennium.
- UNESCO (2007): Case Studies on Climate Change and World Heritage.
- Ursúa Guerrero, Francisco (2010): Nature Tourism in Sian Ka'an
- Visit Sian Ka'an (2009): The threats of development: www.visitsiankaan.com
- WWF (2003): Going, Going, Gone! Climate Change and Global Glacier Decline.

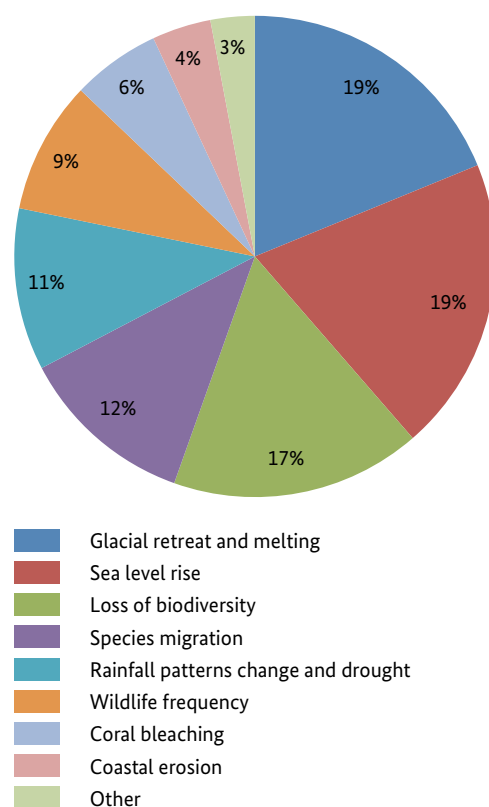
A short BBC radio broadcast on the Gibe3 dam, an audio slide show and video clips can be found here:

- BBC (2010): Conservationists protest power project. Radio broadcast. (January 2010): [www.bbc.co.uk > world service > programmes](http://www.bbc.co.uk/worldservice/programmes)
- BBC (2009): The dam that divides Ethiopia. Audio slide-show and short videos. (March 2009): [www.bbc.co.uk > programmes > Crossing Continents](http://www.bbc.co.uk/programmes/CrossingContinents)

UNESCO student activity sheets on

- the difference between ill-behaved and respectful tourists
 - the general problem of building a highway through a natural World Heritage site
- can be found as PDF files on the DVD accompanying this publication.

Climate change and World Heritage – impacts and threats, as reported for natural World Heritage properties



Adapted from: UNESCO (2006): Climate Change and World Heritage.



Go4BioDiv Messenger Fabian, Jungfrau-Aletsch, Switzerland

‘The day our glaciers are completely gone, we won’t have any more water. No water means no agriculture, and no agriculture means nothing to eat.’

In Walliserdeutsch:

‘An dem Tag wa di Gletscher gschmolzni sind, heiwer keis Wasser meh. Keis Wasser heisst kei Landwirtschaft und kei Landwirtschaft heisst nix z ässu.’



Go4BioDiv Messenger Alan, Sian Ka'an, Mexico

‘Not only our mangroves and wetlands will disappear under the rising sea level, but also our cultures and traditional ways of living.’

In Spanish:

‘No solo nuestros manglares y humedales desaparecerán debajo del creciente nivel del mar... también nuestras culturas y nuestra forma tradicional de vivir.’

The melting glaciers of Greenland and drifting icebergs, sometimes with polar bears, have become a visually attractive, impressive, but also very critical symbol of global warming.



Hands-on example: Changing livelihoods of the Inuit in Greenland

Greenland is the biggest island in the world. From south to north it stretches 2,760 km, equalling the distance from Bergen in Norway to Sicily in Italy. The Ilulissat Icefjord, which was declared a natural World Heritage site in 2004, is the sea mouth of Sermeq Kujalleq, one of the few glaciers through which the Greenland ice cap reaches the sea. Studied for over 250 years, it has helped to develop our understanding of climate change and ice cap glaciology. Sad to say, during recent years Greenland has become an icon for climate change and glacial meltdown in the polar region. In 2010, Go4BioDiv Messenger Avaaraq Olsen went out to interview people around the island about their perceptions of the changes.

The impacts of climate change vary widely over the large area of Greenland. This is why the 57,000 Inuit (the indigenous inhabitants) living on the island make many different observations about climate change as it is affecting their livelihoods: In one year 'the ice is melting, the winter is shorter' and 'fish cannot be found at the usual places.' In the next year, they might 'have tons of snow' and report that the 'fish are back', while in yet another year 'it rains all summer and there are no berries for grandma's pie'.

Additional information:

World Heritage List: whc.unesco.org/en/list > [Ilulissat Icefjord](#)

IISD has produced a 42 min. video on 'Inuit Observations on Climate Change' based on the situation in Bank Island. An online summary version can be watched online (14 min., in English): www.iisd.org



Changing weather patterns make it difficult to go hunting with dog-sleds in Greenland. Today they are mainly used as a tourist attraction and for tours.

Avaaraq and the people she interviewed believe: 'We Greenlanders are facing climate change at the front line. We are not just watching, we are in the change already. This is why we, like our Inuit ancestors, have to be strong and adapt to make the best out of these changes. This is why the time for action has come already!'



Challenges within the World Heritage Convention

The World Heritage List has been expanding significantly since the first nominations were made in 1978. At present (early 2012), the list includes 725 cultural, 183 natural and 28 mixed sites. They are located in 152 countries. Through this expansion, the World Heritage List has moved away from distinguishing the 'best of the best' to highlighting the 'representative of the best'. This means that a number of properties on the List now exemplify the same sort of World Heritage. Some critics consider this kind of doubling-up to have negative effects with regard to the authenticity, the exclusiveness and, ultimately, the political impact of the World Heritage label. However, the changing interpretation and application of the Outstanding Universal Value also allows for a manifold approach to the implementation of the Convention. This new vision can further the Convention's objectives of global cooperation, invigorate the intercultural exchange, and lead to conservation of a wider spectrum of human heritage, with potential benefits for sustainable ways of development. Apart from the observed changes in the selection criteria and guidelines, as well as their interpretation, the most

obvious challenge is the notable **geographical imbalance of the World Heritage List**: almost 50 per cent of all sites can be found in Europe and North America, but for example only nine per cent in Africa. The disparity is stronger for cultural sites than it is for natural sites: 54 per cent of all cultural sites lie in Europe and North America, but only three per cent in Africa (for natural

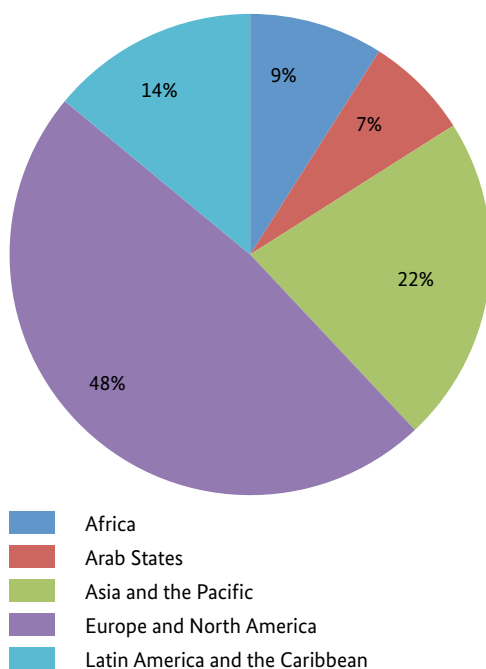
Reflection: Take a look at the tables

What do they tell you concerning the geographical distribution of World Heritage sites? What might have led to the imbalance of the World Heritage List with regard to distribution and type of sites? To what extent do you think this list represents the world's most outstanding natural places? Also think about biodiversity conservation and take the information about biodiversity hotspots into consideration (see text pages 13/15 and map page 60).

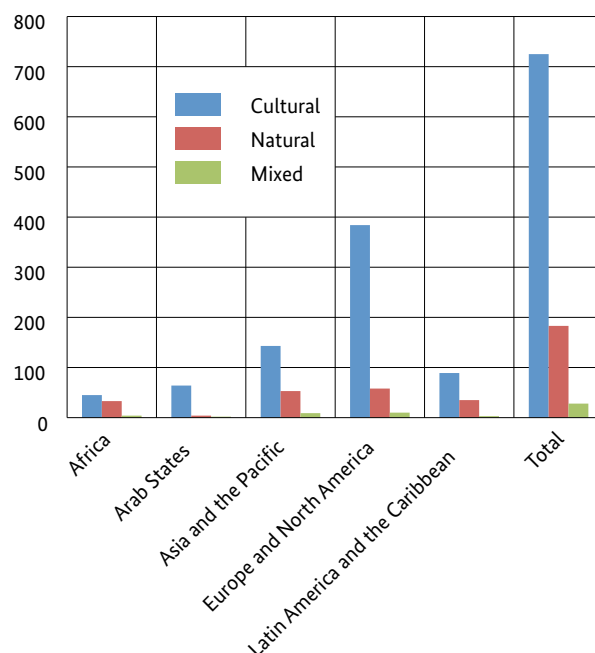
Additional information:

whc.unesco.org/en/list > Statistics

Distribution of all World Heritage sites by region in per cent (2011)



Distribution of all World Heritage sites by region in per cent (2011)



sites the proportion is 32 per cent in the European Union and North America, and 18 per cent in Africa). A reason for this is that developing countries in many cases lack the capacities required to complete the extensive nomination process, since it demands a certain level of scientific information as well as financial and other resources. Another aspect of the World Heritage List that is often highlighted is the imbalance of inscribed properties and corresponding categories: with 77 per cent of sites recognised for cultural heritage, the World Heritage Convention is mostly perceived as a cultural convention. Most of the sites are listed under criterion (iv) for cultural sites (displaying a significant stage of human history). For natural sites, criterion (vii) – the aesthetic value – is applied in most cases, which is possibly not the most objective criterion for natural sites.

Changing views and new strategies for World Heritage

What changes in national and international policies do we need in view of the challenges World Heritage sites are facing? Can certain management practices better enhance the resilience of the precious ecosystems contained within the sites, and should these practices be fostered through training? This section outlines some of the strategies, initiatives and tools that have been developed specifically for World Heritage sites and within the framework of the Convention. On a global scale, much more has to be done to deal with the threats: the conservation of our planet's treasures will only be possible if the specific efforts are accompanied by broader changes in political will and setting of societal priorities.

Global Strategy

Conscious of the inherent challenges of the Convention, the World Heritage Committee decided to launch the **Global Strategy for a Balanced, Representative and Credible World Heritage List** in 1994. Its objective is to broaden the List in order to attain a complete picture of the world's heritage in its full variety. Since then, a number of global gap analyses have been carried out by the advisory bodies with the intention to identify and to address major gaps in the List. According to IUCN, underrepresented, ecosystems typically include:

- coastal areas,
- oases,
- cave systems,

Discussion: World Heritage List and the 5 Cs

Which ones of the five Cs do you consider the most important? Can you think of practical examples of their implementation?

An assessment undertaken by ICOMOS in 2004 revealed that, unfortunately, 'the current Tentative Lists would not change the potential balance or imbalance on the World Heritage List', meaning that under-represented countries either did not have enough potential sites on the Tentative List or had very little prospect of success.

In light of this, do you think the Global Strategy is a useful tool to reach its intended goals? What could be improved to help meet the challenges of the practical implementation of the Convention? Think especially about the perception of the Convention by some developing countries. How could they and their needs and sites be incorporated to make the List a truly universal tool?

- karsts,
- grasslands,
- rivers and river canyons,
- marshes,
- and most significantly, marine systems.

Strategic objectives for the further implementation of the Convention were defined in line with the Global Strategy. These are commonly referred to as the **five Cs**:

- Strengthen the **credibility** of the World Heritage List.
- Ensure the effective **conservation** of World Heritage properties.
- Promote the development of effective **capacity** building in State Parties.
- Increase the public awareness, involvement and support for World Heritage through **communication**.
- Enhance the role of **communities** in the implementation of the Convention.

To attain objectives one and three, it is important to make the nomination and technical preparation of this process a collaborative effort between the countries and World Heritage institutions that are involved. Therefore, 'the intergovernmental World Heritage Committee

should be called upon to play a more proactive and decisive role – prior to the nomination process – by identifying priorities for nominations from these rigorously prepared tentative lists’ (Rao 2010). With such prioritised tentative lists, nominations could also be supported through international financial assistance, e.g. from the World Heritage Fund. In this way, previously under-represented State Parties – most of them developing countries – would have a better chance of redressing the current imbalance of the World Heritage List. This concept might also help to overcome the growing divergence between the advisory bodies’ opinions and the World Heritage Committee’s political decisions concerning new nominations.

Another means to make the World Heritage List more inclusive and to open up the opportunity for more site nominations is to make **serial or transboundary nominations of sites**. An increasing number of State Parties now consider this option. Initiatives for the nomination of serial sites have been made, for example, by international regimes in the Alpine region and in South-East Europe.

Greater attention needs to be focused on the management and conservation of existing and planned World Heritage sites. Much progress has been achieved in this area but many sites still remain severely threatened. Long-term conservation and effective management will

be the ultimate criteria used to judge the credibility and success of the World Heritage Convention. Although World Heritage sites are the jointly agreed upon and prioritised sites of Outstanding Universal Value to the world community, there is still a lack of public awareness, involvement and support. This has to be improved through **increased communication and public outreach**. Since World Heritage is tied to some of the most famous, iconic, and cherished destinations around the globe, the label can help to convey important information on biodiversity threats and to reach the wider public to gain support for action. With regard to specific World Heritage challenges, public support will be viable only if all stakeholders are well-informed about the sites, their OUVs and the issues at stake. Local communities, as patrons of the sites, play a very decisive role for the future of the Convention (as presented in Part 2, see also objective five of the Global Strategy).

Source and further reading:

- Francioni, Tullio (2008): *The 1972 World Heritage Convention*.
- ICOMOS (2004): *The World Heritage List: Filling the gaps*.
- IUCN (2010): *Future challenges for natural World Heritage sites*: www.iucn.org/worldheritage > About World Heritage
- Magin, Chris & Chape, Stuart (2004): *Review of the World Heritage Network*.
- Permanent Committee of the Alpine Region (2009): *Working Group Environment – Recommendations*.

Reflection and discussion: Benefits and potential downsides of the World Heritage label

In a study with the provocative title ‘Does World Heritage Make Sense?’ the Swiss economists Frey and Steiner analysed the potential benefits and the negative consequences of the World Heritage label. Analysing the Convention from a scientific and outsider’s perspective, they came up with some interesting points for discussion. They found the World Heritage label to be positive in attracting societal attention and enhancing protection efforts. Negative aspects included the questionable and incoherent selection of the sites, the potential inclusion of too many sites, and the ‘substitution effects’ which burden non-World Heritage-listed protected areas on a national level, since they might be considered less important or attractive for tourism. Threats identified by Frey and Steiner include the potential destruction of sites by

an excessive number of visits and tourism, but also by terrorist attacks or in wars, since these emblematic sites present well-publicised targets. The researchers therefore conclude that the World Heritage label is only beneficial in certain cases. They recommend exploring other means of conservation, for example, the use of market incentives. In this sense, the distribution of heritage certificates, limited in number, time, or according to defined quality standards might constitute interesting alternatives.

Can you think of other mechanisms, besides the World Heritage List, that could help identify and protect our planet’s treasures? What should be the role of the international community in this?

Source: Frey & Steiner (2010): Does World Heritage Make Sense?

- Rao, Kishore (2010): A new paradigm for the identification, nomination and inscription of properties on the World Heritage List.
- UNESCO (1994): Global Strategy for a Balanced, Representative and Credible World Heritage List.

Natural Heritage Strategy

In 2006, UNESCO published the Natural Heritage Strategy, which outlines the guiding principles, mission statement, strategic orientations, and instruments relating to Natural Heritage. It includes several specific programmes:

The **Sustainable Tourism Programme** seeks to use tourism as a positive force in retaining the values of World Heritage sites. It aims at increasing the capacity of sites to plan and manage tourism, it promotes alternative livelihoods for local communities, and it engages the nature-based tourism industry through increasing benefits for conservation measures. An effective management system should not only include the protection and conservation of the site itself, but also link to the area surrounding the site where visitor accommodation and services can be provided. Moreover, a recent study by IUCN on tourism suggests that there is a need to create better transfer of knowledge among sites.

Two of UNESCO's programmes focus on specific types of World Heritage sites: marine areas and forests.

Marine sites face accumulated threats: maritime pollution, fisheries, mineral extraction and the increasing impacts of climate change. The **World Heritage Marine Programme** hence aims at safeguarding the world's



Go4BioDiv Messenger Na, Wulingyuan, China

'Tourism not only brings happiness to people but it is also a journey of exploring nature and life. Ecotourism is a good way to live in a harmonious world.'

In Chinese:

旅游不只带给人类快乐, 同时也是对自然和生命的探索, 而生态旅游则为人类提供了一个更好的方式去实现人类与自然的和谐共处。



Through the World Heritage Forests Programme, a wide variety of forests around the world benefit from a strong protection status – like the World Heritage site Yakushima in Japan.

marine cultural and natural heritage by assisting State Parties with the nomination and effective management of marine sites. This is done mainly through the development of strategic partnerships and networking among the sites. Since its launch in 2005, nine sites with marine values have been inscribed on the List. Despite this success, there is still a long way to go: although 70 per cent of the earth's surface is ocean, only 45 (less than five per cent) out of the total of over 900 sites have been inscribed for marine values. The greatest challenge is that 64 per cent of the ocean is legally classified as 'high seas' – areas that lie beyond national jurisdiction, where the World Heritage Convention as of now cannot be applied. Bearing in mind the importance the World Heritage Convention can have for in-situ conservation of forest biodiversity, the **World Heritage Forests Programme** aims at strengthening further conservation of these ecosystems on a global scale. World Heritage sites embrace many of the world's most precious forests in terms of their value to biodiversity conservation: they now cover a total surface area of over 76 million hectares (1.5 times the area of France) and represent over 13 per cent of all IUCN category I-IV protected forests worldwide.

Additional information:

- **Activities of the World Heritage Centre:** whc.unesco.org > **Activities**
- **UNESCO World Heritage Centre (2006):** **Natural Heritage Strategy:** whc.unesco.org/en/naturalheritagestrategy
- **UNESCO World Heritage Centre (2010):** **Navigating the Future of Marine World Heritage:** [whc.unesco.org > publications > World Heritage Series](http://whc.unesco.org/publications)

Instruments of the World Heritage Convention: World Heritage in Danger and Delisting

The List of World Heritage in Danger is one of the **crucial instruments for encouraging international cooperation and expert assistance** to support World Heritage sites whose very characteristics are threatened by multiple factors. Reasons for inscription on the List in Danger are varied and include man-made threats as well as natural causes. For natural sites, ascertained dangers that justify the inscription are:

- a serious decline in the population of the endangered species or the other species of outstanding universal value,
- a severe deterioration of the natural beauty or scientific value of the property,
- human encroachment on boundaries or in upstream areas which threaten the integrity of the property.

Kahuzi-Biega National Park in the Democratic Republic of Congo was put on the List of World Heritage in Danger in 1997 because of armed conflicts. Although the situation has improved, a heavy guard presence at the site is deemed necessary by the national authorities to secure its protection.



Sites can also be listed due to potential dangers, these include:

- the modification of the site's legal protective status,
- planned resettlement or development projects,
- outbreak or threat of armed conflict,
- the lack of an adequate and implemented management plan / system,
- and threatening impacts of climatic, geological or other environmental factors.

The World Heritage Committee makes the political decision to inscribe a site on the list of World Heritage in Danger and also to remove a given site from the List. A famous example of a natural World Heritage site in Danger is the **Galapagos Archipelago in Ecuador**, which is suffering from heavy pressures associated with tourism, immigration, over-exploitation of marine resources, and invasive species. Some of these problems originated when 97 per cent of the islands were put under the status of a protected area, but the remaining three per cent were deliberately left out since they hold the settlements. With good coordination of conservation and development measures, this could have worked out well. Instead, heated political debates with fiercely opposing interests have ensued as huge incomes in the tourism sector

Research and role play: Dresden Elbe Valley in Germany

Find information about the delisting process of the Dresden Elbe Valley in Germany. Analyse the reasons and list potential arguments from the perspective of different interest groups: 1) an international member of the World Heritage Committee, 2) a government representative of Germany, 3) the president of the regional tourism board, 4) a consulted ICOMOS expert as part of the advisory body to UNESCO, 5) a member of a local environmental group. Compare and prioritize the arguments – perhaps using the format of a ‘public hearing’, an international discussion or another role-play setting.

Please look for useful information online. Try to find articles from different sources: local and national newspapers and press releases of involved institutions such as UNESCO and the city of Dresden.



