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Comisión del Patrimonio Mundial

CCBP

The Caribbean Capacity Building Programme

For World Heritage



Natural Heritage Management

MODULE

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Module



6

Natural Heritage Management

Developed by
Enrique H. Hernández

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Assistant Director General for Culture

Francesco Bandarín

World Heritage Centre

Rao Kishore, Director

Special Projects Unit

Ron Van Oers

Sachiko Haraguchi

Marc Patry

Unit for Latin America and the Caribbean

Nuria Sanz

UNESCO Regional Bureau for Culture in Latin America and the Caribbean

Herman Van Hooff, Director

Work Team

Víctor Marín

Sandra Varela

Elsa Martín

Begoña Guzmán

General Advisor

Isabel Rigol

Consultants

Grazia Piras (Module 1)

Ricardo Núñez (Module 2)

Herbert S. Stovel (Module 3)

Isabel Rigol (Module 4)

Cristina Lamandi (Module 5)

Enrique H. Hernández (Module 6)

Designing (Module 6)

Miguel Guerrero

Translation (Module 6)

Adolfo E. Fuentes / English

Roberta M. Pedroso & Aurelio R. Fernández / French

UNESCO Havana

Calle Calzada 551 esquina a calle D, Vedado, La Habana 10400

Tel.: (537) 833 3438, (537) 832 2840, (537) 832 7638, (537) 832 1787

Fax: (537) 833 3144

E-mail: ccbpb@unesco.org.cu

www.unesco.org.cu/ccbpb

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The Caribbean Capacity Building Programme (CCBP)

The Caribbean Capacity Building Programme (CCBP) is a long-term training programme focusing on cultural heritage management and aiming to create a Caribbean network of heritage experts. They, in turn, can share knowledge, know-how and expertise on the modus operandi of the World Heritage Convention and on heritage management in general.

The CCBP was conceived to respond to the needs identified in the Latin America and Caribbean Periodic Report (<http://whc.unesco.org/en/series/18>), which showed that most of the Caribbean States Parties still lack the capacity and expertise needed to enable full protection and management of the present World Heritage sites and to identify new World Heritage sites.

The CCBP was endorsed by the World Heritage Committee in 2004 as part of the Caribbean Action Plan for World Heritage.

The CCBP is composed of a core and mandatory training module on the Implementation of the World Heritage Convention and a series of other modules focusing on the various aspects of management (tourism, historic centres, risks, and cultural landscapes). Each module lasts 30 hours and encompasses practical exercises, analysis of regional case studies, and discussions.

UNESCO is pleased to present this first edition of Module 6: Natural Heritage Management, which has been developed with the contribution of Enrique H. Hernández.

Although the Caribbean features exceptionally beautiful natural values, its natural heritage sites are still underrepresented on the World Heritage List, with only six inscriptions. It is often said that Caribbean heritage experts do not have a sufficiently clear view of basic concepts established in the Convention, including outstanding universal value, nomination criteria, integrity, and world comparative assessment. This module aims to disseminate information on key aspects related to natural heritage management and conservation from a comprehensive perspective, ranging from local to world sites, on the main principles set forth in the Convention, and on various natural heritage management tools.

The practical exercises seek to identify and assess heritage properties on different scales, and develop a World Heritage Tentative List and a nomination file. They will help better understand the nomination process and apply appropriate methodologies to identify problems and obstacles at heritage sites, conduct management and conservation project assessments, and prepare action plans on site preservation and development.

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20	Presentation of Practical Exercise Results	
21	Closing ceremony	

Introduction

The importance of the natural heritage goes far beyond its scenic or spiritual values; it involves life-supporting activities on this planet, including human activities; and subsistence relies entirely on its conservation and rational use. We all depend on Earth ecosystems and on the goods and services they provide, such as food, water, disease management, climate regulation, spiritual satisfaction, and aesthetic pleasure.

Nature is constantly changing and renewing; it does not remain stable or balanced, and human beings are an important agent for change, either for the conservation or the destruction of other species. No matter how far-off a site is situated, it is under the permanent influence of positive and negative factors arising from all types of interactions. The natural heritage, therefore, cannot be comprehensively reviewed only within the framework of its borders and buffer zone. Natural processes like hurricanes, which move from one geographical area to another, ocean currents, species migrations, desert sand movement, and volcanic eruptions into the stratosphere, are just some examples of global natural interactions.