The Dresden Elbe Valley (Germany) lost its World Heritage status after a long and highly political process in 2009, as a result of the planned construction of a broad bridge over the river Elbe (not displayed in the picture). According to the World Heritage Committee, the bridge will destroy the former cultural landscape and its characteristic flood plains.

Interview with Tim Badman, Director of the World Heritage Programme at IUCN

World Heritage sites, often referred to as the flagship of protected areas, often face the same challenges as other protected areas, such as lack of sustainable funding or inefficient management. How can the World Heritage Convention improve nature conservation for listed sites and in general? What would be needed to accomplish this?

While World Heritage sites certainly do face the same challenges as other protected areas, the Convention has some particular ways of providing assistance. Firstly, World Heritage sites have regular follow up, and monitoring through the Convention, which ensures attention to threats, and gives site managers additional ways to seek the necessary national support they require. World Heritage status can also attract political and community support that can otherwise be lacking, and provide distinctive potential for attracting sustainable tourism. But we also think there are opportunities to do much more to provide support to World Heritage sites, including more focussed work supporting site management teams, and creating dedicated funding for World Heritage sites.

How can we transfer lessons learned at World Heritage sites to other protected areas? How can other protected areas benefit from the attention given to (and the money invested in) World Heritage sites?

We think more work is needed to connect World Heritage efforts to the broader global agenda for protected areas, including the CBD Programme of Work on Protected Areas. The strength of World Heritage sites is that they are a visible, well known network of globally important protected areas. The opportunities to use World Heritage sites to support wider efforts should include establishing them as demonstration areas for best practice. Because they are areas with international profile, and which have regular monitoring, World Heritage sites also provide a strong opportunity for communication about the importance of protected areas, and the challenges facing global conservation.

There is an ongoing debate about the effectiveness of the Convention, what do you see as the priorities for improving it?

We think there are three challenges: the first is that the Convention, which is 40 years old, needs to see its place as part of a bigger effort for conservation – not being only preoccupied about World Heritage, but seeing investing in this Convention as a means to support wider conservation. Secondly, the Convention needs to make its top priority conserving the sites that are already listed, ahead of continued listing of new sites. Thirdly, we should be providing much more support early on, when countries consider nominating new sites, to try to ensure that new applications fully meet the Convention's standards, resulting in more successful listings.

As the flagship protected areas, World Heritage sites deserve utmost global support. How can political decision makers be encouraged to actively engage in World Heritage conservation?

There are many ways to try to get greater engagement for World Heritage. Action is needed at all levels, but a key priority is within national governments to ensure political attention to World Heritage does not only rest with environment ministries, but includes commitments from ministries responsible for economic development, tourism as well as infrastructure such as roads, and mining, which are growing threats to World Heritage conservation. The ground level support of communities for World Heritage sites is the foundation of political support for their conservation, so again the vital role is that of those at the local level responsible for protection, conservation and management. Creating a convincing international funding mechanism for World Heritage is another opportunity to promote greater political interest and support.



have attracted investors and labour force from other parts of Ecuador. Developments continue to occur with little consideration for the delicate ecosystems. Since the islands were placed on the List in Danger in 2007, the Ecuadorian Government has addressed a number of problems, i.e. by strengthening immigration regulations, quarantine and governance measures and setting up an Invasive Species Fund. Based on these positive developments, the islands were removed from the List in Danger in 2010. This act, however, was heavily criticised by several conservation organisations. The Galapagos Conservation Trust, for example, expressed its concern that this removal might nurture the impression that the natural wonders of the islands were no longer at risk; conservationists still see an urgent need to better protect Galapagos fauna and flora from invasive species and other threats.

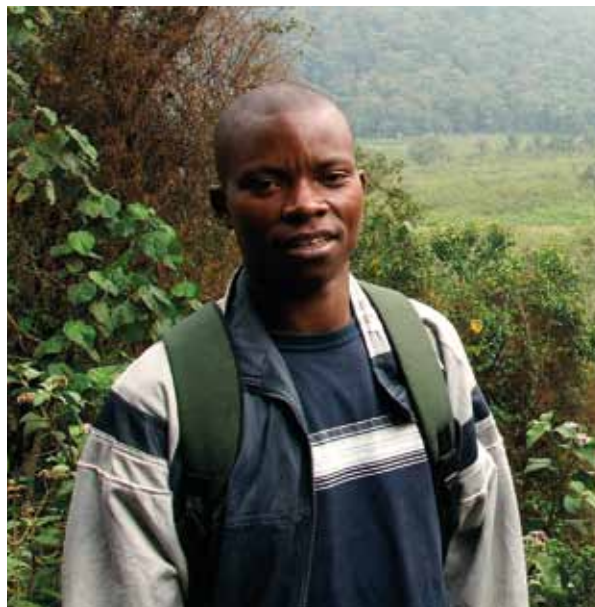
IUCN published a study on the List of World Heritage in Danger in 2009, which concluded that this List was one of the most important strategic elements of the Convention. However, there are major challenges in the application of the List, which were identified in the study. The inclusion of a site on the in-Danger-List is a politically very sensitive process. IUCN, the advisory body for natural sites, and the Committee often disagree upon which sites should be listed. Thus, not all of the seriously endangered sites are included on the List, which in turn undermines its use as an effective conservation tool, as well as its potential to stimulate international support. In order to make it more useful, the report recommends the definition of clear standards and criteria for the use of the Danger List, including the removal of sites from the List. In addition, experts recommend working more with 'positive incentives', i.e. official recognition of well-managed sites.

As a last resort, a **World Heritage site can be removed from the World Heritage list**, which means that it loses its World Heritage status. This has happened only twice in the Convention's history: the **natural site Arabian Oryx Reserve** was delisted in 2007 because the state of Oman decided to reduce the size of the protected area by 90 per cent, thus destroying the site's Outstanding Universal Value as habitat of the vulnerable threatened oryx antelope (*Oryx leucoryx*). The **cultural site Dresden Elbe Valley in Germany** was delisted in 2009 because of the construction of a broad bridge over the river Elbe, which was seen as interfering fundamentally or 'incompatible' with the site's cultural landscape values.

Further reading:

- Badman, Tim & Debonnet, Guy (2010): *List of World Heritage in Danger*.
- Darton, Toni / *The Telegraph* (08/2010): *The Galapagos remain under threat*: www.telegraph.co.uk

A UNESCO student information sheet on the process of including a World Heritage site on the List in Danger – namely the Yellowstone Park in the USA – can be found as a PDF file on the DVD accompanying this publication.



Go4BioDiv Messenger Pascal, Kahuzi-Biega, Congo DRC

'We ask for more financial resources for the integration of the local population to safeguard biodiversity.'

In French:

'Nous demandons plus de ressources financières pour l'intégration de la population locale au sauvegarde de la biodiversité.'

Financial support for World Heritage sites

Many properties, especially natural sites of large scale, are located in the developing world. They often face serious challenges, including encroachment, resource extraction, as well as limited financial resources and management capacity. The World Heritage Convention

explicitly encourages international cooperation. In fact, while fully respecting the sovereignty of the State Parties, the convention text states that “it is the duty of the international community as a whole to cooperate” in the protection of World Heritage. This spirit of the convention is reflected in many bilateral and multilateral projects and also in funding mechanisms, such as the World Heritage Fund and the Rapid Response Facility. It is widely acknowledged that the available resources are far from meeting the needs. Much more needs to be done.

In responding to emergency situations such as oil spills, natural hazards or immediate infrastructure threats, time can be a critical factor. Accordingly, the **Rapid Response Facility** assists in the provision of timely and flexible resources to counter threats and emergencies affecting natural World Heritage properties and surrounding areas of influence. It is a small grants programme that aims to provide bridging funds for developing countries until long-term funding becomes available. These grants sometimes also catalyse innovative financing strategies as part of long-term support programmes. As of 2010, the facility had intervened in 16 situations concerning 14 natural World Heritage sites. In contrast to the Rapid Response Facility, the **Programme for International Assistance** of the World Heritage Convention grants support to all State Parties in order to help them protect both their cultural and natural World Heritage. The financial support can be provided for preparatory assistance, conservation and management measures, as well as for emergency assistance.

For countries in need, the **World Heritage Fund** provides about USD four million annually. The Fund consists of compulsory and voluntary contributions from the State Parties, as well as from private donations. However, given the fact that 936 properties are inscribed on the World Heritage List – many of them in developing countries – this amount seems incredibly low, especially since only a small portion of the money can be earmarked for the 183 natural and 28 mixed sites.

Another important source of finance for World Heritage sites is therefore also Official Development Assistance (ODA). German bilateral development cooperation, for instance, currently supports 21 out of 122 of all mixed and natural World Heritage sites in developing countries with significant financial resources (see table page 66, Part 4). Examples include Galapagos (Ecuador, approx.

EUR 2.5 Million), Taï National Park (Cote d’Ivoire, approx. EUR 3 Million) and Phong Na-Ke Bang (Vietnam, over EUR 12 Million). For other sites, however, it is more difficult to assess exactly how much funding goes to specific areas. Most programs do not target specific World Heritage sites exclusively; instead they encompass larger protected area systems, which may include World Heritage sites. In addition, selected World Heritage sites also benefit through other significant development programmes supporting for example sustainable economic development – such as through ecotourism – or the appropriate management of natural resources.

Apart from government and public funding, several non-governmental and non-profit organisations (NGOs / NPOs) are also actively trying to fill the gap in supporting the conservation of World Heritage. Yet, most of these initiatives focus on cultural heritage. The **World Monuments Fund**, for example, dedicates its work mainly to preserving and protecting endangered works of historic art and architecture; while the **World Heritage Foundation** supports and publicises restoration, conservation and preservation efforts at World Heritage sites, foremost in China. The **Asian Academy for Heritage Management**, a network of institutions throughout Asia and the Pacific, offers professional training in the field of heritage management.

The **African World Heritage Fund** and the **Nordic World Heritage Foundation** (NWHF) are two examples of NPOs that are engaged in the conservation of both cultural and natural heritage. The African World Heritage Fund strives to increase the presence of African sites on the World Heritage List and works for their effective protection and management. IUCN works together with this Fund through a regional project supported by the **MAVA Foundation**. The Government of Norway, in cooperation with other Nordic governments, created the Nordic World Heritage Foundation in 2002. NWHF acts as a strategic ally of the World Heritage Convention: The foundation raises funds, advises international development agencies on how to mainstream World Heritage initiatives in their operations, and directly supports UNESCO’s World Heritage programmes through its projects, e.g. contributing to the Global Strategy and the Sustainable Tourism Programme.

Another important initiative is **COMPACT, Community Management of Protected Areas for Conservation**, which ‘aims to replicate the success of the Global Environment Facility’s Small Grants Programme (SGP)

Hands-on example: Conservation corridors and participatory weather monitoring at Cape Floral, South Africa

The Cape Floral Region in South Africa is one of the richest areas for plants in the world: while it represents less than 0.5 per cent of the area of Africa, it is home to nearly 20 per cent of the continent's flora. A serial World Heritage site made up of eight protected areas, covering 553,000 ha, are not enough to protect the ecosystems and biodiversity at stake in this region. Therefore, the *Cape Nature Protected Area Expansion Strategy* has been launched, a plan through which private land owners implement biodiversity conservation measures in a stewardship programme. These so-called Contract Nature Reserves are located within broader priority corridors and have the objective to support ecological functions and enhance landscape-scale features and processes.

The Cape Floral Region also benefits from the commitment of the local communities through **participatory weather monitoring**. Candice Meneghin, Go4BioDiv Messenger from the Cape Floral Region, shares her impressions of this: 'The farmers in the Suid Bokkeveld observed a severe drought in 2003. After learning about climate change, they decided to establish a local weather monitoring system. This endeavour was supported by the South African NGO Indigo

Development & Change. The initial process included the weekly monitoring of maximum and minimum temperatures on four different farms along a rainfall and temperature gradient. The minimum temperatures are important for farming since in most of these areas damage of agricultural crops occurs during night frosts. The farmers also decided to monitor rainfall at all the stations. All information is recorded in climate diaries, developed by Indigo. This facilitates the record keeping of observed climate data, as well as observations on how the weather or other factors impacted farming activities.

Quarterly Climate Change Preparedness Workshops are an opportunity for joint learning and sharing within the wider community. These workshops include the seasonal forecast for the area as published by the South African Weather Bureau, and a comparison with actual observed data, using the information of the climate diaries. The process of monitoring has opened a platform to discuss innovative response and adaptation strategies on farm level.

Additional information:

Indigo Development & Change: www.indigo-dc.org



The conservation corridor approach at Cape Floral aims at maintaining ecological connectivity in times of increasing external pressures and climate change. It thereby enables the migration of endangered flora and fauna species.



The individual climate diaries are used for compiling local seasonal calendars.

Climate Justice Petition: World Heritage threatened by climate change

In 2005, the environmental organisation Climate Justice co-ordinated a campaign by environmental groups in Nepal, Peru and Belize to have three existing World Heritage sites in these countries put on the World Heritage in Danger List. The world famous mountaineers and conservationists Sir Edmund Hillary, Sir David Attenborough and Reinhold Messner supported the campaign. Climate Justice submitted petitions to the World Heritage Committee claiming that the Sagarmatha National Park in the Himalayas, the Huascarán National Park in Peru and the Belize Barrier Reef are being critically affected by climate change. Campaigners argued that saving these World Heritage sites for future generations, as required by the Convention, is not possible unless urgent action is taken to stop, for example, the melting of the Himalaya glaciers. The World Heritage Committee reacted to the petition by acknowledging that ‘the impacts of climate change are affecting many and are likely to affect many more World Heritage properties’

and that ‘early action’ is needed to respond to these threats. It set up an expert working group which subsequently issued the ‘World Heritage Climate Change Response Strategy and Policy Document’. Although the Committee has not listed the three mentioned sites as being ‘in danger’ resulting from climate change, this process has initiated important discussions highlighting the threats of climate change to World Heritage sites and has helped to inform and support the negotiations on a new climate treaty. In addition, it leads to the development of concrete projects on the ground to identify best practices for the implementation of the strategy.

Sources and further information: BBC (2005): UN investigates Everest threat: www.bbc.co.uk > Science & Environment; Climate Justice (no date): UNESCO Belize Barrier Reef Petition: www.climatelaw.org; Friends of the Earth (2005): UNESCO: no decision on Everest, but investigation into climate threat to sites. Press release (July 2005): www.foe.co.uk > Press & Media > Past press release; UNESCO World Heritage List: whc.unesco.org/en/list > Belize Barrier Reef

Local communities and their economic activities, which depend on ecosystem services in World Heritage sites and contribute to their protection, can benefit from small grants programmes, such as the COMPACT initiative.



Role-play: What needs to be done to protect our treasures for future generations?

Imagine you are the managing director of the Belize Reef, the Sagarmatha National Park in Nepal or the Huascarán mountain range in the Peruvian Andes, invited to present his / her vision during a side event of the UNESCO negotiations on World Heritage. Which arguments, claims and demands would you come up with while debating with a representative from a) the World Heritage Committee, b) your own government's delegation, c) the NGO Climate Justice that introduced the petition to the UN, or d) the media?

First work on a list of your arguments and potential counter-arguments from the different stakeholders, then go into negotiations, chaired by a representative from IUCN's World Heritage Programme, who later on will report, balancing the arguments in his / her technical recommendations to the World Heritage Committee. For the debate, feel free to dress up formally and define behavioural standards and rules of procedure.

at the national scale for protected landscapes, including natural World Heritage sites (SGP COMPACT). Launched in 2000, it demonstrates how biodiversity conservation can be greatly increased through community-based initiatives. As of 2010, eight natural World Heritage sites, among them the Belize Barrier Reef Reserve System and Mount Kenya National Park, had benefited from small grants of up to a maximum of USD 50,000 for community-based activities in or around the targeted site. Connected to COMPACT is the **World Heritage Local Ecological Entrepreneurship Program (WH-LEEP)**, which provides development support in the form of grants and loans to community-based small businesses near World Heritage sites in the sectors of agro-forestry, ecotourism and wild-harvest products. Despite the assistance provided by these organizations and initiatives, **more funding is needed** to better support the establishment, effective management and restoration of natural World Heritage sites. The training of staff and

the support for participatory conservation and development strategies can help overcome local poverty. These important elements of effective site management, along with measures that enhance the effective administration and efficient use of existing funds, should also receive support.

Easier access to financial resources is a clear advantage of properties recognised under the Convention. However, the most important funds are not the ones directly available through the convention – though these may be of great relevance in particular situations – but the enhanced support through the respective governments or private and business donations. Sites with the World Heritage label gain media attention, societal visibility and international recognition. This can be a big help in raising funds for conservation and local development efforts.

Sources and additional information:

- **African World Heritage Fund:** www.awhf.net
- **Asian Academy for Heritage Management:** www.unescobkk.org > culture
- **COMPACT:** sgp.undp.org > COMPACT
- **Nordic World Heritage Foundation:** www.nwhf.no
- **Rapid Response Facility:** www.rapid-response.org
- **UNESCO World Heritage Convention and Funding:** whc.unesco.org > about WH > Funding
- **World Monuments Fund:** www.wmf.org
- **WH LEEP Program:** www.conservation.org/sites/verde-ventures > Loans

Responses to climate change by the World Heritage Committee

In 2005 the World Heritage Committee officially recognised that climate change is happening and sought to work out management strategies to address it. One year later, the **'World Heritage Strategy to assist State Parties to implement appropriate management options for predicting and managing climate change impacts'** was endorsed. While the main focus of the strategy is on site-level adaptation, it also calls for exploring mitigation options and taking actions to reduce and / or offset emissions.

The strategy contains a threefold approach:

- preventive actions (such as reducing non-climatic stress factors on site to enhance resilience to climate change);
- corrective actions (such as integrating climate change aspects into management plans); and
- sharing knowledge (by, for example, developing specific communication strategies).

Hands-on example: Climate impacts and scientific monitoring at the Great Barrier Reef, Australia

The Australian Great Barrier Reef is home to more than 10,000 species of coral, fish, mammals, crustaceans and plants, forming a complex and diverse ecosystem. Declared a World Heritage area in 1981, the Great Barrier Reef is the **largest World Heritage-listed area**. However, the Reef is under great threat. Climate change is leading to rising sea surface temperatures, ocean acidification and increased risk of storms. In addition, declining water quality, impacts of illegal fishing, poaching and loss of coastal habitat have been identified as the greatest threats to the Reef's long-term health. In 1998 and 2002, coral bleaching affected more than 50 per cent of the Reef. In both events, around five per cent of the affected corals did not recover. More recently, one of the largest cyclones in recorded history swept through the Reef, exposing more than 13 per cent of the Marine Park to destructive or very destructive winds. Corals were broken, torn from the Reef and scattered across the seabed. Large boulder corals, more than a hundred years old, were tipped on their sides. Some reefs were even reduced to rubble. This had dramatic consequences for dependent and associated species as well as the livelihoods of adjoining fisheries and the tourism sector.

The Australian Government has invested in a five-year Great Barrier Reef Climate Change Action Plan to increase the ecological resilience of the reef-ecosystem to the impacts of climate change. The Plan also supports the steps taken by industries and communities that rely upon the reef, as they struggle to adapt to effects such as increasing heat and more frequent cyclones. The Great Barrier Reef Marine Park Authority, which is the Australian Government's protection and management agency for the Reef, is focusing on several activities:

- improving the quality of water that enters the Reef Catchment,
- managing fishing, tourism and other Reef-related activities,
- monitoring changes to the Reef, and
- protecting coastal habitats from development impacts in an effort to make the Reef strong enough to withstand, and recover from, the effects of climate change.

Sources and further reading:

- GBRMPA (2009): *The Great Barrier Reef Outlook Report 2009*
- GBRMPA (2007): *Great Barrier Reef Climate Change Action Plan 2007 – 2012*: www.gbrmpa.gov.au



The Climate Change team of the Great Barrier Reef Marine Park Authority monitors the Reef's situation (here observing cyclone damage).

In 2007, the General Assembly of the State Parties of the World Heritage Convention adopted a 'Policy Document on the Impacts of Climate Change on World Heritage', which announced the inclusion of climate change factors into the next revision cycle of the Operational Guidelines to the Convention. With the revisions adopted in 2011, a site can now be placed on the List of World Heritage in Danger if it faces 'threatening impacts of climatic, geological or other environmental factors'.

The World Heritage Convention, together with other management tools such as the Ecosystem Approach, can provide useful frameworks for addressing climate change impacts. What is needed, however, is **stronger enforcement of this vision and practical implementation on the ground**. In order to conserve our treasures for the coming generations, protected areas (and World Heritage sites in particular) have to be better managed, involving a range of different stakeholders. But also, larger regions have to be created to maintain biodiversity integrity and to increase ecosystems' resilience to the impacts of climate change.

As climate change does not stop at the borders of protected areas, **sites have to be embedded within surrounding landscapes and seascapes that are in turn managed sustainably**. To that end, World Heritage could

Discussion: Implications of climate change for World Heritage

Should a new site be inscribed on the World Heritage List even if we know that its potential Outstanding Universal Value may disappear due to climate change impacts (e.g. glaciers)? Why, or why not? Develop the arguments! Climate change may require specific adaptation and mitigation measures for the conservation of a site. Should such management requirements be considered a prerequisite for a site to meet the conditions of integrity? Find pro and contra arguments to these questions.

form the core sites within regional networks of protected areas and conservation corridors. Creating corridors and enhancing connectivity could provide migratory pathways for wildlife and plant dispersion and thus could support adaptation to changes in climate. Some managers of World Heritage sites have already started to implement such practical adaptation approaches, for example, in the Cape Floral Region in South Africa and at the Great Barrier Reef in Australia.

Go4BioDiv Messenger Anna, Great Barrier Reef, shares her experiences:

'On a dive trip, not long after the cyclone, I visited a reef that was hit by the cyclone. The effect was as if a stick of dynamite had exploded and reduced the once beautiful corals into rubble. It was devastating; I could see no marine life except for a lone fish searching the seabed desperately for food. I was surprised however, as I continued my dive, to find the other side of the reef had remained untouched and pristine. Turtles, sharks, fish and all types of marine animals surrounded the reef, carrying on as before. I was comforted by the fact that the damaged side of the reef would recover faster from the random damage the destructive winds had caused, and that the marine life seemed quite eager to adapt.'

Sources and further information:

- Dudley, Nigel et al. (2009): *Natural Solutions* (available as PDF file on the DVD accompanying this publication).
- UNESCO (2006): *Climate Change and World Heritage. Report and Strategy*.
- UNESCO (2008): *Policy Document on the Impacts of Climate Change on World Heritage*.
- World Bank (2009): *Convenient Solutions to an Inconvenient Truth*.

Map of World Heritage sites, biodiversity hotspots and Go4BioDiv 2010 Messengers



- red dots: sites of Go4BioDiv messengers
- with white circle: presented here as examples
- black dots: other natural World Heritage sites
- ★ orange star: Japan - Satoyama initiative
- lighter green areas: Biodiversity Hotspots (marine and terrestrial), according to classification of Conservation International

Africa

- 1 El Hacen, Mauretania – Banc D'Arguin National Park
- 2 Josiane, Cameroon – Dja Faunal Reserve
- 3 Prudence and Pascal, Congo (DRC) – Kahuzi-Biega National Park
- 4 Saningo, Tanzania – Kilimanjaro National Park
- 5 Mikelita, Kenya – Lake Turkana National Park
- 6 Candice, South Africa – Cape Floral Region

Asia

- 7 Sudeep, Nepal – Sagarmatha National Park
- 8 Dhritiman, India – Manas Wildlife Sanctuary
- 9 Shazia, India – Nanda Devi and Valley of Flowers National Parks
- 10 Battsetseg and Unur, Mongolia – Orkhon Valley Cultural Landscape
- 11 Na and Li, China – Wulingyuan Scenic and Historic Interest Area
- 12 Kien and Yen, Vietnam – Phong Nha-Ke Bang National Park
- 13 Kayo, Japan – Yakushima
- 14 Tagashi, Japan – Ogasawara Islands (Tentative List)

Australia and the Pacific

- 15 Anna, Australia – Great Barrier Reef
- 16 Tavite, Tonga – Lapita Pottery

The Americas

- 17 Jenn, Canada – Nahanni National Park
- 18 Alan, Mexico – Sian Ka'an Biosphere Reserve
- 19 Roger, Costa Rica & Panama – La Amistad National Park
- 20 Andrea, Ecuador – Galápagos Islands
- 21 Rosa and Yeny, Peru – Historic Sanctuary of Machu Picchu

Europe

- 22 Avaaraq and Qivioq, Greenland (Denmark) – Ilulissat Icefjord
- 23 Marina and Sven, Germany – The Wadden Sea
- 24 Fabian and Benjamin, Switzerland – Swiss Alps Jungfrau-Aletsch
- 25 Vladimira, Slovakia – Primeval Beech Forests of the Carpathians



1 Mauretania – Banc D'Arguin National Park

- **Date of inscription on the World Heritage List:** 1989
- **Criteria:** significant ecological and biological processes (ix), significant natural habitat of biodiversity (x)
- **Type of ecosystem:** marine and coastal area, mudflats and marshes
- **OUV:** contrast between the harsh desert environment and the biodiversity of the marine zone, rich avifauna and migrating birds
- **Recognized also as:** a WWF Global 200 Marine Eco-region and a Wetland of International Importance under the Ramsar Convention



5 Kenya – Lake Turkana National Park

- **Date of inscription on the World Heritage List:** 1997; (extension: 2001)

and Examples of Go4BioDiv sites

- **Criteria:** major stages of earth's history (viii), significant ecological and biological processes (ix)
- **Type of ecosystem:** desert lake
- **OUV:** most saline of Africa's large lakes, outstanding laboratory for the study of plant and animal communities
- **Recognized also as:** a WWF Global 200 Eco-region and a BirdLife International-Important Bird Area



8 India – Manas Wildlife Sanctuary

- **Date of inscription on the World Heritage List:** 1985
- **Inscription WHS in Danger:** 1992; taken off the **Danger List:** 2011
- **Criteria:** major stages of earth's history (viii), significant ecological and biological processes (ix), significant natural habitat of biodiversity (x)
- **Type of ecosystem:** grasslands and tropical forests
- **OUV:** home to many endangered species, ex. tiger and rhinoceros
- **Recognized also as:** a Conservation Hotspot; lies in one of the world's Endemic Bird Areas.



11 China – Wulingyuan Scenic and Historic Interest Area

- **Date of inscription on the World Heritage List:** 1992
- **Criterion:** natural phenomena or beauty (vii)
- **Type of ecosystem:** mostly evergreen and deciduous broadleaf forests
- **OUV:** narrow sandstone pillars and peaks
- **Recognized also as:** a Conservation Hotspot and part of Central China Botanic Region



19 Costa Rica & Panama – La Amistad National Park

- **Date of inscription on the World Heritage List:** 1983 (extension: 1990)
- **Criteria:** natural phenomena or beauty (vii), major stages of Earth's history (viii), significant ecological and biological processes (ix), significant natural habitat of biodiversity (x)
- **Type of ecosystem:** tropical forests
- **OUV:** contains one of the largest remaining natural forests in the region, location has allowed the fauna and flora of North and South America to interbreed.
- **Recognized also as:** a Conservation Hotspot, a WWF / IUCN Centre of Plant Diversity, parts of a Ramsar wetland, also includes two UNESCO Biosphere Reserves



24 Switzerland – Swiss Alps Jungfrau-Aletsch

- **Date of inscription on the World Heritage List:** 2001; (extension: 2007)
- **Criteria:** natural phenomena or beauty (vii), major stages of Earth's history (viii), significant ecological and biological processes (ix)
- **Type of ecosystem:** mountain / glacier
- **OUV:** includes the largest glacier in Eurasia
- **Recognized also as:** a WWF Global 200 Eco-region, a Centre of Plant Distribution, part of an Important Bird Area

4 Conservation and development for and with people: practical approaches

‘Too often development erodes biodiversity, and too often conservation has been promoted without engaging poor people and without caring for their needs and rights. The rich biodiversity of our forests, coasts, and grasslands stands in contrast with the poverty of the people living there. The plants, people, and animals in these landscapes are inextricably connected.’

David Kaimowitz, Director of Sustainable Development, Ford Foundation

Conservation and development

Although it is not an easy relationship, conservation and development belong together. The poorest people in the world often depend directly on nature for their very survival. For them, the natural environment is often the basis of their livelihoods, and, more often than not, the only economic capital at their disposal. But also in wealthier countries, human development and progress have always depended very much on what nature offers and on the many services which ecosystems provide. This is true for the food we eat, for the clothes we wear, and also for many consumer products we use in everyday life. Soy (one of the most efficient protein crops), cotton (an important raw material for clothes) and aluminium (used together with other metals for manufacturing computers), for example, all have one thing in common: they need to be grown or mined somewhere. Wherever a country decides to establish a protected area, it cannot use the same area to plant soy commercially or to mine bauxite.

That is why **conservation needs to be assessed in the context of broader landscapes**, where strictly protected areas have their place –along with managed forests, agricultural land and human settlements. Putting a whole country under strict protection makes as little economic or social sense as burning down all forests to plant soy. Meddling too much with the ecosystem can have unintended consequences, such as changes in microclimate and rainfall patterns or the elimination of pollinators

(such as bees). The purest drinking water comes from intact water catchment areas, many of which are legally protected. Tourism hotspots, such as ‘attractive’ coral reefs, can get rapidly depleted if unsustainably managed. So there is a strong economic rationale for putting certain areas under protection, even without considering their (ecological) biodiversity values.

In many cases, the economic potential of protected areas can be tapped through smart investments and intelligent concepts for and together with local people. In the context of Official Development Assistance (ODA), most donors now closely link poverty reduction and biodiversity conservation in their intervention strategies; **environmental conservation and the sustainable use and management of natural resources have become key elements of development cooperation**. Increasingly, local people are involved in the decision-making and management of protected areas, and they also share the economic benefits generated in these areas.

However, it is also not likely that all protected areas around the world have the potential to grow into a ‘biodiversity business,’ providing sustainable income to local people. For the time being, the large majority of protected areas around the world will depend on public and on external funding. This is why **finding solutions for sustainable financing** of protected area systems is very important. Estimates of global shortfalls for effective protected area management range from USD one billion to USD 45 billion per year. Recognising the economic value of ecosystems and biodiversity and integrating



Go4BioDiv Messenger Unur, Orkhon Valley, Mongolia

‘The economic value of nature services shall be considered in political decisions. Developed countries should be fair enough to pay for the environmental benefits they get from the valuable nature in developing countries and for the consequences of climate change from which the developing countries are suffering the most.’

In Mongolian:

Улс төрийн шийдвэрт байгалийн нийгэм, эдийн засагт үзүүлдэг бодит үнэ цэнийг тусгая! Уур амьсгалын өөрчлөлтөнд хамгийн ихээр өртөж буй ядуу буурай, хөгжин буй орнуудад үзүүлэх олон улсын техникийн тусламж болон нөхөн төлбөрийг бодьтоор нэмэгдүүлье!

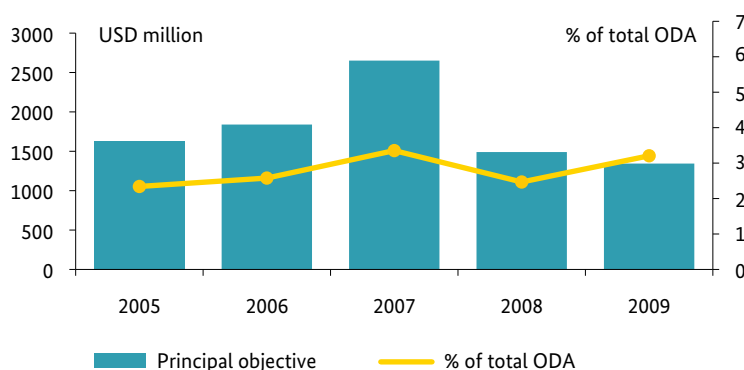
it into economic and political decision-making is, for instance, one important step to contribute to sustaining protected areas in the long term.

Today, environmental concerns like climate change and biodiversity loss are high on the international political agenda of both industrialised and developing countries. As one important step towards sustainable financing for effective conservation, industrialised countries have committed themselves through the Rio Conventions (see page 18) to support developing countries in their efforts to conserve biodiversity, combat desertification, mitigate greenhouse gases and adapt to climate change. In article 20 of the Convention for Biological Diversity (CBD), for example, industrialised countries commit to support developing countries in fulfilling their obligations to reach the three objectives of the convention: the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. At the same time, all parties to the CBD have committed themselves under the Resource Mobilization Strategy of the Convention and the new Strategic Plan (2011 – 2020) to support the development and application of innovative financial mechanisms to generate much needed new financial resources for the conservation of nature.

Biodiversity-focused Official Development Assistance

In 2010, net official development assistance (ODA) flows from members of the Organisation for Economic Cooperation and Development (OECD) reached USD 128.7 billion, representing an increase of 6.5 per cent over 2009. This amount makes up 0.32 of the combined gross national product (GNP) of all members of the OECD

Graph: Biodiversity-focused ODA



The graph displays the biodiversity-focused ODA (2005-2009) directly targeting the Convention on Biological Diversity as a 'principal objective' (blue bars), and the percentage of biodiversity-focused aid with regards to the total ODA (yellow).

Source: adopted from OECD-DAC (2010): [www.oecd.org/dac > international statistics online](http://www.oecd.org/dac/international-statistics-online)

Development Assistance Committee (DAC). This is the highest real ODA level ever, which shows that industrialised countries are committed to support for developing countries. Yet, it is also true that there is still considerable effort needed to identify innovative sources of ODA funding and to meet the repeated pledges of their governments to commit 0.7 per cent of their gross national product (GNP) to Official Development Assistance. Since 1998, the OECD DAC has been monitoring aid flows that target the objectives of the Rio Conventions by using the so-called Rio Markers: every aid activity reported to

DAC should be screened and marked as either (a) targeting the conventions as a 'principal objective' or a 'significant objective', or (b) not targeting the objective. The graph above presents the biodiversity-focused ODA from 2005 through 2009. Note, however, that marker data do not allow for an exact quantification of aid allocation or spending on biodiversity. They only give an indication of **biodiversity aid flows** and describe the extent to which donors address the objectives of the CBD in their aid programme.

German ODA funding for biodiversity and forest conservation

Heiko Warnken, Head of Division Environment and Sustainable Use of Natural Resources, German Federal Ministry for Economic Cooperation and Development (BMZ) tells us:

'The German Government recognises the importance of biodiversity and the necessity to take action on a global scale. It has many times pointed out that the conservation of biological diversity has the same dimension and significance as tackling climate change, and that both challenges are closely interlinked. Since the early nineties, after the establishment of the Rio Conventions, funding has steadily risen for the support of biodiversity and forest conservation. In 2008, at the ninth meeting of the Conference of the Parties of the Convention on Biological Diversity (CBD) in Bonn, Chancellor Angela Merkel has pledged EUR 500 million of additional funding for the international conservation of forests and other ecosystems by 2012 (based on EUR 169 million spent in 2008). From 2013 onwards, Germany will provide EUR 500 million annually to support global biodiversity conservation, making Germany one of the main bilateral donors in this area. The German Federal Ministry for Economic Cooperation and Development (BMZ), which is responsible for Germany's ODA commitments, has since considerably increased its pledges to partner countries and organisations for biodiversity and forest conservation. Funding has risen from EUR 169 million in 2008 to EUR 260 million in 2010 and EUR 331 million in 2011. In 2012, the BMZ plans to disburse 387 million Euros. The major part of it, around 90 per cent, is implemented through Germany's bilateral

development cooperation. Around two thirds of this is disbursed through Financial Cooperation by the German KfW, and around one third goes to Technical Cooperation through GIZ.

The remaining resources are channelled through multilateral institutions, such as the Global Environmental Facility (GEF) or the Forest Carbon Partnership Facility (FCPF) of the World Bank. The BMZ is also seeking to increasingly integrate biodiversity concerns into projects and programmes of other sectors, such as agriculture, water or governance. This approach actively promotes the mainstreaming of biodiversity into existing and new initiatives of other sectors which often play a significant role in the conservation of forests and ecosystems. It will also help to mobilize additional resources for biodiversity and forest conservation in the future, and supports Germany's partners in fulfilling their responsibilities under the CBD, especially taking into account the ambitious goals of the Convention's new Strategic Plan for the period of 2011 to 2020.'



Sources and further reading:

- BMZ (2011): *Conserving the environment and natural resources*: www.bmz.de
- BIP (2010) Indicator Factsheet: www.bipindicators.net/oda
- OECD (2011): *Recent OECD work on Biodiversity*: www.oecd.org
- OECD DAC Aid Statistics: www.oecd.org/dac > Aid statistics > Rio Conventions

German Development Cooperation on site

Poverty reduction lies at the core of German development cooperation. The conservation of biodiversity involves the promotion of sustainable resource use and the equitable distribution of its benefits. The triple mandate for nature preservation, sustainability and equity in the use of resources cuts across different sectors of economic life; thus it contributes to ‘mainstreaming biodiversity’ as opposed to keeping it at the margins of development. While according to the political directives biodiversity conservation has to be integrated into all German ODA projects and interventions through the application of an environmental and climate assessment and through efforts to mainstream biodiversity into other sectors, some programs focus explicitly on the protection and management of selected elements of biodiversity, or the management of entire ecosystems, like watersheds or coastal fringes, ensuring their long-term conservation and sustainable resource use.

In 2011, Germany supported its partner countries with around 190 programmes and projects in this field, the majority of them being implemented by GIZ and the KfW. The aim of this support is to **protect biodiversity in such a way that the local population benefits directly** – e.g. through responsible tourism, trade in medicinal plants or the sustainable use of wild animal populations and ecosystem services. This means also that communities and other relevant stakeholders must be involved from the outset, taking responsibility for the measures and participating in the planning process. With regard to protected areas, Germany supports the improvement of governance structures, investments in sustainable infrastructure and the enhancement of management capacities at national, regional and site levels. It supports local communities through income-generating activities in buffer zones adjacent to protected areas. In practise, this may include training for protected area planners, managers and field staff; the joint elaboration of management and business plans; the construction of surveillance towers or visitors’ centres; or the design of a sustainable tourism development plan, like the one in Phong Nha-Ke Bang / Vietnam (see case study in Part 6). These strategies sometimes include public awareness campaigns and media events, always ensuring the involvement of park personnel, local communities and other relevant stakeholders. Increasingly, Germany also supports partners in



Go4BioDiv Messenger Josiane, Dja Faunal Reserve, Cameroon

‘Hand in hand, all over the world – let us act as fences and umbrellas covering our natural treasures against heavy rains of threats!’

In French:

‘Tenons nous main dans la main, a travers le monde entier – formons des barrieres et des parapluies sur nos tresors naturels pour les proteger contre ces fortes pluies de menaces’

building their capacity to integrate ecosystem services into their wider development planning approach, taking into consideration possible trade-offs between different development goals and their potential positive or negative environmental impacts. In the future, this aims at supporting better political and economic decision-making which also considers the relevance and value of intact ecosystems to economic development. In addition to that, Germany is committed to improving the long-term financial sustainability of protected areas. Over the last 15 years, Conservation Trust Funds have been established to contribute to this, particularly so-called endowment funds, where capital is invested. Only the interest generated by each of these capital

Ongoing support of natural and mixed World Heritage sites by the German Government (implemented by GIZ and KfW)*

Country	Site Name	World Heritage since, type of state	Implementing Agency
A F R I C A			
Benin	Pendjari National Park	Tentative List, N	GIZ (until 2010), KfW, since 1999
Côte d'Ivoire	Taï National Park	1982, N	GIZ, KfW, since 1992
Congo (DR)	Kahuzi-Biega National Park	1980, N List in Danger: 1997	GIZ, KfW, since 1983
	Okapi Wildlife Reserve	1996, N List in Danger: 1997	GIZ, KfW, since 2008
Madagascar	Rainforests of the Atsinanana	2007, M List in Danger: 2010	KfW, since 2007
	Tsingy de Bemaraha Strict Nature Reserve	1990, N	KfW, since 2007
Mauritania	Banc d'Arguin	1989, N	GIZ, KfW, since 2001
Niger	W National Park of Niger	1996, N	KfW (in preparation)
Tanzania	Selous Game Reserve	1982, N	GIZ, KfW, since 1988
A S I A			
Bangladesh	The Sundarbans	1997, N	GIZ, since 2011
Indonesia	Tropical Rainforest Heritage of Sumatra	2004, N	KfW (in preparation)
Laos**	Him Nam No National Biodiversity Conservation Area	Proposed, N	GIZ, since 2010, KfW (in preparation)
Vietnam	Phong Nha-Ke Bang National Park	2003, N	GIZ, KfW, since 2007
L A T I N A M E R I C A			
Belize	Belize Barrier Reef Reserve System	1996, N List in Danger: 2009	KfW, since 2011
Brazil	Atlantic Forest South-East Reserves	1999, N	GIZ, KfW, since 1993
	Central Amazon Conservation Complex	2000, N	GIZ, KfW, since 2004
	Discovery Coast Atlantic Forest Reserves	1999, N	GIZ, KfW, since 2005
Ecuador	Galápagos Islands	1987, N	GIZ, since 2007 (CIM Expert)***, KfW since 2011
	Sangay National Park	1983, N	KfW, since 2010
Honduras	Rio Plátano Biosphere Reserve	1982, N	GIZ, KfW, since 1997
Peru	Historic Sanctuary of Machu Picchu	1983, M	GIZ, since 1991
	Huascarán National Park	1985, N	GIZ, KfW, since 1991
	Manú National Park	1987, N	GIZ, KfW, since 1991
Saint Lucia	Pitons Management Area	2004, N	GIZ, since 2012

* as of December 2011

** The Government of Laos is preparing to list Him Nam No on its tentative list.

*** CIM: Centre for International Migration and Development, a joint operation of GIZ and the German Federal Employment Agency

Explanations:

Type of World Heritage site: N = natural site; M = mixed site

Implementing agency: implemented by local agency with support from GIZ and / or KfW on behalf of the German Government since year

The majority of projects are dedicated exclusively to a particular site, but some projects deal with World Heritage sites as an integral part of more comprehensive programmes, such as support to national protected area systems.