The Convention Concerning the Protection of the World Cultural and Natural Heritage became the first United Nations instrument voicing concern for the preservation of natural and environmental processes, especially of the most relevant natural heritage. There is a direct relationship between world natural heritage sites and other categories identified under other conventions and treaties whose ultimate goal is natural heritage conservation. They include MaB Programme Biosphere Reserves, Ramsar sites of international importance, the Protected Area Programme under the Convention on Biological Diversity, as well as protected areas and natural and local monuments in various countries. Some international non-governmental organizations (NGOs) have also established spatial classifications for biological diversity study and conservation, such as WWF with 200 ecoregions and Conservation International (CI) with 34 biodiversity hotspots. In this connection, the Caribbean Capacity Building Programme (CCBP), through its Module 6, deals with the natural heritage as viewed by other conventions, international multilateral treaties and major NGOs, so as to promote and develop synergies for the pursuit of common objectives in an effective and rational manner.

The aim of **Module 6 on the Natural Heritage** is to provide specific training to those involved in management and decision-making processes, and help them identify, protect and make sustainable use of this heritage. The idea is also to raise awareness about the potential outstanding universal value of many natural areas in the region so that they are duly recognized, and to make new inscriptions on the World Heritage List so that a more balanced geographical representation is achieved. There are many Caribbean sites in need of further study, including specific biological diversity characteristics, geological formations, underwater beauty, environmental functions and services provided by regional ecosystems, and the interrelationship between them and society.

Thematic Programme

Module 6. Natural Heritage					
Time	Day 1	Day 2	Day 3	Day 4	Day 5
8.30 - 9.00 AM	Opening ceremony				
9.00-10.00 AM	1. The natural heritage and its potential in the Caribbean under the World Heritage Convention	7. Other conventions related to the World Heritage Convention	13. Management plans	18. Practical Exercise: Visiting a natural heritage site and conducting a Rapid Participatory Diagnosis	19. Practical Exercise: Formulating a Site Management Action Plan
10.00-11.00 AM	2. Historical development of natural heritage conservation	8. Protocol Concerning Specially Protected Areas and Wildlife	14. Environmental functions and services		
11.00 -11.15 AM	Coffee break				Coffee break
11.15-12.15 PM	3. Biological diversity as natural heritage	9. International NGOs and natural heritage conservation	15. Natural heritage and community participation		20. Presentation of Practical Exercise Results
12.15 -1.00 PM	4. UNESCO's Man and the Biosphere (MaB) Programme	10. Main natural-heritage problems and threats	16. Management effectiveness and monitoring		
1.00 -3.00 PM	Lunch			Lunch	
3.00-4.00 PM	5. The Ramsar Convention	11. Natural heritage site management instruments	17. Practical Exercise: Developing information collection instruments for Rapid Participatory Diagnosis	21. Closing ceremony	
4.00 - 5.00 PM	6. The Convention on Biological Diversity	12. National systems of protected areas			

Lecture No. 1

Theme: The natural heritage and its potential in the Caribbean under the World Heritage Convention

Topics	Objectives
1.1. Natural heritage definitions	To introduce the most general natural heritage concepts
1.2. The Caribbean natural heritage and its potential	To give an overview of Caribbean heritage values and the existing potential for new nominations

1.1 Natural heritage definitions

The modern concept of “heritage” comes from the Roman law definition of *patrimonium* as: “inherited property that is transmitted from parents to children.” Heritage is the legacy of the past, the present, and that which we are morally obliged to give to future generations so that they can learn from, increase and enjoy it.

From this general definition we can infer that heritage refers to tangible and intangible assets that are inherited by an individual, a group or society as a whole. By assets of a nation we mean the national heritage, including all its human resources, culture, traditions, economic values and, of course, the natural setting upon which society builds its own heritage.

The natural heritage consists of land, water, geology, landscapes, biological diversity, biological processes, and ecosystem-provided environmental services.

We should not consider as heritage sites only those that have been inscribed on the World Heritage List. All countries have sites of local or national interest whose values make them relevant and meaningful to society. There are different levels of significance, namely local, national, transnational, subregional and regional. On the very top of this pyramid are the sites having outstanding universal value, which goes far beyond the local or national framework to become world heritage sites. The protection of these sites is a duty of States and Governments, and a right of all peoples.

For the purposes of the World Heritage Convention, the following shall be considered as “natural heritage”:

- natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;
- geological and physiogeographical formations and precisely delineated areas which constitute

the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation;

- natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty.

The first inscriptions on the World Heritage List date from 1978 and include the following natural sites: Yellowstone National Park (United States of America), Galapagos Islands (Ecuador), Ngorongoro Conservation Area (Tanzania), Grand Canyon National Park (United States of America), Great Barrier Reef (Australia), and Central Amazon Conservation Complex (Brazil).

These early inscriptions did not pose any problem because their outstanding universal values were very well known. As the List has been steadily growing, stricter evaluation criteria have been necessary to consider not only outstanding universal value but also authenticity and integrity.

There is an imbalance between the number of cultural and natural sites included on the List, but the overall area covered by natural sites exceeds by far that of cultural and mixed heritage sites. According to the World Heritage List developed at the 33rd Session of the World Heritage Committee, which was held in Seville in June 2009, the total number of sites stands at 903, including 700 cultural sites, 178 natural sites, and 25 mixed sites.

1.2 The Caribbean natural heritage and its potential

Out of the 178 natural sites inscribed on the World Heritage List, 35 are situated in Latin America and only six in the Caribbean. This shows that the region is still underrepresented, despite its natural values. Barbados, Grenada, Guyana, Jamaica, Saint Vincent & the Grenadines, Antigua & Barbuda, Trinidad

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Site	Country or territory	Inscription date	Criteria
Belize Barrier Reef Reserve System	Belize	1996	(vii), (ix), (x)
Morne Trois Pitons National Park	Dominica	1997	(vii), (x)
Desembarco del Granma National Park	Cuba	1999	(vii), (ix)
Central Suriname Nature Reserve	Suriname	2000	(viii), (x)
Alejandro de Humboldt National Park	Cuba	2001	(ix), (x)
Pitons Management Area	Saint Lucia	2004	(vii), (ix)

& Tobago, and the Bahamas have had no natural property inscribed on the World Heritage List.

The region has, however, outstanding natural diversity. Situated between North and South America, it has served as a bridge and a barrier to continental biota throughout history.

A number of activities have been implemented in the last few years to ratify outstanding regional values and consider the nomination of new sites.

- World Heritage Marine Biodiversity Workshop, Vietnam, 2002.
- Caribbean World Marine Heritage Workshop, Saint Lucia, 2006.
- Expert Meeting on Outstanding Universal Value, Authenticity and Integrity in the Caribbean Context, Barbados, 2006.
- Regional Conference on Heritage, Biodiversity and Community Participation, Cuba, 2009.

Outstanding Universal Value is best shown by the high number of endemic species, rich biodiversity, and the role of the Caribbean in certain evolutionary and biological processes, such as species migration.

Endemic species are typical of island ecosystems and cover an entire region or just a part of it. We should not forget that they have resulted from the combination of physical isolation and evolution in a given geographical area, and have kept on evolving toward new, unique, exclusive species. As their habitats are destroyed, unrepeatable species will be driven to extinction.

Consisting of over 5,000 keys and islands covering 0.1 percent of the earth, the Caribbean is home to 6,550 endemic plants, 48 endemic birds, 18 mammals, and 18 amphibians that are considered endangered species. The list of endemic species includes around 54 percent of vertebrates (other than fish) and 59 percent of plants. The region is considered to have two to three percent of all endemic vertebrate species known to date. Some of them are endangered species, including solenodon (both *Solenodon paradoxus* of La Hispaniola and *Solenodon cubanus* of eastern Cuba), and the Cuban crocodile (*Crocodylus rhombifer*). The

Caribbean provides one of the two most important habitats in the world for land mollusks; some of them stand out for their shapes and colors. Amphibians and reptiles are widely represented in the area, with endemic species rates standing at 99 percent and 93 percent, respectively. Some other species are restricted to a small group of islands, to only one, or just to a small area on one of them.