Go4BioDiv Messenger Rosa, Machu Picchu, Peru

‘To promote traditional local practices that respect nature, we have to help our young people become proud of their culture. Local knowledge can be reinforced by integrating it into the school curricula and by fostering encounters between the young and the community elders.’

In Quechua:

‘Astawan Pachamamanchista munacunanchis-paq wayna sipaskunata sonqonta kicharinanchis aswanta llaqtanta ñawpaqman purichinankupaq. Aylluq yachayninkunata mat’isun yachaywasikunapi, hinallataq huñurikunanku parlanankupaq waynakuna machupayakunawan ama llaqtaq yachayninkuna chusaqman tukupunanpaq.’

investments is used to fund protected areas. Currently, Germany supports eight endowment funds totalling almost EUR 50 million. Additional endowments of a total of 86 million euros are under preparation. The motivation of local people to become engaged in biodiversity conservation often depends on the valuation of nature (pertaining to monetary as well as non-monetary values), which in turn relates directly to their knowledge and degree of understanding of costs and benefits of ecosystem functions and the consequences of nature destruction. Thus, in several projects, components of **environmental education and communication** have become important factors of success. In Germany also, adequate public outreach and communication campaigns are important elements for strategies

to protect biodiversity (on a local, regional, national and global level): unless people understand the importance of species and ecosystems diversity for human well-being, their interlinkages, threats and possibilities for conservation, they will not be motivated to get engaged or change their daily routines. Educating the public – in both developing and industrialised countries – is also an important goal of German development policy.

Germany supports World Heritage sites on the basis of bilateral agreements with its partner countries, mainly in the form of long-term commitments. **On behalf of the German Government, GIZ and the KfW thus currently assist more than 20 natural and mixed World Heritage sites, mainly in Africa and Latin America.** The activities supported by German Development Cooperation range from small-scale measures – such as feasibility studies for specific planning, implementation or evaluation



Go4BioDiv Messenger Battsetseg, Orkhon Valley, Mongolia

‘If we are serious about the protection of our World Heritage sites, governments should provide adequate resources in recognition of their universal value.’

In Mongolian:

‘Дэлхийн өвийн үнэ цэнэ үнэхээр чухал юм бол яагаад түүний хадгалалт, хамгаалалтанд шаардлагатай хөрөнгө санхүүг гаргаж, ил тод зарцуулдаггүй юм бэ?!’

measures – to long-term collaboration in diverse management contexts or in legal and financial frameworks. Most of the initiatives foster close **cooperation with the people living in and around the protected areas**. While the majority of projects deal exclusively with conservation and development aspects of one site, some include World Heritage sites as an integral part of more comprehensive programmes, such as the enhancement of regional development plans or national protected areas systems. The table on page 66 shows the World Heritage sites currently being supported by German Development Cooperation.

Sources and further reading:

- **BMZ (2008): Biological Diversity. BMZ Strategies 166.**
- www.gtz.de/biodiversity

Every two years, as a contribution to the CBD Conferences, GIZ publishes a comprehensive, continuously updated report explaining the commitment of German Development Cooperation to biodiversity conservation: **GTZ (2010): Biodiversity in German Development Cooperation** (available as PDF file on the DVD accompanying this publication).

Hands-on example: Use it or lose it – hunting tourism finances efforts to conserve Pendjari Biosphere Reserve, a tentative natural World Heritage site in Benin

Local park administration officials in Benin have taken an unusual step as a means of financing the Pendjari Biosphere Reserve and National Park, which is on Benin's Tentative List for World Heritage. Each year, they allow hunting of a small number of animals in special hunting areas that neighbour the actual park. To ensure preservation of animal populations, the park administration sets sustainable hunting limits and defines fees for permits, distinguishing between international visitors and Beninese. The fees paid by the hunters for permits help finance the management of the protected area. One third of these fees go directly to the village organisations, which represent the 30,000 local people living near the park. Supported by GIZ and KfW, the government

authority responsible for the Biosphere Reserve has developed a management plan for the protected area, a plan which includes the participation of the local inhabitants. In the reserve's core zones, use by humans is generally prohibited and the priority is on preserving biological diversity; in the buffer and development zones around the protected area, the park officials coordinate community development plans with all of the 30 villages. This has created 130 full-time jobs in the region, and lead to important improvements to the park infrastructure which helped to boost the number of photography tourists which generate additional earnings from tourism. At the same time, populations of many species have recovered, the numbers of elephants and lions have doubled over time and the whole ecosystem is gradually stabilising.

The Pendjari in Benin's northwest is a good illustration of the approach of German Development Cooperation – combining biodiversity conservation with participation and sustainable resource use. Before the local inhabitants were actively involved, frequent conflicts arose with the park administration. Today, the protected area enjoys wide acceptance: poaching, illegal logging and building inside the park are now largely things of the past. With an eye for ensuring the long-term financing of the reserve, the park administration wants to establish a trust fund and boost earnings from hunting fees and tourism. The aim is to cover the costs of the park equally through tourism, government subsidies and the trust fund. Germany, the Netherlands, the European Union and the World Bank have declared their interest in contributing to this trust fund.

Sources and further reading:

- **'Use it or Lose it. Hunter tourism and game breeding for conservation and development' in the series 'Sustainability has Many Faces' (in French and German, available as PDF file on the DVD accompanying this publication).**
- **GIZ project: Conservation and management of natural resources in Benin: www.giz.de**

Elephants are not being hunted in Pendjari: they are under absolute protection. Hunting tourism of other wildlife in neighbouring areas of the park covers a part of the costs of the protected area.



Hands-on example: World Heritage and the Biodiversity Day in Vietnam

The Biodiversity Day is a practical example of raising awareness of biodiversity and development issues. Since 2001, the German Ministry for Economic Cooperation and Development (BMZ) and the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) have partnered with the German GEO Magazine to organise Biodiversity Days in Germany and in various developing countries. Celebrated on May 22 each year since 2000, these special B-Days have received broad media coverage. Local leaders, decision-makers, biodiversity experts and key media have worked with local people to carry out these national action days. Related events have been organised with up to 1,000 participants. In 2010, for example, an event with the slogan, 'Conservation begins with you!' took place at the Phong Nha-Ke Bang National Park and World Heritage site in Vietnam. Around 100 school children from the

Park's buffer zone were invited to take part and discover the environment they live in. Spread out across different park locations, the pupils were encouraged to learn about various animal and plant species and the importance of biodiversity.

'I really enjoyed the excursions and all the interesting activities,' said 14 year-old Vo Thi Ngoc Anh. 'The games taught me a lot about all the different plants, like the Yellow Flame Tree (*Peltophorum pterocarpum*) and the Rambutan (*Nephelium lappaceum*). Before, I had only seen these plants in textbooks. I hadn't seen them in their natural surroundings but now I can identify them and even show others.' She added that the Action Day gave her the chance to reflect about the need to protect the ecosystem, biodiversity and wild animals.

Source and further information

- BMU / BMZ (2010): [Global Biodiversity Action Days](#).
- www.biodiversity-day.info > Participating Countries > Vietnam



At the Biodiversity Day 2010, school children in Phong Nha-Ke Bang, Vietnam had the opportunity to experience nature on their own terms. After a guided tour of the trail under the thick forest canopy, they spent the rest of the excursion exploring the river and its banks.

Hands-on example: Climate proofing in Him Nam No, Laos

The Him Nam No National Biodiversity Conservation Area is located in Lao People's Democratic Republic (PDR), at the border to Vietnam, adjoining the Phong Nha-Ke Bang World Heritage site in Vietnam. The nomination of Him Nam No as a natural World Heritage site is being prepared by the Laotian Government – thus potentially creating a transboundary World Heritage site in the Central Annamites mountain range, which extends about 1,100 km through Vietnam, Laos and small areas of Cambodia. GIZ is aiming to support the Lao Government in its effort to nominate Him Nam No as a natural World Heritage site. Him Nam No consists mainly of species-rich evergreen moist forest, covering an extensive karstic cavern system, with endemic cave and forest biodiversity. Pressure on the area's natural resources comes from the unregulated use of forest products, and poaching is high. Conversion of land to plantations in the surrounding areas adds to the burden of ecological degradation and loss of biodiversity in the protected area.

In 2010, at the request of the Lao Government and on behalf of the German Government, GIZ initiated a six-year cooperation project supporting integrated nature conservation and sustainable resource management in Him Nam No. In addition, a KfW project is under preparation. The project includes the implementation of a co-management plan, improvement of living conditions in the surrounding villages, advice on land-use planning, participatory regulation of non-timber forest products and support of sustainable forms of tourism. The GIZ tool Climate Proofing for Development was used to identify the effects of climate change on the protected

area and possible options for action. Key impacts identified included the following:

- A general increase of pressure on key habitats, e.g. intermittent drying up of waterholes in central areas of the park and extinction of key species – especially since there are no corridors for temporary migration of populations under stress.
- Increased risk of forest fires in the transition zones during longer dry periods, which leads to loss of agricultural yields in the buffer zones, and as a consequence to increased pressure on natural resources within the protected area.

The analysis clearly showed that long-term conservation goals couldn't be achieved unless climate aspects are taken into account. Therefore, a proposed action plan includes several low-cost options to be incorporated into GIZ's support. These include: an easy-to-read fact sheet on the local effects of climate change in the Him Nam No protected area, the integration of climate aspects into purpose-designed training sessions, and the preparation and implementation of the co-management plan, which will include special measures for reducing climate-related risks, for example, through developing fire management capacities. In addition, pressures resulting from climate change are incorporated into the participatory process by which harvesting limits for non-timber forest products are determined.

Sources:

- Froede, Alexander (2010): *Climate change adaptation and nature conservation* (available as PDF file on the DVD accompanying this publication).
- GIZ in Laos: www.giz.de
- GTZ (2010): *Climate Proofing for Development* (available as PDF file on the accompanying DVD).

The Him Nam No karstic landscape is covered with evergreen moist forest, containing important endemic biodiversity in the forested areas and extensive cave system. The buffer zone of the protected area is one of the poorest regions in Laos.



Hands-on example: German support for the Jaú National Park in Brazil

One of Brazil's largest nature protection areas is situated in the federal state of Amazonas, 220 km northwest of Manaus, the state capital. Jaú National Park was designated more than 30 years ago; in 2000 it was recognised as a natural World Heritage site. In 2003 the site was expanded and now covers 5.3 million ha in the so-called Central Amazon Conservation Complex. The 2.3 million hectares (about the size of Wales) of Jaú National Park are administered by the Brazilian agency for nature conservation ICMBio (Instituto Chico Mendes de Conservação da Biodiversidade). Jaú protects one of the largest intact rain forest areas worldwide.

The park is known for its diverse flora and fauna and the blackwater rivers; these are rivers with a deep, slow-moving channel that achieve their colour from the high amount of transported dissolved humic and fulvic acid. The park's flora is composed of pioneer formations, dense and open tropical rainforest, savannah, steppe and secondary vegetation. **The Amazon rainforest is considered to be the largest tract of undeveloped forest and greatest single concentration of biodiversity on Earth**, sheltering more than half of all life species – many of which have not even been documented or scientifically explored – with great potential for pharmaceutical and other purposes. In addition, Jaú is home to indigenous people, and it features archaeological sites from the history of human settlement of the region.

In 2002 the Brazilian Government launched the **ARPA-programme (Amazon Region Protected Areas)**, which

places some 60 million hectares of Amazon rainforest under long-term protection – an area more than one and a half times the size of Germany. On behalf of the German government, the KfW and GIZ support this ambitious nature protection program.

Jaú National Park was among the first protected areas in which ARPA was actively involved, supporting the development of a co-management scheme: The park staff designed a new management plan for the park, established a council with representatives from local communities for co-management, acquired necessary equipment for control and enforcement of protection, and rehabilitated control stations throughout the park to detect invasion, illegal logging and poaching. Today, the protection of nature also stands for economic alternatives for local communities in the park region: First steps towards responsible tourism have been undertaken. Plans are underway to build research bases within the park that are expected to attract further business and job opportunities for area residents. In 2006, the Extractive Reserve of Rio Unini (north of Jaú National Park) was created with the aim to protect livelihoods and traditional culture of the residents and allowing sustainable use of natural resources. Locals previously despised the Park administration, but they have become increasingly important allies of this World Heritage site.

Source:
KfW & GIZ (2011): *Der Nationalpark Jaú in Brasilien* (German, available as PDF file on the DVD accompanying this publication)



The ecosystems of the Amazon Rainforest can be divided into aquatic ecosystems such as várzeas and igapós (periodically flooded areas at the banks of whitewater or blackwater rivers, respectively) and terrestrial ecosystems such as terra firme (non-flooded areas). The photograph shows várzeas.

5 Involving youth in biodiversity and World Heritage conservation

‘During the course of this decade, stakeholders, including youth around the world will work towards a more sustainable relationship between humans and the biological diversity that supports them. Youth have an important role to play in the decision-making processes that will impact the generations to come in future.’

Braulio Ferreira de Souza Dias, Executive Secretary of the CBD

This powerful call for action is addressed to the children and youth of the world, encouraging them to get involved in biodiversity conservation. But to whom, exactly, is Braulio Ferreira de Souza Dias speaking, and why do they have a special role to play?

Young people, those generally aged 29 and under, constitute over half of the world’s population. In developing countries, they make up 80 per cent of the population. They will have to live with the consequences of environmental degradation and resource depletion caused mainly by actions of the older generations. The

health and well-being of today’s children and youth will be affected even more in the future if we cannot make the fundamental changes needed for biodiversity conservation.

It is expected that by 2050, two thirds of the world’s population will live in urban settings; children growing up in modern cities are becoming increasingly disconnected from nature. And although children growing up in rural areas in developing countries may have a deeper knowledge of their environment, they often lack the opportunity to reflect upon and share this knowledge in a global context or to engage in activities of nature conservation. For ensuring future knowledge and appreciation of the role of biodiversity and ecosystem services, **environmental education is essential**. Urban youth need to learn more about their environment and should be motivated to experience nature; rural youth need time and support to keep their connection to nature as well as to deepen their knowledge of it. Together, these young people need to directly engage in biodiversity conservation through action on the ground. Therefore, the United Nations has declared the years 2005 to 2014 as the UN Decade of Education for Sustainable Development. In combination with the International Year of the Youth (August 2010 to July 2011) and the United Nations Decade on Biodiversity (2011-2020), many initiatives have been carried out worldwide.

Still, to achieve long-term change for sustainable development on a broad scale, more needs to be done than strengthening environmental education and raising awareness of young people. These actions are needed to set free the great potential of youth for change, but as

Youth

The United Nations defines ‘youth’ as those persons between 15 and 24 years of age but acknowledges that ‘the operational definition and nuances of the term ‘youth’ often vary from country to country, depending on specific sociocultural, institutional, economic and political factors.’ The Commonwealth, for example, includes everyone between 15 and 29. This is also the reference used in this publication when talking about ‘youth’ or ‘young people’ in general.

Sources: Central Intelligence Agency (CIA): *World Fact Book*;
United Nations’ Definition of Youth:
www.un.org/events/youth2000/def2.htm

long as the concerns of youth are not sufficiently represented in policymaking and do not get the necessary attention from the public and the media, their potentially big effect will not be felt until well into the future.

Young people need a voice in present decision-making to put their vision of a sustainable world into practice. Youth groups all over the world – working in social networks which span the globe and taking responsibility as community leaders and environmental advocates – have concrete and meaningful demands and proposals on environmental issues which need to be recognised and applied (see below). Communication and public outreach therefore play a crucial role: young people need partners and platforms to make their voices heard.

First important steps are being taken; **increasingly, the unique contribution that the younger generations can and must make to protect the environment is being recognised.** Already at the Rio Earth Summit in 1992, as they adopted Chapter 25 of Agenda 21, the 101 heads of government taking part in the conference reaffirmed the need to enhance the role of young people and support their active participation in safeguarding the environment and promoting sustainable economic and social development. The Strategic Plan for Biodiversity 2011–2020, adopted in 2010 (during COP 10 in Japan), aims at integrating biodiversity across all sectors of government and society by 2020. It stresses the importance of involving all stakeholders, including youth, in order to reach the targets. In this spirit, Secretary-General Mr Ban Ki-moon stated that ‘the role and responsibility of leaders is to listen and respond to the legitimate aspirations of their people – including the youth’ (July 2011, during the UNGA High-level Meeting on Youth).

World Heritage Education Programme of UNESCO

The importance of youth and the role of education are clearly recognised in the World Heritage Convention of 1972. UNESCO's World Heritage Education Programme includes a broad range of activities: the programme ‘gives young people a chance to voice their concerns and to become involved in the protection of the world's natural and cultural heritage’. Since it does involve both types of heritage, not all of the activities are directly relevant to biodiversity. Those activities are important for raising awareness of conservation issues among the younger generation. They also exemplify how a large international organisation can engage in educational action on the ground. The following paragraphs highlight several elements of the programme.

The World Heritage Education Programme is an ever expanding branch of UNESCO's work to raise awareness of World Heritage and to involve youth in its conservation:
whc.unesco.org > activities

World Heritage Youth Forums give young people and teachers an opportunity to exchange experiences and ideas on how to become involved in heritage conservation and presentation. The Forum serves as a catalyst and sparks inspiration to develop World Heritage educational and participatory activities. The Forum also helps to establish a network for further cooperation on the regional and international levels. The first Forum of this kind was organised in Bergen, Norway, in 1995. European, African, Asian-Pacific, Arab, Latin American and other International Youth Forums followed, each one developing different proposals for the promotion of



The City Biodiversity Summit, held in parallel to CBD-COP 10 was an excellent platform for young adults to engage in discussions about biodiversity conservation with decision-makers.



Go4BioDiv Messenger Kien, Phong Nha-Ke Bang, Vietnam

'To invest in our children's learning, about nature and in nature, is a big step for our future.'

In Vietnamese:

'Đầu tư giáo dục cho các thanh thiếu niên về thiên nhiên và trải nghiệm thiên nhiên sẽ tạo nên một bước tiến lớn cho tương lai của chúng ta.'

World Heritage education and stronger youth involvement. In 2000, for the first time the World Heritage Youth Forum was linked to the World Heritage Committee meeting. The findings of the Forum were presented at the larger meeting, and discussions were held with members of the Committee and advisory bodies. The international mascot of the World Heritage Education Programme is the young heritage guardian **Patrimonito** ('small heritage' in Spanish). **Developed from the World Heritage Emblem**, it is the creation of Spanish-speaking students who participated in the first World Heritage Youth Forum. The World Heritage Emblem is used to identify properties protected by

the World Heritage Convention. Patrimonito became famous through a cartoon series called Patrimonito's World Heritage Adventures, where it introduces different World Heritage sites, the threats they are facing and possible solutions for their conservation via interaction with young persons. His adventures have already led Patrimonito to many sites; for example, to the Virunga Mountains in Congo (DRC), Rwanda and Uganda and the Great Barrier Reef in Australia.

Another initiative, aimed at sensitising youth groups to World Heritage, is the **World Heritage Volunteers**, which was launched in 2008 under the theme 'Patrimonito rolls up the sleeves'. Until 2011, more than 660 youth, between 16 and 30 years old, have participated in over 50 work camp projects held in 18 different countries. The youth work camps last between two and four weeks. The young volunteers carry out projects designed by the local youth organisations according to the needs of and in collaboration with their host community and the site management authorities. In 2011 alone, 28 projects were conducted in World Heritage sites located in 17 countries involving 20 local youth organisations.

The educational work of UNESCO on World Heritage is not limited to the above-mentioned programmes. As the World Heritage List grows, qualified personnel are needed to manage and conserve the sites. Therefore, World Heritage higher education programmes have been established. **Different programmes of World Heritage Studies** are being implemented at eight universities worldwide. Some institutions offer course-work related to heritage issues, while others have entire study programmes on World Heritage. Three institutions offer specialized programmes for natural World Heritage: the Wildlife Institute of India, Garoua Wildlife School in Cameroon and the University of Queensland in Australia. The following universities offer study

Patrimonito has been developed from the World Heritage Emblem. The Patrimonito cartoons are always based on scenarios written 'by young people for young people' and selected through storyboard competitions. They are available online as well as on CD-Rom to allow worldwide use in schools and youth events (selected episodes can be found on the DVD accompanying this publication).