The region is also home to extremely small species of wildlife, such as a species of hummingbird (*Mellisuga helenae*), the smallest bird on Earth.

The marine environment has equally rich biota. Reefs in the area provide habitat to some 600 fish species and 60 well preserved stone corals. Around 11 percent of world corals occur in the Caribbean.

Other heritage elements in the region involve geological and geomorphologic features. A very active area is located in the Eastern Caribbean, where the sliding of the Atlantic Plate under the Caribbean Plate has resulted in geologically and geophysically exceptional formations, along with unique ecosystems. Volcanoes: active, dormant, extinct and underwater. Volcanic domes of various types: craters, pyroclastic currents, thermal cascades, and the like. Geological evolution has also led to a wide range of formations, including both emerged and submerged, mountain ranges, rises, plateaus, valleys, basins, channels and banks. Outstanding karst systems take different shapes, such as marine terraces, caves, blue holes, and pincushion hills.

Participants in the Workshop on World Marine Biodiversity Heritage held in Vietnam developed three lists of outstanding universal value sites for future consideration and recommended applying serial, transboundary site approaches to new nomination reviews.

List A

- Mayan Coast barrier reef - Sian Ka'an expansion - Chinchorro Bank (Mexico)
- Belize barrier reef system, site expansion, including the basin and the corridor
- Southern Cuba barrier reef archipelago

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- Southern Caribbean island groups (Netherlands Antilles and Venezuela)
- San Andres archipelago (Colombia)
- Saint Lucia Island
- Tobago Cays (Saint Vincent & the Grenadines)
- Saba Island and Bank (Netherlands Antilles)
- Guadeloupe

List B

- Jaragua (Dominican Republic)
- East National Park (Dominican Republic)
- Andros Island (Bahamas)
- Exuma Cays (Bahamas)

Some of these areas have been included on the Tentative List. For further information, please see World Heritage Paper 4: Proceedings of the World Heritage Marine Biodiversity Workshop.

Tentative List		
Barbados	Scotland District	Natural
Cuba	Ciénaga de Zapata National Park	Natural
	Cuban Caribbean Barrier Reef System	Natural
Dominican Republic	Jaragua National Park	Natural
	East National Park	Mixed
Grenada	Grenadines Islands Group	Natural
Guyana	Shell Beach (Almond Beach), Essequibo Coast	Natural
Jamaica	Blue and John Crow Mountains National Park	Mixed

Basic bibliography

- Operational Guidelines for the Implementation of the World Heritage Convention: <http://whc.unesco.org/en/og/>
- Estrada, R., Gerhartz, J. L., Hernández, E. et al (2003). Island Caribbean WCPA Report to the World Parks Congress, Durban, 2003. CNAP. IUCN.
- Hillary, A., Kokkonen, M. and Max, L. (editors) (2002). World Heritage Paper 4: Proceedings of the World Heritage Marine Biodiversity Workshop, Hanoi, Vietnam. UNESCO. World Heritage Centre.
- Piras G. CCBP, Caribbean Capacity Building Programme. Module 1. Implementation of the World Heritage Convention. UNESCO Regional Office for Culture in Latin America and the Caribbean, Havana, Cuba.
- Recommendations of the Expert Meeting on Outstanding Universal Value, Authenticity and Integrity in the Caribbean Context, Barbados, 8-11 May 2006.
- The UNESCO World Heritage Centre's Natural Heritage Strategy (2006). UNESCO World Heritage Centre.
- World Heritage. Information Kit (2005). UNESCO World Heritage Centre.

Complementary bibliography

- Estrada, R., Gerhartz, Hernández, J. L. et al. The Caribbean, in Chape S., Spalding M. and Jenkins, M. D. (2008). The World's Protected Areas: Status, Values and Prospects in the 21st Century. UNEP World Conservation Monitoring Centre. University of California Press, Berkeley, USA.
- Hernández, E. et al (2004). "Áreas Protegidas de Cuba. Universidad para todos". National Centre for Protected Areas. Ministry of Science, Technology and the Environment, Havana, Cuba.
- PARKS Vol. 7, No. 2, June 1997, Gland, Switzerland.
- Sanz, Nuria (editor) (2008). Arte Rupestre en el Caribe. Hacia una nominación transnacional seriada a la Lista del Patrimonio Mundial de la UNESCO. World Heritage Paper 24. World Heritage Centre. UNESCO.
- World Heritage No. 52, First quarter 2009. UNESCO. World Heritage Centre.

Websites of interest

- World Heritage Centre: <http://whc.unesco.org/>
- Convention Concerning the Protection of the World Cultural and Natural Heritage: <http://whc.unesco.org/en/convention/>
- <http://www.ig.utexas.edu/CaribPlate/CaribPlate.html>
- Museum of Natural History http://www.cuba.cu/historia_natural/iturralde.html

Lecture No. 2

Theme: Historical development of natural heritage conservation

Topics	Objectives
2.1. Conservation concepts	To introduce natural heritage conservation concepts
2.2. Conservation origins	To show how interested humanity has always been in conservation
2.3. Emergence of the modern conservation movement	To describe the evolution of natural heritage conservation concepts and modalities

2.1 Conservation concepts

While the idea of conservation is probably as old as the human race, the use of this term is relatively recent. Conservation has over the years acquired different meanings. To some, it means protecting wildlife; to others, it means making sustainable use of material resources on the earth for production purposes.

There is often confusion over the terms conservation and preservation. The latter is frequently associated with the idea of leaving something untouched. Conservation has to do with a dynamic process seeking to meet the needs of society and nature, and involves a wide range of modalities, including ecosystem-provided, socially significant goods and services, such as climate regulation, watershed protection, erosion and sediment control, scenic beauty preservation, etc.

Conservation is the method used to prevent irrational exploitation, destruction and neglect, and to secure the outstanding value of the natural heritage for future generations.

The most widely accepted definition was developed in 1980 by the International Union for the Conservation of Nature and Natural Resources (IUCN): "Human use of the biosphere to maximize sustainable benefits while keeping the potential to meet the aspirations of future generations." The document defines the objectives of living resource conservation as maintaining essential ecological processes and life-sustaining systems, preserving genetic diversity, and guaranteeing sustainable use of species and ecosystems.

In general terms, natural heritage conservation efforts involve practices that seek to perpetuate natural resources that are vital to humans and maintain biological diversity on the planet. They must necessarily be based on scientific knowledge, including ecology, and on the close interrelationship between human life and the environment.

2.2 Conservation origins

The human race has most of the time lived off hunting and wild food collection, thereby changing the environment and somehow contributing to the extermination of plant and animal species. Meadows have mushroomed all over the world due to the lighting of fires by hunters or attempts at meeting other needs. In their early days, however, human beings managed to live in harmony with nature.

The world population in 1600 was estimated at 500 million people. The pressure put on natural resources at that time cannot compare to that of the present, when the overall population exceeds 6.7 billion (June 2009 estimate) and consumption patterns are substantially different.

Conservation practices date from thousands of years. Certain wildlife areas of distinct beauty were conserved for contemplation, recreation and enjoyment. These natural territories remained practically unspoiled. In many cases, religion played an important role. Religious considerations helped protect some animal and plant species, and religious sanctions prevented many sacred mountains and forests from destruction. The Bible makes certain references to land use and government modalities for resource conservation.

The list of places that were given special protection includes sacred sites like homes of gods, homes for the dead, and places of meditation. In ancient Egypt, King Akhenaton legally established land areas as nature reserves for recreation in 1370 BC, and in India Emperor Asoka issued a decree in 252 BC protecting land animals and plants as well as fish species. The latter has been considered one of the first biotic resource conservation measures ever adopted.

Over 1,200 years ago, the governors of Umayyad under the first Arab Empire used to go to certain areas of the eastern Jordan desert that were especially reserved for rest and wildlife enjoyment.

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Other ancient peoples adopted a number of measures for the sustainable use of natural resources like water, including tree felling control and no livestock production at river basins.