Hands-on example: Young World Heritage protectors in India proudly conserve their site

The national parks Nanda Devi and Valley of Flowers form a World Heritage site located in the northern part of the Western Himalayas in India. This important wildlife site is home to many endemic plant and animal species. Under the title World Heritage Biodiversity Programme for India, a four-year project for building partnerships was initiated in 2008 by the Wildlife Institute of India (WII). It aims to strengthen the site's management capacities and to enhance the involvement of local communities in conservation issues. One important part of the project is the World Heritage Biodiversity Scholarship Programme.

All of the 47 villages in the buffer zone of the site are included in this programme, which offers scholarships of 500 Indian Rupees (about USD 10) per month to 50 secondary school pupils from local communities and families of the site's forest staff. The scholars – selected on the basis of a written examination – act as young ambassadors of their World Heritage site. They actively participate in the awareness programmes concerning the conservation and management of the site. During a Wildlife Week and World Environment Day all of them get together to discuss issues concerning their World Heritage site among themselves and with invited experts.



Shazia Quasin, Go4BioDiv Messenger 2010 and member of WII thinks: 'It is a great initiative to involve the youth, as it creates a sense of pride in them at an early age. This is crucial in protecting and safeguarding our natural treasures, as with the advancement of lifestyle we tend to forget to value what nature offers us.'

programmes on both natural and cultural World Heritage: University of Minnesota, USA; Brandenburg University in Cottbus, Germany; Moscow State University, Russian Federation; University of Tsukuba, Japan and University College in Dublin, Ireland. Moreover, the **Forum UNESCO – University and Heritage (FUUH)** is an informal network of higher education institutions. Individuals and institutions can affiliate with the World Heritage Centre of UNESCO in FUUH for sharing experience and knowledge as well as strengthening the cooperation between universities and heritage professionals.

Additional information:

- whc.unesco.org/en/patrimoinito
- www.universityandheritage.net
- The World Heritage Centre has published a whole range of educational materials, including the 'World Heritage Information Kit' and 'World Heritage in Young Hands'. The material can be ordered from the World Heritage Centre: whc.unesco.org/en/educationkit

Youth activities of the Secretariat of the Convention on Biological Diversity

The CBD Secretariat facilitates exchanges on biodiversity between youth and decision makers by supporting participation of youth in the CBD processes, including the Conference of the Parties. The **Green Wave** is part of CBD's efforts to raise awareness and encourage the involvement of children and youth in the global agenda for biodiversity, thus contributing to the implementation of the Strategic Plan for Biodiversity and the objectives of the UN Decade for Biodiversity (see page 21). The Green Wave is a global biodiversity campaign, launched in May 2008 at the initiative of the German Federal Ministry for Environment (BMU) and the German Federal Agency for Nature Conservation (BfN). It is coordinated by the Secretariat of the CBD. The campaign encourages children and youth to learn about and take action for biodiversity. As a special global event, each year on 22

May, the International Day for Biological Diversity, participants get together to plant a tree at 10:00 am local time, creating a Green Wave starting in the far east and travelling west around the world. Throughout the day, students upload photos and texts to The Green Wave website to share their stories. An interactive map goes live in the evening at 20:20 local time, creating a second, virtual green wave. In a message of support, UN Secretary-General Ban Ki-moon said, 'I encourage students, parents and teachers to ride The Green Wave and spread the word. Even small contributions can make a big difference'.

The International Youth Forum Go4BioDiv

In 2008, a new initiative for youth involvement was started: under the CBD-Presidency of Germany, during COP 9, German development cooperation (GIZ on behalf of the BMZ) together with the Bavarian Forest National Park (Nationalpark Bayerischer Wald) initiated the **International Youth Forum Go4BioDiv**. The Forum gives young adults between 18 and 29 the possibility to actively engage in the CBD-COPs. Go4BioDiv has been carried out twice so far, in 2008 and 2010, in conjunction with the biodiversity conferences in Germany and Japan. Young messengers from five continents sent wake-up calls to the world community for the conservation of biological and cultural diversity. **'Unity in Diversity – My Environment and Me'** was the theme of the first Youth Forum in Germany. The participants got acquainted with the concept of the Ecological Footprint and used it for reaching out and linking their message of biodiversity conservation with the need for new development models. The second Forum in Japan united young adults from World Heritage sites in 23 countries under the topic **'Our Treasures at Risk – World Heritage in**



Go4BioDiv Messenger Candice, Cape Floral, South Africa

'The time to embrace conscious action to save our biodiversity and very existence is now! GO! 4BioDiv!'

Times of Climate Change'. It was jointly organised by BMZ / GIZ, UNESCO WHC, IUCN, the Secretariat of the CBD and the Japanese University of Tsukuba. This Youth Forum and its messages were the starting point for this publication.

Additional information:

- **'A Big Foot on a Small Planet'** in the series **'Sustainability has Many Faces'** tells about the objectives and outcomes of Go4BioDiv 2008 (available as PDF file on the DVD accompanying this publication).
- **Factsheets on the World Heritage sites of the Go4BioDiv Messengers** (available as PDF files on the accompanying DVD).
- www.go4biodiv.org



THE GREEN WAVE

Get involved:

The CBD children & youth website includes a platform of exchange: www.cbd.int/youth > Taking Action

Green Wave Action: greenwave.cbd.int > Getting Started



The Green Wave 2011: School pupils in Surin, Thailand planted typical trees of the tropical lowland forests.

“Pacha Mama” (Mother Nature) and humankind

Alan Monroy Ojeda from Mexico participated as a Go4BioDiv Messenger in 2008 and helped coordinate Latin American contributions in the 2010 event. In Japan he represented the World Heritage site Sian Ka'an, which means 'Gateway to Heaven' in Mayan, the language of the site's indigenous population. Alan contributed the illustration to this publication, which pictures his feelings and ideas related to Go4BioDiv and enshrines the relationship between “Pacha Mama” (Mother Nature) and humankind: 'The image in itself is based on a nautilus seashell for several reasons: It expresses the process that humankind has to undertake, one of entering the depths of our real spirits. Moreover, this seashell represents good government in one of the indigenous groups of Mexico and is close to their symbol for dialogue. The nautilus can be found in the Indian Ocean – close to the place where the CBD-COP 11 in India will take place. In the inside of the drawing, there is a woman, Gaia, who represents both Mother Nature and humanity. Her dress starts with red flames, showing the current human behaviour and attitude to life: blood

and destruction. The dress then turns into purple which stands for the (wind of) change. In the centre, the woman is holding a golden sphere. It represents at the same time life, the real human spirit and our World Heritage sites, because they have the most outstanding values we can ever find. The sphere is Gaia's most valuable treasure; she will take care of it. To her left, life begins with a green flow under the influence of the sphere. Gaia's hair is green like the forests and jungles. The bird coming from her hair is a Resplendent Quetzal, the symbol of beauty and freedom to the Mayan people. The Blue Morpho and Monarch Butterflies represent the beauty and fragility of life, but also the interconnection of all the elements of the universe. The blue wave represents the oceans, where life began millions of years ago. The clouds in the medium circle are the air and the hills between them and the waves resemble the Earth. Under Gaia's dress there is a path with footprints, starting big but becoming smaller and smaller – this represents the reduction of our Ecological Footprint while we are walking towards the encounter of our real spirit.'



Our treasures at risk – the Go4BioDiv International Youth Forum in Japan

Vladimira Lackova, Slovakian Go4BioDiv Messenger from the World Heritage site Primeval Beech Forests of the Carpathians (extended in 2011 to the Ancient Beech Forests of Germany), has written about her experience at the Youth Forum.

‘Go4BioDiv is a great opportunity to bring together young people from all around the world to give them a chance to share their experience with biodiversity conservation and to engage with decision makers. Each of us 34 Go4BioDiv Messengers, as we call ourselves, was somehow connected to a World Heritage site with natural values – either living or working in it. Altogether, we represented 25 World Heritage sites from 23 countries. Common to all of us was the concern about our future: we need to seriously commit to conserving our

biodiversity now. Otherwise, our planet’s treasures will be lost, and with them our homes. As the ‘messengers’ of those treasures, united in the International Youth Forum, we called upon decision makers and the wider public to urgently take action.

The Youth Forum was divided in two parts. We spent the first nine days in a nature-based camp at the foot-hills of Mt. Fuji, where we got to know each other and exchanged our views on biodiversity conservation and the importance of the conference in Nagoya. We also had two excursions to Japanese shrines and the Fuji landscape, where we learned a lot about Japanese culture and the country’s natural environment, and prepared our messages for the conference in Nagoya. We started by presenting to each other the natural Heritage sites we were representing and explained our personal relation to these very special places. We thereby learned that many of the sites are experiencing the same threats, for example climate change, mass tourism, poaching and invasive species.

Video clips, made by the Go4BioDiv messengers about their World Heritage sites, can be found on the DVD accompanying this publication.



Based on these joint experiences and on our exchange of information on the issues at stake at COP 10 we then prepared our key inputs and messages for the conference in Nagoya. Through intense discussions and with the support of the organisational team, each working group prepared a ‘side event’ for COP 10; these included presentations, workshops, public discussions and a symposium, which took place at the conference centre and were

‘With the help of professional choreographers, we developed a dance performance about nature conservation and biodiversity loss, which was shown at the main stage for COP 10.’



listed in the official COP programme. We also wanted to develop some creative and new ways to bring our message across. First of all, every one of us formulated his or her most urgent concern in a short statement, which we filmed and then put together in a 7-minute video clip. Plus, we prepared a wooden 'treasure box' which was shown at COP 10 together with a professionally made exhibition about our World Heritage sites at risk, including a presentation of us – the young Go4BioDiv Messengers.

The statements of the Go4BioDiv Messengers can be found as a video clip on the DVD accompanying this publication.

Finally, after nine days of hard work in the camp in Mount Fuji we travelled to Nagoya. At the beginning most of us were a bit nervous. Many questions popped up: What are we supposed to do? What will the COP public expect from us – and what can we expect from the conference? Are we ready for our events? Will people listen to us? Our **interaction with decision makers** began with the City Biodiversity Summit, where some of us held a short presentation and then discussed about biodiversity with mayors from various cities around the world. At the CBD conference, we engaged with delegates and the wider public through several 'side-events'. For the event 'Communicating biodiversity in a creative way', we prepared a couple of games, for example a memory game with our hand-painted cards of our World Heritage sites. Many of us were also interviewed by radio stations and filmed by international TV crews. It was a good and enriching experience to see how interested



Go4BioDiv Messenger Benjamin, Jungfrau-Aletsch, Switzerland

'We have to think about the world our children will live in. My children won't experience the beautiful great Aletsch Glacier and benefit from its important ecosystem services if we cannot stop climate change.'

In Walliserdeutsch:

'Wir selltiisch uberleggu in weller Wält ischi chinder wärd und läbu. Mini chinder wärd und nie der Gross Aletsch Gletscher chennu erfahru und vaschinum Ökosystem Service profitieru, wenn wer der Klimawandel nid chenne stoppu.'



'Another highlight of our COP presence was the combined stage performance of the dance, the video statements and a panel discussion of Vladimira (Slovakia), El Hacen (Mauretania), Julia Marton-Lefèvre (IUCN), Gretchen Kalonji (UNESCO), Alan (Mexico) and Shazia (India), about the role of youth in biodiversity conservation.'

both the conference participants as well as the public were in our concerns and messages. In turn, the exposure to such a significant international event and the negotiations has shown us how complex global political processes are and how important the commitment and actions of each individual are to support the conservation of nature and biodiversity.

The side-event **'Young people and indigenous issues'** brought five indigenous Go4BioDiv Messengers on stage: Saningo (Maasai, Tanzania), Mikelita (Elmolo, Kenya), Avaaraq (Inuit, Greenland), Jenn (Chipewyan Métis, Canada) and Rosa (Quechua, Peru). They discussed the importance of involving indigenous peoples in biodiversity conservation and World Heritage management with the IUCN senior specialists Nigel Crawhall and Grazia Borrini-Feyerabend, who represented various organisations working on indigenous issues.

Video clips from the stage performance can be watched at: www.go4biodiv.org

On our last day at the conference, the event **'Youth for CBD'** was on plan. There several youth organisations came together and presented their initiatives. At the end the Executive Secretary of CBD expressed the support of the CBD for youth. In a following press conference, initiated by Go4BioDiv, our Youth Forum as well as the idea of establishing an international youth platform for biodiversity were introduced.

The Go4BioDiv Participant's booklet, which was distributed at COP 10, can be found as a PDF file on the DVD accompanying this publication.

Go4BioDiv is an amazing platform for people with different cultural backgrounds, meeting and trying to find common solutions for global problems and apply them. Its significance and reach was very well highlighted by the Director General of IUCN – Ms Julia Marton-Lefevre – during the stage discussion. She said that we – the young people of the world – „are the conscience of the future. Do stay in touch with each other: networks will change the world!"

In general, I think Go4BioDiv had big influence on all the participants. Personally, it made me more active. I understood how important it is, especially in the western world, to do some things voluntarily and not just to see money everywhere. Don't wait until others do something to protect our Mother Earth. Negative changes are already happening. Get involved and act now!"

The story goes on – continuous youth involvement

In order to strengthen the role of the young generation in biodiversity conservation and World Heritage issues, we need to ensure that youth initiatives and events continue.

Go4BioDiv serves as a good example of such continued engagement. Given the huge geographical and cultural distances between the Go4BioDiv Messengers, it is not an easy task to keep their motivation up and the spirit of the Youth Forum alive. However, since the Messengers were very enthusiastic about the Forum, their shared

'Presentations by experts from IUCN, UNESCO, GIZ, the World Conservation Monitoring Centre, the International Ecotourism Society and Tsukuba University helped us to understand more about biodiversity and World Heritage as well as the threats they are facing and gave us many insights into their organisations' work. Here Bill Jackson, Deputy Director General of IUCN, explains the role of the advisory bodies.'



Games and activities on World Heritage from Go4BioDiv

For their workshop 'Communicating Biodiversity' at COP 10 in Nagoya, the Go4BioDiv Messengers have developed games and practical ideas on World Heritage that are easy to do yourself.

- **World Heritage quiz:** What did you always want to know about World Heritage? What have you learned in the publication and what do you consider common knowledge? Make a quiz yourself with a sheet with questions and possible answers to check and a separate sheet with the correct answers. You can play it in a group! Check the accompanying DVD or the IUCN webpage for examples.
- **Treasure memory:** Make your own memory cards with pictures / drawings from special places in your environment. You always need two similar cards to put together – think of couples that match, e.g. a tree in blossom and then in winter from the same angle, the same bird from different sides, a large animal and its baby... Here you can find the Go4BioDiv memory as an example.
- **State of the Planet – Medical Diagnosis.** Josiane, the Go4BioDiv Messenger from Cameroon, made a flyer with the medical diagnosis of our planet. In a creative way, it showed how the Earth's biodiversity is suffering and what remedies are needed. What is your diagnosis? What remedies are needed?
- **Earth Yenga:** Yenga is a game where you have to take out pieces of wood from a little tower. The pieces can be coloured differently – green for

forests, brown for earth / soil, blue for water – and played with as if the tower was the Earth. With over-exploitation, when one element or too many parts of all elements are missing, the ecosystems and our planet collapse – the tower will tumble down!

- **Comics:** Before coming to Japan, the Go4BioDiv Messengers made some comics about their World Heritage sites. What would a comic on your World Heritage site / surrounding nature area be about?



Comics drawn by the Go4BioDiv messengers, the quiz, the memory and the 'State of the planet medical diagnosis' can be found as PDF files on the DVD accompanying this publication.



experiences and new global contacts, they committed to continue their collaboration in the growing Go4BioDiv network.

Apart from the appointment of **Youth Focal Points within the CBD Secretariat** in Montreal, another important outcome of COP 10 concerning the involvement of youth in biodiversity conservation is that for the first time in the history of the CBD process youth participants have agreed to and continue to work towards the establishment of a global youth network for biodiversity under the tentative name **Global Youth Biodiversity Network (GYBN)**. GYBN was initiated by the leaders of the European Youth Accord and the Global Youth Accord, two international youth declarations on biodiversity, as

well as participants of the Aichi-Nagoya International Youth Conference on Biodiversity, held in August 2010. GYBN aims at ensuring a continuous youth involvement at CBD-COPs. It plans to host a regular youth meeting right before the conferences and demands a separate constituency status for youth at the COPs. It is hoped that as early as COP 11 in India, young people will have their own rights and wear their own authorising badges at the conference.

The Nagoya conference in 2010 had made an urgent call to political leaders and societies as a whole to address the challenges of the marine and coastal regions with regards to biodiversity conservation and development needs. This call is being heard: the

Reflection and activity: the treasure box

The 'treasure box' of Go4BioDiv 2010, a wooden box painted by the young Messengers and filled with 'treasures' they brought from their World Heritage sites, is now travelling around the world to be shared with even more people. It is accompanied by the Go4BioDiv exhibition, which presents the young Messengers and the World Heritage sites they come from, focusing on the linkage between World Heritage and biodiversity and the threats to these values. So far, it was shown at Tsukuba University in Japan, the headquarters of IUCN in Gland (Switzerland), at UNESCO in Paris (France) during the World Heritage Committee meeting, and at various sites in Germany. Please contact info@go4biodiv.org for more information about the travelling exhibition.



The concept of treasures can be employed very well in different activities:

- Think of possibilities for linking cultural and natural values in your home country. An example is the project 'Ballet and Wilderness' of the German Nationalpark Bayerischer Wald, celebrating the experimental encounter of the forest, a natural treasure, and dance of the Bavarian State Ballet, a cultural treasure of Germany. Artists from different parts of the world who work with the State Ballet got inspired by the wilderness of the Bavarian Forest and developed a 'wilderness choreography', which was performed on various occasions.
- Do a 'treasure hunt' in your World Heritage site, protected area or simply your backyard! This way, participants explore the area, get to know it better and learn about its obvious and sometimes well hidden treasures. You could end the hunt in a very special place, or in a site with a good view: this is the treasure we need to conserve!
- What do you consider your local / regional / national treasures? How are they valued and protected? Have some of them even been recognised officially as World Heritage sites?
- What little items would you put in the shoebox-sized drawer of a treasure box? Think of small symbols for the cultural or natural elements you most value.



Bráulio Ferreira de Souza Dias, Executive Secretary, CBD

'I congratulate the young people involved in Go4BioDiv for their dedication to biodiversity and to sustainable development. Their commitment, enthusiasm and action serve as great example to educate and inspire others. I wish participants every success in the Go4BioDiv programme in India in 2012.'

Indian hosts of CBD-COP 11 (to take place in October 2012 in Hyderabad) decided to run a third Go4BioDiv International Youth Forum with a focus on the world's oceans and shorelines. The theme is '**Conserving coastal and marine biodiversity for sustaining lives and livelihoods**'. Thus in 2012 the 35 youth messengers come from outstanding marine and littoral places around the globe, with a special focus on World Heritage sites. Since India has the largest population under 29 worldwide and is a fore-runner in new information technologies, Go4BioDiv-India promotes a strong virtual exchange among youths on the Forum's theme via an online platform and discussion forum. The coordination of this event mainly lies in young hands: Go4BioDiv Messengers pass on the torch.

Several youth organisations have developed declarations about biodiversity prior to COP 10 and engaged in the conference itself:

- **Global Youth Accord:** www.biodiversitymatters.org/youth_accord.html
- **European Youth Accord:** www.youpec2010.eu > declaration
- **Global Youth Biodiversity Network:** www.gybn.org
- **Updates on Go4BioDiv in India 2012 can be found here:** www.go4biodiv.org

Go4BioDiv

International Youth Forum

NEWSLETTER APRIL 2011

VOLUME 1, ISSUE 1

Go4BioDiv International Youth Forum

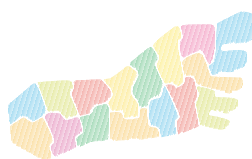
Go4BioDiv is an International Youth Forum where young individuals from different parts of the globe come together to share their experiences, discuss about global environmental issues and engage in the UN conferences on Biodiversity (CBD-COP). It aims at raising awareness about the inter-dependencies of biological and cultural diversity as well as inter-generational responsibilities for the biodiversity conservation. Initiated by the German-Society for International Cooperation (GIZ) and the German National Park of the Bavarian Forest, Go4BioDiv has been carried out twice so far, in 2008 and 2010, parallel to the conferences of Biodiversity in Germany and Japan. "Unity in Diversity-My Environment and Me" was the theme of the first Youth Forum in Germany. The participants got to know the concept of the Ecological Footprint and used it for spreading the message about biodiversity conservation. The second forum in Japan united youth adults from World Heritage sites in 23 countries under the topic "Our Treasures at Risk- World Heritage in Times of Climate Change".



Go4BioDiv Messengers with Gretchen Kalonji, ADG Science of UNESCO and Julia Marton-Lefèvre, Director of IUCN at the interactive fair COP 10, Nagoya, Japan.

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This is the logo for Go4BioDiv which was adapted from the 1st youth forum in Bonn, Germany (2008) on the "Ecological Footprints". The Footprint illustrates that individuals need to collectively work towards sustainability. This is a unified way of conserving our natural treasures.

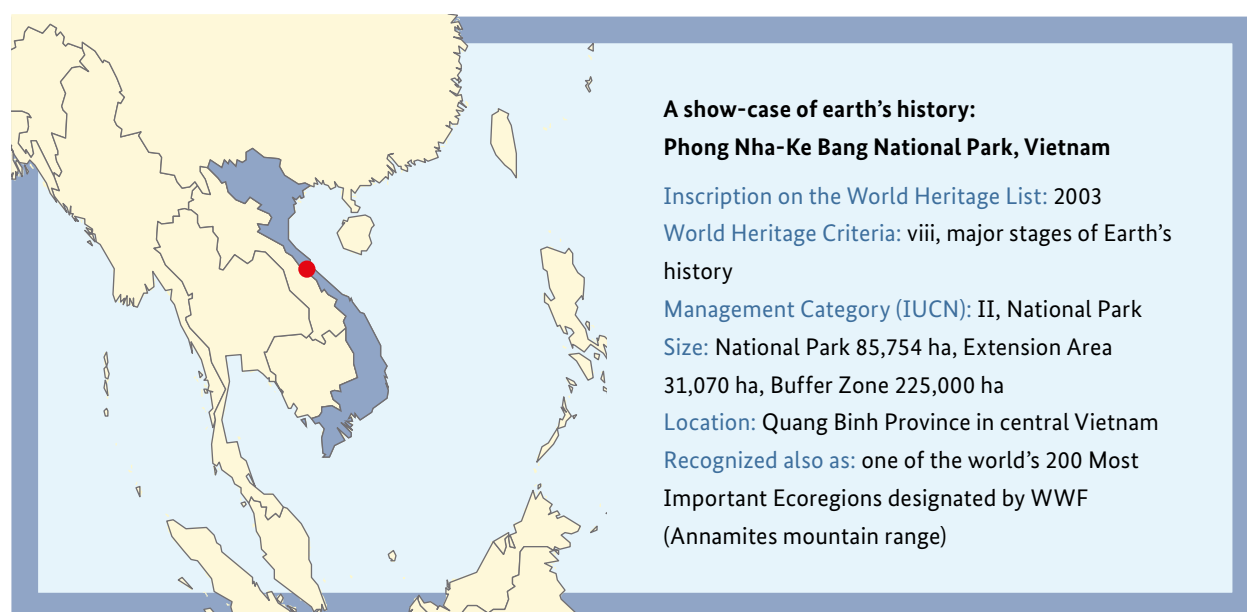
The Newsletter was developed and is written by the Go4BioDiv Messengers. It can be downloaded from: www.go4biodiv.org

"Our Treasures at Risk – World Heritage in Times of Climate Change" Go4BioDiv II at COP 10, Nagoya, Japan.

The Go4BioDiv Youth Forum 2010 in Japan, took place in parallel to the 10th Conference of the Parties of the Convention on Biological Diversity (CBD-COP10). It brought together 34 participants, who live or work in natural World Heritage sites. They are young adults aged 18 to 28, representing 25 sites from Canada, Mexico, Costa Rica, Ecuador, Peru, Greenland / Denmark, Germany, Switzerland, Slovakia, Mauritania, Cameroon, Congo, Kenya, Tanzania, South Africa, India, Nepal, Mongolia, China, Vietnam, Australia, Tonga, and the host country for COP 10, Japan. At COP10, the

6 Case Studies

This section consists of three case studies: **Phong Nha-Ke Bang National Park in Vietnam, Kahuzi-Biega National Park in the Democratic Republic of Congo (DRC) and the Wadden Sea in the Netherlands / Germany**. Each of them portrays the specific World Heritage site with its biodiversity values, conservation efforts and the challenges it faces due to human intervention and climate change. The studies comprise all the issues tackled in this publication in a condensed form, through practical and concrete examples.



Vietnam: Linking biodiversity conservation and development

The text has been jointly written with Pham Thi Lien Hoa, staff of the GIZ project 'Nature Conservation and Sustainable Management of Natural Resources in the Phong Nha-Ke Bang National Park Region.'

A unique system of limestone karst and caves

Phong Nha-Ke Bang National Park is one of the largest protected areas in Vietnam. It is located in Quang Binh Province – 500 km south of the capital Hanoi, in the narrowest part of Vietnam – between the international

border with the Lao PDR and the Tonkin Gulf. The Vietnamese Government declared the area a National Park in 2001. Its listing as a natural World Heritage site by UNESCO in 2003 recognised it as 'an outstanding example representing major stages of Earth's history and significant geological processes and features (criterion viii)'.

Together with the neighbouring Him Nam No National Biodiversity Conservation Area in Lao PDR, the region **forms one of the oldest and largest karstic limestone ecosystems in Asia**. Karst is a landscape shaped by the dissolving of one or several layers of soluble bedrock, in this case limestone. On the surface, there is a striking

series of landscape features, ranging from deeply dissected ranges and grooved plateaux to an immense polje, a large depression that is typical for karst regions in general. Many of the mountains are over 1,000 m high. Beneath them, more than 300 caves and grottoes can be found, many with fantastic formations of stalactites and stalagmites. Among these caves is Son Doong, known as the largest cave passage in the world. Some caves here served as shelters, or even as hospitals for the Vietnamese Army during the Vietnam War in the 1960s and 1970s. A part of the Ho Chi Minh Trail, which was used as a supply route by the Viet Kong, crosses the Park. During the Vietnam War, the United States Air Force heavily bombed the region, using Napalm and Agent Orange to burn down and exfoliate the trees in order to better identify hideouts or other bombing targets. Nevertheless, today – about half a century later – the whole park is covered with trees again; although in some parts of the forest, bomb shells and explosives remain and pose a threat to locals as well as visitors.

The park comprises large areas of tropical dense evergreen lowland forest and, in the strictly protected core zone, a unique tropical mountainous forest that cannot be found elsewhere in the World – with conifer trees up to 400 years old and a dense ground layer of slipper orchids (*Paphiopedilum spp.*). Phong Nha-Ke Bang's extraordinary biodiversity is characterised by a **high degree of endemism, which means that certain plants and animals occur only there.** Of the 41 plant and animal species that are endemic to the Annamite mountain region, 23 are found only in Phong Nha-Ke Bang. Among the ten major vegetation types, scientists recorded in 2009 more than 2,650 vascular plant species

and 735 vertebrate animal species. Despite its obvious biodiversity importance, the park has not yet been listed as World Heritage under criterion x for its biodiversity values, but the scientific justification has been elaborated already and the process for recognition of this additional criterion is underway. At its 2010 meeting, however, the World Heritage Committee deferred the extension of the site under criterion x and recommended that the state party consider a transboundary approach – together with the Lao Him Nam No National Biodiversity Conservation Area – and submit a revised nomination at a later stage. Transnational cooperation would ensure the integrity of both protected areas and strengthen current conservation efforts on both sides of the border.

Challenges for conservation and development: forest use and tourism

The treasures of Phong Nha-Ke Bang are under threat, primarily from **illegal logging and poaching.** The main reason for this is the severe poverty of the population living in the surrounding areas of the national park. While most of them depend directly on agriculture because there are few alternative sources of income, many locals log and hunt in the forests. The timber and non-timber forest resources are often obtained from the National Park, which is very difficult to protect because of its size and complex topography.

Moreover, **tourism is developing in a mostly uncontrolled way** and poses an additional risk to the fragile ecosystems. National and regional tourism (mainly from China) has been growing rapidly in Vietnam since 1990. Combined with the World Heritage listing of Phong



The Phong Nha-Ke Bang World Heritage site comprises spectacular karstic limestone formations and tropical dense evergreen forests with high biodiversity values.

Nha-Ke Bang, this has led to a significant increase in the number of visitors, up to around 300,000 visitors to the park annually. Phong Nha-Ke Bang is hereby at a critical stage; any further tourism development in the region needs to be carefully planned so that it does not compromise the region's sensitive and unique environment, its cultural and natural heritage and its World Heritage status.

Climate change: impacts and vulnerability

Vietnam is one of the countries considered **most vulnerable to effects of climate change**. In recent years, flash floods resulting from heavy rains have caused many losses and much damage to the communities around Phong Nha-Ke Bang National Park. Scientists expect an increase in the annual mean temperature and in the amount and variability of rainfall as well as an increased risk of storms in the area; these conditions, in turn, will likely lead to more droughts and floods. In 2010, GIZ commissioned a group of experts to analyse the relevance of climate change for the Buffer Zone Development Plan of Phong Nha-Ke Bang National Park and to provide recommendations on how to integrate climate change considerations into the plan. The experts identified four main impacts of climate change on the buffer zone, which are ultimately threatening to biodiversity and to the people in the park and its surroundings:

- Increase in the intensity and frequency of **fires** due to higher temperatures, evaporation and less rainfall during the dry season
- Increase in intensity and frequency of **flooding**
- Increase in intensity of **erosion** along river banks and slopes
- **Decrease of harvest** and increase in the variability of agricultural production.

The increasing risk of forest fire and heavy floods directly threatens the biodiversity of the park. Impacts affecting foremost the local communities in the buffer zone could eventually also affect the biodiversity within the National Park. Because of changing weather patterns, for example, the traditional knowledge systems – in this case, local weather forecasting that has been used to determine the right sowing time – can no longer be applied. Farmers experience loss of harvest resulting from either unexpected absence of rainfall or its opposite, extreme rainfall and floods. Lower yields of the main crop varieties in the region can be observed already. Due to the absence of alternative livelihood sources, this trend intensifies the loss of agricultural income and will add to the pressure on forest resources. Eventually people may even decide to migrate or at least move their fields to higher and more productive elevations, leading to increased encroachment into the National Park or, due to the lack of available land, to conflict over the remaining natural resources.

Research of the Frankfurt Zoological Society has shown that Phong Nha-Ke Bang is home to the largest population of Hatinh langurs (*Trachypithecus laotum hathinhenis*) in the world.



Chances for development: conservation, science and the local population

Several German organisations support the Vietnamese partners in addressing biodiversity conservation and poverty reduction in the Phong Nha-Ke Bang area. Their efforts concentrate on three cornerstones: **research, protection & restoration, and development**. Each of these three focal areas depends on the success of the other two; they have to go hand in hand to protect the park from its multiple threats in the long run.

The **Cologne Zoo and the Frankfurt Zoological Society**, together with the National Park administration, focus on research, protection and restoration of biodiversity, mainly within the park boundaries. They scientifically explore and investigate plant and animal species; they also rescue confiscated and injured animals caught in traps.

The German development organisations **GIZ and KfW**, on behalf of the German Ministry BMZ, concentrate their supportive efforts on the park management and the buffer zone development. They support the Provincial Peoples' Committee (PPC) of Quang Binh in implementing the project Nature Conservation and Sustainable Management of Natural Resources in the Phong Nha-Ke Bang Region. The strategy is comprised of two main goals. The first goal is to **develop income-generating alternatives for the local population** in order to lower the pressure on the park resources; this will be addressed

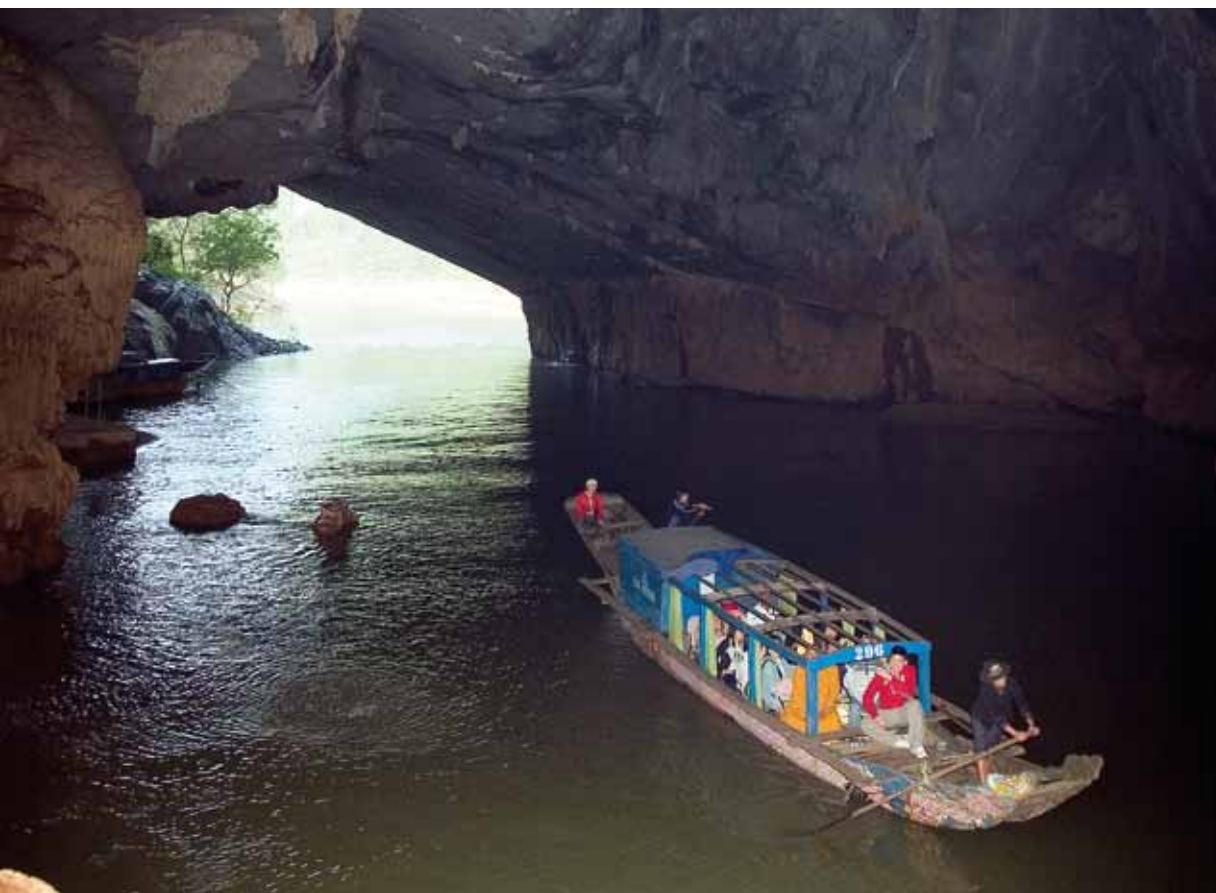


Go4BioDiv Messenger Yen, Phong Nha-Ke Bang, Vietnam

'We are finally seeing a change in traditional conservation concepts that excluded people. The value of indigenous knowledge and stewardship in the protection of biodiversity must be recognised.'

In Vietnamese:

'Chúng ta đang thấy có sự thay đổi trong quan điểm về bảo tồn theo lối truyền thống mà đã loại trừ yếu tố con người. Những giá trị về nhận thức và vai trò của người dân bản địa trong công tác bảo tồn đa dạng sinh học cần được nhìn nhận.'



Tourist numbers have increased tremendously since the nomination of Phong Nha-Ke Bang as a World Heritage site.

by the Buffer Zone Development Plan, which is now worked out and undergoing ‘**climate proofing**’. This means that the projected impacts of climate change – such as crop loss that results from extreme flooding – are taken into account in the future buffer zone development planning.

The second goal is to improve weak law enforcement and **strengthen management capacities for effective biodiversity conservation**. One of the major challenges in this respect is the uncontrolled increase in tourism threatening biodiversity values. Since tourism, if adequately handled, can help to create the much needed revenues for the park’s conservation, a Sustainable Tourism Development Plan has been formulated. It describes the tourism potential of the park and its surroundings, clearly emphasising **responsible tourism principles**. The plan was elaborated based on a series of meetings and consultation workshops with stakeholders from the highest political circles to the grass-roots level within the province. As a first practical measure, an eco-trail has been constructed and tourist guides have been trained to accompany tourist groups on this trail.

Go4BioDiv Messengers from Phong Nha-Ke Bang

Dang Ngo Kien and Pham Thi Hai Yen were chosen to represent their World Heritage site at the Go4BioDiv International Youth Forum in Japan in 2010. Both work at Phong Nha-Ke Bang National Park. Kien works in the park’s scientific research and wildlife rescue centre as

an animal researcher: he often conducts fauna surveys, sometimes together with experts from the Cologne Zoo. Yen works for the park’s management board: her daily tasks are to assist the park management in monitoring forest protection activities and the performance of forest rangers. She also conducts information campaigns on the heritage values, laws and regulations of forest protection for local communities in buffer zones, calling for their joint efforts in protecting this significant World Heritage site.

Sources and further information

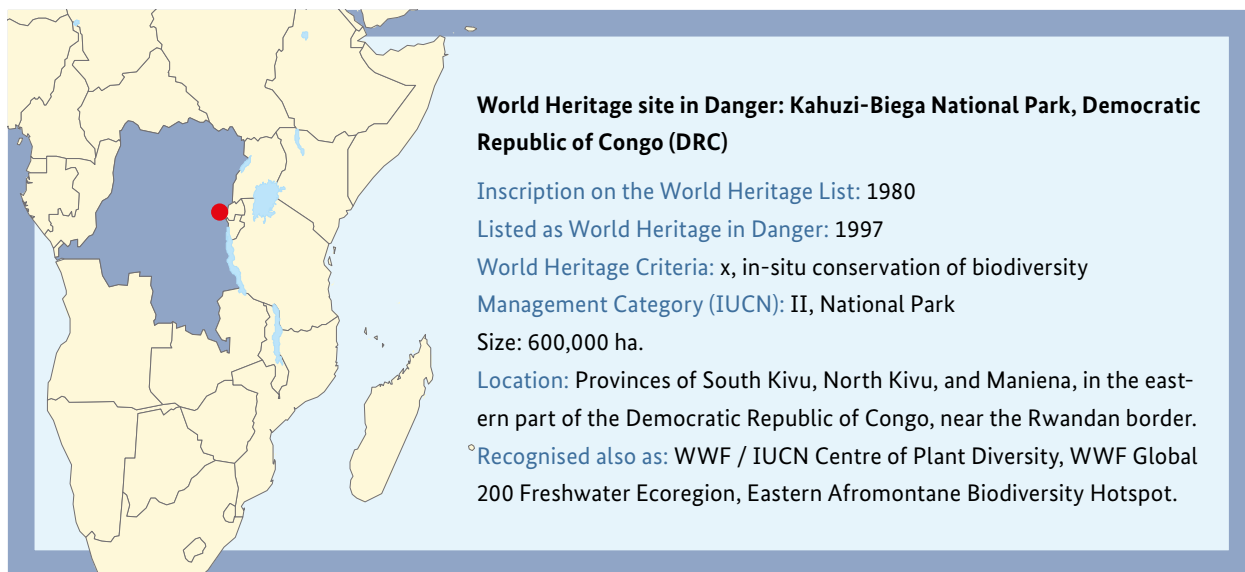
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- Larsen, Peter Bille (2008): *Linking livelihoods and protected area conservation in Vietnam*.
- MONRE (2009): *Climate Change, Sea Level Rise Scenarios for Vietnam*.
- UNESCO (2011): whc.unesco.org > The List > Vietnam Phong Nha-Ke Bang

The following sources can be found on the DVD accompanying this publication:

- Go4BioDiv (2010): *Exhibit Panels for Phong Nha-Ke Bang*.
- GIZ (2011): *Slideshow, video and audio clips on Phong Nha-Ke Bang*.
- GTZ (2010): *Karst and Caves in the Phong Nha-Ke Bang National Park*.
- GTZ (2010): *Biodiversity Day information panels on Phong Nha-Ke Bang*.
- UNESCO Student Activity Sheet with a game on tourism.
- UNEP-WCMC (2006): *Phong Nha-Ke Bang. World Heritage site Information Sheet*.

Afforestations are important measures to establish forests where none existed previously. The seedlings are grown in tree nurseries, which help villagers to earn some extra money and contribute to biodiversity conservation.





Democratic Republic of Congo: Youth for biodiversity conservation in the aftermath of conflict

This section was written by Ernesto Noriega (in coordination with GIZ staff and the park administration at Kahuzi-Biega National Park). Ernesto is a development consultant who specialises in indigenous issues and identity questions. As a member of the Go4BioDiv 2010 organisation team, he was responsible for the coordination of the activities in DRC and with the Congolese participants.

Home to threatened Gorillas

The Kahuzi-Biega National Park is a vast expanse of dense primary tropical forest situated within the species-rich Albertine Rift, an area of exceptional faunal and floral endemism. The park consists of two distinct zones connected by a narrow corridor: the eastern high mountain section, part of the Mitumba massif and dominated by two spectacular extinct volcanoes, the Kahuzi and the Biega, which gave their name to the site; and the western section, covered by the undulating low hills and deep valleys of the Congo Basin. The variable topography throughout the park, with altitudes ranging from 600 m to over 3,300 m above sea level, harbours a diverse array



The Grauer's Gorilla, endemic to DRC, is the flagship species of the World Heritage site.

of habitat types. This explains the exceptionally high floral diversity of 1,171 recorded species, of which 145 are endemic.

The park also houses a diverse and abundant fauna. It is one of the world's Endemic Bird Areas as 42 of the 349 species are endemic there. Most importantly, **Kahuzi-Biega is the major stronghold of Grauer's Gorilla**, which is endemic to DRC. In 1998, an estimated 86 per cent of the total population of these Gorillas was believed to live in Kahuzi-Biega and adjacent forests.

Biodiversity conservation – a challenge in the area shaken by conflict

Following the genocide in neighbouring Rwanda in 1994, the park went through a very difficult period when armed conflict and the influx of refugees, rebel soldiers and various militia groups gravely endangered the integrity of the protected area for years. Facilities were looted and destroyed, the ecosystem was plundered and the park became too dangerous to visit. As a result, in 1997, the World Heritage Committee placed the site on the **List of World Heritage in Danger** where it remains to this day. Almost a decade of fighting and human displacement in the region led to deforestation and a sharp increase in poaching. Bush meat trade dramatically decimated the animal population. **The larger mammals were particularly impacted**: from an estimated 350 elephants in the eastern part only a handful survived, while the population of gorillas in the same area was halved from close to 250 in 1996 to only 125 in 2000.

Even though the worst of the hostilities have ceased and the park administration has managed to regain control of much of its territory, the sequels of the war still weigh heavily. Beginning in the late 1990s **illegal mining** developed in order to fund the rebellion. In 1999, an almost ten-fold increase in the international market price of coltan, a valuable industrial mineral used in the production of mobile telephones and computers, generated gold rush conditions and prompted tens of thousands of peasants to leave their fields to mine in and around the park. Compared with those threats, the short-term risks from climate change to the biodiversity of Kahuzi-Biega appear to be comparatively low. Overall, increasing the resilience of species and ecosystems by addressing the pressing problems of habitat destruction and overexploitation seems to be the best strategy to enable Kahuzi-Biega's unique biodiversity to cope with the challenge of climate change.

The park will always be vulnerable to human impact because it is situated in one of the most densely populated areas of the country, with up to 400 people per square km. About 90 per cent of them depend mainly on agriculture and there is a great demand for land for farming and cattle raising; this demand exerts immense pressure on the park. Nevertheless, the livelihood aspirations of the local population and the conservation interests of the park do not need to be in permanent conflict. Reconciliation is achieved as both sides realise that many of the threats and challenges they face are common to both, and that local dwellers and park staff can become

Cibikizi Ludungi has been a park ranger at Kahuzi-Biega for 35 years; his service to the Park in times of conflict and during the reconstruction phase that followed has been invaluable.



effective partners in the fight against poverty and for conservation for their mutual benefit.

Partnership for Conservation: Knowledge and Commitment of the Local Population

The population has had the opportunity to directly experience the positive impact of the protected area on their lives. During the war, the status of the Kahuzi-Biega National Park as a World Heritage site certainly gave the region greater visibility and helped make lobbying for its pacification more effective at the national and international levels. It prompted the international community to step in – in an effort to contain the destruction of a territory recognised as having unique universal value. The **local communities** have also realised that the site can play a key role in the revival of the economy in eastern Congo, especially the tourism sector. They are increasingly aware of the ecological services they receive from living close to the park, for example, the provision of fresh water and the improvement of air quality. This **growing awareness already manifests itself in a commitment to protect the World Heritage site**. When the park facilities were attacked and plundered, the population took risks to hide away equipment and material, keeping it secure until it was safe to return it. Villagers also gave shelter to the park guards, some of them paying with their lives. The survival and continuity of the site is owed in large part to their loyalty and courage.

There is a **promising potential for collaboration with the local population**, especially if the seven tribal groups

living around the park are included. Each group brings its own traditional ecological knowledge and environmental practices that can become valuable contributions to the park management. The aboriginal forest dwellers, the *Batwa*, who have the longest experience in living sustainably in this environment, have already played a central role in the recovery of the park. Until the war, there were six habituated gorilla families that were regularly visited by tourists. All of them dispersed when their leading silverbacks were hunted down. After the hostilities, the park management entrusted the *Batwa* to find the scattered gorillas. The *Batwa* performed the ritual of the *Rythme aux Moutons*, went out searching and found *Mugaruka* ('Saviour of the Park') and *Chimanuka* ('He who is found unexpectedly'), the two silverbacks around which tourism activities could be restarted. The rediscovery of these two gorillas became the symbol of the revival of the park.

German Development Cooperation and Kahuzi-Biega

Decades of civil unrest have left the Democratic Republic of the Congo severely damaged. What was once a flourishing country must now be reconstructed. On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), GIZ in cooperation with KfW is supporting the Congolese Government in three priority areas: **biodiversity conservation and sustainable management of natural resources, reform of the water sector, and strengthening of the microfinance sector**. Conservation of the tropical rainforest is promoted through support given to the management of selected



The aboriginal forest dwellers, the Batwa, are performing a traditional dance for the conservation of the forest and the search of its gorillas.



Go4BioDiv Messenger Prudence, Kahuzi-Biega, Congo DRC

‘Life begins with the first tree and will finish when we cut the last one. We need action now to conserve our forests and we also need peace – if not we will lose the last gorillas of our planet.’

In Kiswahili:

‘Maisha inaanza na muti na itaisha wakati muti wa mwisho utakatwa tunapenda matendo sasa na amani ili tulinde pori zetu bila ivi tutapoteza ata gorilla ya mwisho kwa dunia.’

nature reserves, one of them being Kahuzi-Biega. Other areas of support are eco-certification, the encouragement of good governance, and financial transparency in the commodities sector. The **involvement of all stakeholders** in conservation efforts is particularly important in Kahuzi-Biega, given its situation in the aftermath of conflict. With the help of a Community Conservation Management Council, made up of local representatives, participatory development projects and campaigns to raise awareness are being put in place. The construction and renovation of strategic infrastructure is vital for socio-economic regional development; planners anticipate the construction of schools, health and social centres, roads and bridges as well as micro water power plants. The agroforestry sector will create new income resources, while conserving the park’s rich biodiversity. The project strives to render the local population less dependent on the natural resources from the Park. German Development Cooperation stresses the need to involve youth, women and indigenous peoples in biodiversity conservation. The organisation has therefore supported the creation of the *Club Amis de la Nature* (Friends of Nature Club), which unites young Congolese from different regions in their common advocacy of nature protection.

The Go4BioDiv Messengers from Club Amis de la Nature

Prudence Mazambi and Pascal Balezi, the two Messengers from the Kahuzi-Biega National Park at the Go4BioDiv International Youth Forum 2010, grew up in

The young men and women of ‘Le Club Amis de la Nature’ from Bukavu engage in various environmental activities. Here they proudly present their tree nursery.





This image is part of a comic about the situation in Kahuzi-Biega that was drawn by members of the Club Amis de la Nature. The full version and a translation can be found on the DVD accompanying this publication.

Bukavu during the worst chaos of the war years. This eastern border region of the Democratic Republic of Congo has been at the epicentre of armed conflict since 1994, starting with the refugee crisis in the aftermath of the Rwandan Genocide, which set off a decade and a half of hostilities involving national armed forces and a multinational assortment of militia and insurgent groups from the Great Lakes area. Disease and starvation, atrocious human rights violations, and the displacement of 3.4 million people have left an indelible impact on the region.

Yet, remarkably, in the midst of this dramatically precarious environment, these two young people have developed a passionate commitment to the protection of

their region's rich natural treasures. Along with 50 other students at the Institut Supérieur Pédagogique, where they are preparing to become biology teachers, they have formed an active environmental group called *Club Amis de la Nature*. Their objective is to raise awareness regarding the value of the protected area and to promote a respectful and sustainable management of the buffer zone. One of their goals is to introduce environmental education as an integral part of the school curriculum. Their campaigns include the use of comics, theatre performances, radio programmes and conferences. They also organise tree planting and reforestation events with community participation. These young people see their work as an existential endeavour, understanding that the very continuity of their culture and values is deeply dependent on the survival of the forest.

Pascal and Prudence were selected by their group colleagues to represent them at the Go4BioDiv International Youth Forum. During the event they communicated with the rest of their friends back home in a live video-conference between Mount Fuji and Bukavu. Impressed by their story and enthusiasm, a camera team from the 1st German national TV station (ARD) interviewed Prudence and Pascal for a broadcast which also featured Harrison Ford; thus the programme brought together the iconic silver screen hero and the real life grass-root heroes of the environmental movement.

Sources and additional information

- Encyclopaedia of Earth (2009): Kahuzi-Biega National Park, DRC: www.eoearth.org
- GIZ (2011): Les activités de la GIZ au Parc National de Kahuzi-Biega.
- Kahuzi-Biega National Park, Official Blog: kahuzibiega.wordpress.com
- UNESCO (2011): whc.unesco.org/en/list > DRC Kahuzi-Biega

The following sources can be found on the DVD accompanying this publication:

- ARD 2010: News about CBD-COP 10, including Pascal, Prudence and Harrison Ford (in German language).
- Go4BioDiv (2010): Exhibit Panels for Kahuzi-Biega.
- UNEP-WCMC (2007): Kahuzi Biega National Park. World Heritage site Information Sheet.
- UNESCO WHC (2010): World Heritage in the Congo Basin



The Go4BioDiv Messengers from Congo (DRC) Prudence and Pascal at COP 10, during a youth event, seated at their country's official place in the main assembly hall.



The Wadden Sea: a recently recognized transboundary World Heritage site, Germany / the Netherlands

Inscription on the World Heritage List: 2009

World Heritage Criteria: major stages of Earth's history (viii), significant ecological and biological processes (ix), significant natural habitat of biodiversity (x)

Management Category (IUCN): II, national park

Size: 968,393 ha

Location: 650 km along the southeastern coast of the North Sea between the islands of Texel and Sylt

Recognized also as: 3 UNESCO Biosphere Reserves since 1990, a Natura 2000 site and a Particularly Sensitive Sea Area (PSSA).

Germany / the Netherlands: Multiple challenges for a sensitive wetland in the heart of Europe

The text has been jointly written with Niklas Esser, Go4BioDiv 2010 organisation team member from Germany, who has been fascinated by the rich biodiversity of the Wadden Sea since he had his first hands-on experiences there as a child.

A unique ecosystem...

The Wadden Sea is one of the **world's largest intertidal ecosystems** and one of the most productive coastal areas in the world. The complex mosaic of transitional zones

from sea to marsh – the typical wetland of the North Sea, which experiences frequent or continuous flooding – is the reason for this great biological productivity and diversity. Besides its great importance to the unique marine flora and fauna, the Wadden Sea is also one of the key sites on the East-Atlantic and African-Eurasian Flyway for millions of **migratory birds**.

The Wadden Sea area stretches along the south-eastern coast of the North Sea and extends across three nations: the Netherlands, Germany and Denmark; making it one of Europe's largest marine National Parks and most important conservation areas. Part of it was declared a transboundary natural World Heritage site in 2009, shared by Germany and the Netherlands; the site may be extended to include Denmark in the future.

The Wadden Sea has become an important flagship of Germany's National Parks through its nomination as a World Heritage site in 2009.



The Wadden Sea has a very high biodiversity. Comprised of 30 habitats, it contains approximately 2,300 species of flora (the majority are dune grass, scrub and sea grass) and about 4,200 species of mostly invertebrate fauna, which thrive in the rich spectrum of micro-habitats. This accounts for five per cent of the flora and fauna found in central Europe.

The salt meadows have the highest species diversity. They constitute only three per cent of the surface area, but contain nearly half of the plant and animal species, many of which are endemic; that is, they live exclusively in this sector. **No other central European ecosystem has a higher number of animal species than the salt meadow.** The Wadden Sea is of outstanding importance for birds – whether they are migrating, breeding or overwintering – because of two main functions: as a feeding ground and as a roosting site.

An ecosystem at risk from multiple threats

Increased protection of the Wadden Sea has led to the recovery of some species stocks. The Wadden Sea can benefit from the protection and financial capacities of three industrialised states; thus the chances of conserving the area seem higher than in low-funded or conflict-affected areas. Nevertheless, this ecosystem is still under threat.

In recent centuries, in their competition for livelihoods, humans have caused irreversible changes to the Wadden Sea, but it was not until the 20th century that growing economic interests began to **severely stress the ecosystem**. Fishing, tourism, gas and oil extraction, energy projects, and industrial production are among the human activities that cause pollution. Intensive agricultural practices lead to eutrophication (the accumulation of nutrients in an ecosystem through over-fertilisation

or sewage). The loss of nursery areas for animals, which are vital for the tremendous productivity of the Wadden Sea, the decrease of fish stocks on which local population and businesses greatly depend, and the extinction of several species have led to an increased vulnerability of the ecosystem.

Rising sea levels are an issue of major concern to people involved in nature conservation and coastal protection. The latest projections indicate that sea level rise may range between 50 and 130 cm by the year 2100. This could lead to a loss of large areas of the tidal flats. These ecosystems that are at the heart of the Wadden Sea would subsequently be replaced with a coastal lagoon system. The rising sea level will put additional pressure on this already strained ecosystem since the natural response, onshore migration, would be severely limited by human modifications of the coastal zone. This phenomenon is known as 'coastal squeeze'; it refers to the reduction of the area of land near a coast or the loss of its former use because of its position between rising sea levels and fixed sea defences or high ground.

Tourism experts predict that the coming decades will see a major shift of travel patterns within Europe, with more holidaymakers heading for the North and Baltic seas instead of the increasingly hot Mediterranean region. This would put an additional stress on the Wadden Sea area, which is already a highly popular destination with up to 40 million visitors yearly.

Further information on wetlands in general and the threats they are facing can be found here:

- CBD (2011): **Inland Waters Biodiversity – What's the Problem?:** cbd.int/waters/problem/
- CBD (2011): **Marine and Coastal Biodiversity:** cbd.int/marine > **What's the Problem?**
- CBD (2011): **Inland water ecosystem / Marine and Coastal Ecosystems:** gbo3.cbd.int > **the Outlook** > **GB03 > Biodiversity in 2010**



The Wadden Sea supports about 20 per cent of the world's harbour seals, whose numbers are increasing now because of effective conservation measures. These measures were taken only after decades of exploitation.



Go4BioDiv Messenger Marina, Wadden Sea / Germany

Already as a toddler, I came into contact with the Baltic Sea and some of its inhabitants like jellyfishes. At the age of 5, we moved to the Island of Sylt in the North Sea, where I'm still living. It often shocks me how little people know about how to treat our natural environment when throwing away their rubbish or playing with plastic toys in water. It fascinates me that people really believe that they have seen a shark when they have seen the fin of the domestic whale species.

A new problem for the Wadden Sea is currently in the making, paradoxically through an activity that is intended to mitigate climate change, but which also threatens the fragile ecosystem: Germany is undertaking major research on **Carbon Capture and Storage (CCS)**, whereby liquefied CO₂ from power plants would be stored underground, preferably in saline aquifers.

There are over 400 potential locations for storage of this kind all over Germany – most of them can be found in the Wadden Sea area. The hope of the project is to prevent the immediate release of CO₂ into the environment, where it would contribute to global warming. However, the new technology bears major risks. There are no guarantees about the duration of the storage – if

Over six million birds can be present in the Wadden Sea at one time, and surveys suggest that each year ten to twelve million pass through on their way to breeding and wintering grounds.



Research and discussion: Developing vs. industrialised countries

Developing and industrialised countries confront a different set of problems in conserving their wetlands. How and why is this so?

A coastal region facing huge challenges due to climate change is the mangrove forest area of the Sundarbans, a transboundary natural World Heritage site in India and Bangladesh. The coastal strip of Bangladesh is one of the world's most densely populated areas. It is already experiencing the negative consequences of climate change; in recent years, the country has had to deal with major floods, which led to the destruction of surrounding lands, including villages and farmlands,

and heavy cyclones. Further precipitation increases of 30 per cent are predicted for the coming years.

What are the main differences between the Wadden Sea and Bangladesh's coastal areas? Think of the naturalness of the ecosystem, the role and size of the local population, the way humans transform the landscape, and how financial resources and infrastructure come into play. What does this mean for the problems each area and its local population are facing, especially the risks stemming from climate change?

Further information: GIZ (2011): Disaster-preventive coastal area rehabilitation: www.giz.de; World Heritage List: whc.unesco.org/en/list > Sundarbans

the CO₂ escaped at some point, it would not only have the undesirable climate change effect, but would also affect life around the storage area since the air and water composition would alter due to the high CO₂ concentrations. This would be particularly dangerous not only for the sensitive marine environment of the Wadden Sea, but also for humans.

The North Sea is windy and rich in oil. Several **energy projects** threaten the Wadden Sea World Heritage site. Just outside the borders of the National Park, a large wind park with 18 wind power plants is being developed. Some oil and gas drilling or extraction locations that are geographically within the designated site, have been excluded from sharing its new status; in other words, the World Heritage site has some 'black spots'.

Those examples show that the conservation of a World Heritage site depends not only on direct measures within a designated area, but also on the overall situation and management of its surroundings. During a trilateral workshop about the Wadden Sea and climate change,

experts concluded that survival through adaptation works the most successfully in regions where diverse habitats are maintained or restored. Hence, management efforts should focus on strengthening the resilience of the intertidal ecosystems in the Wadden Sea. The **effects of climate change** will be determined by the integration of regional development with conservation strategies such as coastal protection, renewable energy infrastructure, i.e. for wind farms, and future tourism development.

Sources and further information

- Greenpeace (2010): CO₂-Endlager unter Hamburg oder Berlin; www.greenpeace.de: the website includes a map of potential carbon stocks in Germany
- International Wadden Sea School: www.iwss.org
- NABU (2010): Status, threats and conservation of birds in the German Wadden Sea.
- Official website of World Heritage site: www.wattenmeer-weltnaturerbe.de > English
- UNEP-WCMC (2009): Germany and the Netherlands - Wadden Sea. World Heritage site Information Sheet.
- Wadden Sea Secretariat (2010): Trilateral Working Group on Coastal Protection and Sea Level Rise (CPSL).



This oil platform is in the Wadden Sea National Park but excluded from its World Heritage status – an enclave in the middle of the sensitive ecosystem.

7 Outlook

‘Development cooperation is not merely a matter for politicians: on the contrary, poverty, war, destruction of the environment and climate change affect all of us in our everyday lives. Action on these issues is demanded by society as a whole’.

Dirk Niebel, German Federal Minister of Economic Cooperation and Development

The alleviation of poverty, the conservation of biodiversity, the sustainable use of our natural resources and the reduction of and adaption to climate change are central global challenges of our time. **Today, the world stands at a crossroads:** our behaviour over the next few decades determines the fate of biodiversity and the global climate – and therefore our own future – for the next hundreds, if not thousands of years to come. If we are really willing to change and move toward a more sustainable path of development, one that respects nature’s boundaries, **we have to act now!**

Protected areas can play a critical role in the endeavour to conserve biodiversity and address climate change.

They help to ensure the survival of our planet’s natural heritage by providing spaces for ongoing ecological processes and refuges for species that cannot exist in overused or deteriorated landscapes and seascapes. At the same time, people derive many important benefits from such areas. Among these benefits are the genetic potential of wild species for crop breeding and medicine, the provision of clean water, opportunities for recreation and valuable knowledge about natural resources and their usage potentials from many indigenous people and traditional societies. Poor people are particularly dependent on the resources of protected areas. Well-designed and well-managed protected areas have the potential to create wealth and thus help us to address the challenges of poverty and social inequality. In addition, the world’s protected area systems contain an extensive amount of naturally stored carbon that is helping to mitigate global warming. Healthy ecosystems can also help the world community to adapt to the impacts of climate change.

Natural World Heritage sites, consisting of the most outstanding places our planet has to offer, **are in the**



Go4BioDiv Messenger El Hacem, Banc D’Arguin, Mauritania

‘Is it fair to ask me to protect, when you are destroying? To ask me to not seek a better life, when you are living one? To ask me for help, when you are doing nothing?’

In Arabic:

؟ برخت تنأ و يمحأ نأ يئم بلطت نأ لدعلا نمأ
؟ قنح او شريعت تنأ و لخر فآ قايحل يعسأ ال نأ
؟ انكاس كرحت ال تنأ و نوعلا دي يئم بلطت نأ

unique position to concentrate global attention for biodiversity conservation efforts. Selected by the global community, World Heritage sites are the treasures of our planet and merit the best protection possible. Yet we are currently not doing enough to safeguard these treasures. We have to ask ourselves: How will we ensure the conservation of biodiversity on a global scale if we are not even capable of protecting those outstanding places? Are we really willing to change our way of live for the benefit of current and future generations? Do we value nature enough?



Go4BioDiv Messenger Anna, Great Barrier Reef, Australia

'The Great Barrier Reef is already experiencing impacts of climate change, the full effects of which are yet to be known. I urge international decision makers to take firm action to reverse the trend. The solutions are there. We have the power to change. So what are we waiting for?'

The answer to these questions extends beyond the sphere of protected areas and natural World Heritage. It touches all sectors of society, which have to engage in actively developing sustainable strategies for the future of humanity and all life on Earth. In order to make the necessary changes, **we must rethink our attitudes towards nature and the services it is providing to us. We have to recognise that our natural resources are limited and that they have to be managed carefully and in a sustainable manner. Our planning as well as political and economic decision making should be done in such a way that they take into account nature's full value, looking beyond mere short-term profits.** Based on these premises, the world community has recognised that urgent action is needed in order to reach global agreements on climate change mitigation and biodiversity conservation. The CBD-COP 10 in Nagoya, Japan, has set an important milestone by adopting the Strategic Plan for Biodiversity (including the Aichi Biodiversity Targets)

to halt the loss of biodiversity by 2020. In order to strengthen efforts to reach this goal, the United Nations has declared 2011-2020 the UN Decade on Biodiversity. It is not only the world leaders who have to take action; each and every one of us has to face the challenges and make a difference. **Everyone can make a change:** we have to rethink both our current consumption and production patterns to achieve a more sustainable way of living. Seemingly small things - using resources efficiently, cycling to work or taking the train to the university instead of driving individually in a car, or turning the heating down a few degrees or the air-conditioner up a few degrees, flying less often and planting trees - can make a big difference and reduce the ecological burden on our planet when they are undertaken by many individuals.

Young people play a particularly important role in changing the way we treat our planet and our common future. It is them and future generations who will have to deal with the consequences of climate change and biodiversity loss. At the same time, they are able to offer new thinking and innovative ideas, and will be the decision-makers of the future. They thus deserve to play a critical role in shaping our planet's future. The International Youth Forum Go4BioDiv provides a platform for young adults from all continents to engage in biodiversity conservation, learn from each other, offer fresh thinking and hold decision makers accountable. The young people who have participated in Germany (2008) and Japan (2010) continue to work in the spirit of Go4BioDiv in their home countries, often in the vicinity of our planet's great treasures, the World Heritage sites. They are engaged in biodiversity conservation efforts with local communities, they make the effort to reduce their personal ecological footprint and they share their experience with other young people in all corners of the world. They inspire others to actively shape the future - to develop ways of living that are fairer and more sustainable. We need more motivated persons like them, people who will provide an encouraging personal example - maybe you?



Go4BioDiv Messengers in a discussion with decision makers: involving youth and indigenous people is crucial for biodiversity conservation and development.

8 Appendix

Glossary

Access and Benefit Sharing (ABS)

Access to genetic resources and the fair and equitable sharing of the benefits arising from them. The new ABS protocol, passed at CBD-COP 10 in Nagoya, seeks to implement this third goal of the →Convention on Biological Diversity (CBD).

www.cbd.int/abs

Biodiversity

Biological diversity of life on Earth, encompassing genetic diversity, species diversity and diversity of ecosystems.

www.gtz.de/biodiversity

Biosphere reserve

A site established by countries and recognised under the 'Man and the Biosphere Programme' (MAB) of →UNESCO. The concept is aimed explicitly at harmonising man's use of resources with nature conservation.

www.unesco.org/mab

Convention on Biological Diversity (CBD)

Adopted in Rio de Janeiro in 1992, the CBD combines the conservation of →biological diversity with the sustainable use of its components and the fair and equitable sharing of the benefits arising from the use of genetic resources. By 2010, 192 countries and the European Union had become members of the convention.

www.cbd.int

Cultural Landscapes

Cultural Landscapes are characterised by the interaction between humans and nature and a form of cultural →World Heritage site, as defined by the →World Heritage Convention in 1992. Cultural Landscapes may possess natural significance but are inscribed solely under cultural criteria. The three different categories according to the →Operational Guidelines are: (i) a landscape designed and created intentionally by man; (ii) an organically evolved landscape which may be a relict (or fossil) landscape or a continuing landscape; (iii) an associative cultural landscape which may be valued because of the religious, artistic or cultural associations of the natural element.

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

The GIZ was formed on 1 January 2011. It brings together under one roof the long-standing expertise of the Deutscher Entwicklungsdienst (ded) gGmbH (German Development Service), the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German Technical Cooperation) and InWEnt – Capacity Building International, Germany. As a federally owned enterprise, it supports the German Government in achieving its

objectives in the field of international cooperation for sustainable development.

www.giz.de/en

Development Cooperation (DC)

The joint effort between industrialised and developing countries to dismantle global differences in socio-economic development and general living conditions in a permanent and sustainable way. Since the 1990s, the term 'development cooperation' has replaced the term 'development aid' in the vocabulary of development policy. Development aid pursued largely the same goals as DC, but was characterised by its dominating role as provider of expert knowledge and wealth from industrialised countries; by contrast, DC emphasises equality as the basis of partnership in its endeavours.

Developing countries

There is no standard definition or internationally binding list of 'developing countries'. In the literature and the media, the designation 'developing country' is applied to countries where low per-capita income is accompanied by an inadequate food supply, poor health care for broad sections of the population and limited educational opportunities. They are entitled to Official Development Assistance (ODA) if they are on the country list of the Development Assistance Committee (DAC) of the OECD.

Ecological Footprint

The Ecological Footprint is a measure of how much biologically productive land and water an individual, population or activity requires to produce all the resources it consumes and to absorb the waste it generates.

www.footprintnetwork.org

Ecosystem

According to Article 2 of the →Convention on Biological Diversity (CBD) an ecosystem is defined as a 'dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.'

www.cbd.int/convention/text > Article 2: Use of Terms

Ecosystem Approach

This is the 'integrated management of land, water and living resources that promotes conservation and sustainable use' and considers all components of biodiversity in a holistic way. The approach is intended to achieve a balance of the three objectives of the →Convention on Biodiversity (CBD): it is therefore CBD's primary framework for action.

www.cbd.int/ecosystem

Ecosystem services

This refers to services generated by nature that humans use

and depend upon. The Millennium Ecosystem Assessment differentiates four categories: (1) provisioning services (e.g. food, fibre); (2) regulating services (e.g. erosion control or regulation of the climate); (3) cultural services (e.g. aesthetic, educational, and spiritual aspects); and (4) supporting services (e.g. humus and soil building, nutrients).

www.maweb.org

Endemism

Plants or animals are endemic to an area if they occur mainly there, in a clearly demarcated environment. This can apply to species, genera or families of organisms that are exclusively native, for instance, to particular islands or groups of islands, mountain regions, individual valleys or water systems.

Ex situ conservation

Latin for 'outside the (original) place', this refers to the conservation of components of biodiversity outside their natural habitat, for instance, in gene banks or botanical or zoological gardens; in contrast to →in situ conservation.

www.cbd.int/convention

German Federal Ministry for Economic Cooperation and Development (BMZ)

The BMZ is responsible for planning and implementing the German federal government's development policy. It commissions various independent organisations to carry out specific projects and programmes for German development cooperation and provides the financial resources to realise them.

www.bmz.de/en

Go4BioDiv International Youth Forum

This forum gives young adults between 18 and 28 the opportunity to engage in the Conferences of the Parties of the Convention on Biodiversity (CBD-COP). Go4BioDiv has been carried out twice so far, in Germany 2008 and Japan 2010.

www.go4biodiv.org

International Cooperation

See →Development Cooperation

International Council on Monuments and Sites (ICOMOS)

ICOMOS is an association of professionals that works for the conservation and protection of cultural heritage places. It is the only global non-government organisation of this kind, dedicated to promoting the application of theory, methodology, and scientific techniques to the conservation of the architectural and archaeological heritage. Together with →ICCROM and →IUCN it is one of the three Advisory Bodies to the →World Heritage Convention since 1972 and as such evaluates also the sites nominated as →Cultural Landscapes.

www.icomos.org

International Centre for the Study of the Preservation and the Restoration of Cultural Property (ICCROM)

ICCROM is an intergovernmental organisation dedicated to the conservation of cultural heritage. Its members are individual states which have declared their adhesion to it (currently 129). Together with →ICOMOS and →IUCN it is one of the three

Advisory Bodies to the →World Heritage Convention since 1972.

www.iccrom.org

Indigenous communities

There is no standard definition for indigenous communities / peoples. Most attempts refer to 'original inhabitants' of a certain area. Most commonly known indigenous groups are those with official names in their respective countries, for example 'First Nations' in Canada, 'Aborigines' in Australia and 'Adivasi' in India. The integration of local and indigenous communities into the conservation of protected areas that are on their traditional territory would seem to be a self-evident and essential task, but it remains a very delicate issue.

In-situ conservation

(Latin for 'in the (original) place'), this refers to the on-site conservation of ecosystems and natural habitats as well as the maintenance and recovery of populations of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties; in contrast to →ex-situ conservation.

www.cbd.int/convention

International Union for Conservation of Nature (IUCN)

Founded in 1948, IUCN is the world's oldest and largest global environmental network. It has around 1,100 government and NGO member organisations and almost 11,000 volunteer scientists in more than 160 countries. IUCN's work is supported by more than 1,000 professional staff in 60 offices; it is the Advisory Body under the →World Heritage Convention for natural and, together with ICOMOS, for mixed →World Heritage sites.

www.iucn.org

IUCN categories

IUCN has developed a system of →protected area categories, taking account of their different conservation objectives and permitted use provisions. This classification system is a worldwide reference framework which serves as a guideline for national legislation in numerous countries.

www.iucn.org

Millennium Development Goals

The eight Millennium Development Goals (MDGs) – which range from halving extreme poverty to halting the spread of HIV / AIDS and providing universal primary education, all by the target date of 2015 – form a blueprint agreed to by all the world's countries and all the world's leading development institutions. They have galvanised unprecedented efforts to meet the needs of the world's poorest people.

www.un.org/millenniumgoals

Operational Guidelines (OG)

The OG of the →World Heritage Convention provide the precise criteria for the inscription of properties on the →World Heritage List and for the provision of international assistance under the World Heritage Fund. Since the World Heritage Convention did not contain sufficiently clear standards, the Guidelines were

developed by the →World Heritage Committee. They are regularly revised and updated.

whc.unesco.org/en/guidelines

Outstanding Universal Value (OUV)

The OUV is the central concept for the recognition of a property as a →World Heritage site. It is defined as having 'cultural and / or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity' (Operational Guidelines).

whc.unesco.org/en/guidelines

Protected area

The IUCN defines a protected area to be: an area of land and / or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

www.iucn.org

Ramsar wetland site

The Convention on Wetlands of International Importance, especially as Waterfowl Habitat, was adopted in 1971 in the Iranian city of Ramsar. By acceding to this so-called Ramsar Convention, the member states (159 states in 2010) commit to designating at least one wetland within their territory as a 'Wetland of International Importance', to take steps to maintain and develop this site and, if possible, additional sites.

www.ramsar.org

Resources

Resources is the collective term for everything humans need to live. A distinction is made between natural resources and man-made resources (infrastructure, buildings, machines, knowledge). Natural resources are divided into those that are renewable (plants, animals, water as part of the natural water cycle) and non-renewable (mineral deposits, coal, oil and soil).

State Parties

The member countries of a certain international convention, which they have joined through signature and / or ratification, are referred to as State Parties. In this publication, we talk about the State Parties of the →CBD and the →World Heritage Convention.

Tentative List

The List consists of an inventory of potentially suitable properties on the national territory of a →State Party of the World Heritage Convention. They are candidates for inclusion on the official →World Heritage List. From this Tentative List, each state party can select a site for nomination, which will then be evaluated and considered for inscription on the World Heritage List by the →World Heritage Committee.

whc.unesco.org/en/list > Tentative Lists

United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)

UNEP-WCMC is a collaboration between UNEP, the world's foremost intergovernmental environmental organisation, and

WCMC, a UK-based charity. The Centre delivers biodiversity-related information and services to UNEP, UN agencies, governments, multilateral environmental agreements and their party states, NGOs and the private sector.

www.unep-wcmc.org

United Nations Educational, Scientific and Cultural Organization (UNESCO)

UNESCO was founded in 1945 and is now universal in scope with 193 State Parties. Its headquarters are based in Paris, France, but it works via 50 field offices in countries worldwide. Its overarching objectives are education for all; sustainable development; addressing emerging social and ethical challenges; fostering cultural diversity, intercultural dialogue and a culture of peace; and building inclusive knowledge societies through information and communication. The →World Heritage Convention is a UNESCO Convention, adopted by its General Conference.

www.unesco.org

UNESCO World Heritage Centre (UNESCO-WHC)

This is the focal point and coordinator within UNESCO for all matters related to World Heritage. Established in 1992, it ensures the day-to-day management of the convention, organises the annual sessions of the World Heritage Committee and its Bureau, provides advice to States Parties in the preparation of site nominations, and coordinates both the reporting on the condition of sites and the emergency actions undertaken when a site is threatened. The Centre also organises technical seminars and workshops, updates the →World Heritage List and database, develops teaching materials to raise awareness among young people on the need for heritage preservation, and keeps the public informed on World Heritage issues.

whc.unesco.org

World Heritage Committee

The Committee is composed of 21 representatives of →State Parties to the →World Heritage Convention that are elected every two years. It decides which nominated properties to inscribe on the →World Heritage List. Other main functions of the committee are the monitoring of the state of conservation of inscribed properties, the allocation of resources from the World Heritage Fund as well as the revision of the →Operational Guidelines. The Committee also decides on the placing of endangered properties on the List of World Heritage in Danger.

whc.unesco.org/en/committee

World Heritage Convention

This is the short name for the 'Convention concerning the Protection of the World Cultural and Natural Heritage', adopted by the →UNESCO General Conference in 1972. It developed from the merging of two separate movements: the first one focusing on the preservation of cultural sites, and the other dealing with the conservation of nature.

whc.unesco.org/en/convention

World Heritage criteria

'To be included on the World Heritage List, sites must be of →Outstanding Universal Value and meet at least one out of ten selection criteria. These criteria are explained in the →Operational Guidelines [...]; they are regularly revised by the →World Heritage Committee to reflect the evolution of the World Heritage concept itself.' (cited from link below). A complete list can be found on page 30 of this publication.

whc.unesco.org/en/criteria

World Heritage List

This is the official List of World Heritage sites, which gets extended every year through the inscription of new sites. In 2011, it included 936 World Heritage sites, with 725 cultural sites including 73 cultural landscapes, 183 natural and 28 mixed sites.

whc.unesco.org/en/list

World Heritage site

This is a property of →Outstanding Universal Value, inscribed under the →World Heritage List. It meets at least one of the ten →World Heritage criteria – for instance: to contain superlative natural phenomena or the most important natural habitats for in-situ (on site) conservation of biological diversity. All properties must also satisfy the conditions of integrity and, in the case of cultural sites, of authenticity, and must display adequate measures that ensure their continued protection and management. World Heritage sites can be cultural, natural or mixed.


Abbreviations

ABS	Access and Benefits Sharing
ARPA	Amazon Region Protected Areas
BBC	British Broadcasting Corporation
BfN	German Federal Agency for Nature Conservation
BMU	Bundesministerium für Umwelt Naturschutz und Reaktorsicherheit (German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (German Federal Ministry for Economic Cooperation and Development)
CBD	Convention for Biological Diversity
CCS	Carbon Capture and Storage
CO ₂	Carbon dioxide
COMPACT	Community Management of Protected Areas for Conservation, which
Congo (DRC)	Democratic Republic of Congo
COP	Conference of the Parties
DAC	Development Assistance Committee of the OECD
DBU	Deutsche Bundesstiftung Umwelt (German Environmental Foundation)
EUR	Euro
FUUH	Forum UNESCO – University and Heritage
GBRMPA	Great Barrier Reef Marine Park Authority
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (former GTZ, ded, InWEnt), Germany
GNP	Gross national product
GLOF	Glacial lake outburst floods
GMO	Genetically modified organisms
GYBO	Global Youth Biodiversity Organization
Lao PDR	Lao People's Democratic Republic
ICCROM	International Centre for the Study of the Preservation and the Restoration of Cultural Property
ICMBio	Instituto Chico Mendes de Conservação da Biodiversidade
ICMM	International Council on Mining & Metals
ICOMOS	International Council on Monuments and Sites
IUCN	International Union for the Conservation of Nature
IPCC	Intergovernmental Panel on Climate Change
KfW	Kreditanstalt für Wiederaufbau
MAB	Man and the Biosphere – UNESCO programme
MDG	Millennium Development Goals

NGO	Non-governmental Organisation
NPO	Non-profit Organisation
NWHF	Nordic World Heritage Foundation
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
OG	Operational Guidelines of the World Heritage Convention
OUV	Outstanding Universal Value
PPC	Provincial Peoples' Committee (in Vietnam)
PoWPA	Programme of Work on Protected Areas
SCBD	Secretariat of the CBD
SGP	Small Grants Programme of the Global Environment Facility
TEEB	The Economics of Ecosystems and Biodiversity
UN	United Nations
UNCCD	Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-WHC	World Heritage Centre of UNESCO
UNEP	United Nations Environment Programme
UNEP-WCMC	United Nations Environment Programme World Conservation Monitoring Centre
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
USD	US Dollar (\$)
WH-LEEP	World Heritage Local Ecological Entrepreneurship Program
WHS	World Heritage site
WII	Wildlife Institute of India
WWF	World Wide Fund for Nature
WRI	World Resources Institute
WSSD	World Summit on Sustainable Development (Rio+10)

Links & Literature

We provide web paths so documents can be found even if the links change. In some cases the paths are not clear or too long, so we only provide the main webpage.

 = available as a PDF file on the accompanying DVD.

Biodiversity and Climate Change

Convention on Biological Diversity (CBD)

www.cbd.int

Programme of Work on Protected Areas (PoWPA)

www.cbd.int/protected


 Secretariat of the CBD: Global Biodiversity Outlook 3. (2010) Strategic Plan for Biodiversity 2011 – 2020, including Aichi Biodiversity Targets.

www.cbd.int > the Convention > Strategic Plan


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www.un.org > English > Search 'Youth Definition 2'

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General information

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DVD Content

Additional materials for all the publications, which appear in the series ‘Sustainability Has Many Faces’ are also available on the website: www.conservation-development.net

The Brochure (PDF file, English)

Multimedia (selected video clips)

ARD Nachtmagazin (German TV News) on two Congolese Go4BioDiv Messengers (2:33)

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Patrimoinito Episode 3 (2005): New Zealand (Invasive Species, 3:15)

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Patrimoinito Episode 7 (2009): Australia – The Great Barrier Reef (Climate Change, 4:32)

Go4BioDiv International Youth Forum Japan (2010)

Go4BioDiv Messengers’ statements (7:40)

Go4BioDiv participant video clips on their respective World Heritage sites

Canada: Nahanni National Park; Redvers, Jenn (4:08)

Germany: The Wadden Sea; Oltrop, Sven / Schweikert, Marina (4:47)

Greenland: Ilulissat Icefjord; Kern Kreutzmann, Qivioq (5:48)

India: Chipko Movement (Tree Hugging); Quasin, Shazia (2:50)

Switzerland: Jungfrau Aletsch; Eggel, Benjamin / Nellen, Fabian (3:18)

Tanzania: Bahita, the Orphaned Sykes Monkey; Saruni Ngoidima, Saningo (3:12)

Phong Nha-Ke Bang World Heritage site (GIZ 2011)

Slideshow (8:18)

World Heritage site (2:33)

Biodiversity (3:10)

Forest Use and Land Planning (3:02)

Tourism (3:36)

Background material on Go4BioDiv Japan

Exhibit Panels for all 24 World Heritage sites represented at Go4BioDiv Japan 2010 (incl. four introductory panels, in total 32)

Go4BioDiv Photo Booklet: ‘Our Treasures at Risk’

State of the Planet – Medical Diagnosis

World Heritage Memory

World Heritage Quiz

Go4BioDiv Comics from the participants (11)

Educational material

Compilation of learning activities suggested throughout this publication (master copy)

Selected UNESCO World Heritage Student Activity Sheets (8)

Links, literature and selected PDF files on the subject

Where can I find the additional information?

All materials are stored on an off-line Web site on the DVD accompanying this publication. To get there, just open the file 'index.html' in the folder 'data' on the DVD.

S U S T A I N A B I L I T Y H A S M A N Y F A C E S