In Latin America, there is little evidence of pre-Columbian practices related to natural resource management and conservation. History has it, however, that the governments of Montezuma and Netzahualcoyotl established various botanical gardens, zoos, and forest protection areas around the Mexican Valley.

2.3 Emergence of the modern conservation movement

Conservation efforts in Europe involved the establishment of game preserves for the nobility during the Middle Ages and the Renaissance (Billorest in Poland and Russia, and Gran Paradiso in Italy), as well as of forestry reserves to voice concern over forest destruction and develop conservation and restoration actions in the 19th century. The latter included the establishment of Boubin Virgin Forest Reserve in Bohemia in 1858 and Fontainebleau Forest in Paris in 1861.

Eastward expansion in North America between the 18th and 19th centuries had a very strong impact on the environment. Herds of animals that inhabited plains and prairies, including bison, elks, antelopes and deer vanished or were considerably decimated. The same thing happened to bird species and other animals like bears, pumas and wolves.

Fires threatened the forests in New England and in areas close to the Great Lakes and the southern states. Many prairies were devastated, and native vegetation in California was swept away. These habitats were taken by exotic, mostly invasive species.

Such a rapid expansion and colonization process over unspoiled land in North America brought about a radical change in landscapes and wildlife within one single generation. The local reaction to this process and the influence of European forest conservation ideas accelerated the development of the modern conservation movement.

Against this background, a group of outstanding American personalities undertook a number of actions to highlight the need for continued survival of wildlife to secure psychological well-being of humanity. In 1832, U.S. intellectual George Caitlin developed the idea of establishing national parks where Indians and wildlife could be jointly kept. His dream came true, albeit partially, in 1864 when Congress donated the Yosemite Valley to California for preservation purposes (as a state park).

A movement that was organized in 1872 played a key role in the use of protected territories all over the world. The U.S. Congress declared the spectacular landscape of Yellowstone (in Wyoming and Montana) as a public park for the benefit and enjoyment of the people, under the custody of the Department of the Interior. This became the first territory designated and managed as a national park in the entire world, and marked the beginning of the international modern movement of national parks and protected areas.

The following decades saw the declaration of protected sites in many other countries, like Banff in Canada, El Chico National Forest in Mexico, and Tongariro in New Zealand.

A conservation trend was also seen in Latin America and the Caribbean, including watersheds, forests, jungles, and recreational areas. Major reforestation efforts got underway.

Forest reserves and national parks were the first legal categories used in the 20th century to establish protected areas in the region.

Individual countries started to make conservation efforts and use different names such as parks, reserves, etc. The pioneers in the legal establishment of protected areas were Mexico (1899), Jamaica (1907), Panama (1917), Argentina and Belize (1922), Chile (1926), Cuba (1930), the Dominican Republic (1933), Ecuador (1934), Brazil and Venezuela (1937), Bolivia (1940), and Colombia (1948). Many of them, however, were only formally declared, and no effective protection and management actions were actually implemented.

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Basic bibliography

- De la Maza, E.; Cadena González, R.; and Piguerón Wirz, C. (2003). Estado Actual de las Áreas Naturales Protegidas de América Latina y el Caribe (Preliminary Version). United Nations Environment Programme (UNEP). Regional Office for Latin America and the Caribbean. Quercus Consultoría Ecológica S.C., Mexico.
- García Viquez, Randall (2002). Biología de la Conservación: Conceptos y Prácticas. National Institute of Biodiversity. Santo Domingo de Heredia, Costa Rica.
- Mulongoy, K. J. and Chape, S.P. (Eds) 2004. Protected Areas and Biodiversity: An overview of key issues. CBD Secretariat, Montreal, Canada, and UNEP-WCMC, Cambridge, UK.

Complementary bibliography

- World Internet Statistics: <http://www.exitoexportador.com/stats.htm>
- Sánchez Peña, Ramón Ovidio (2006). Establecimiento y Manejo de Áreas Protegidas: Notas básicas para la enseñanza. Santo Domingo Institute of Technology. CEP/INTEC

Website of interest

- <http://www.fao.org/docrep/007/j4051b/j4051b17.htm>

Lecture No. 3

Theme: Biological diversity as natural heritage

Topics	Objectives
3.1. Biological diversity concept	To define biological diversity or biodiversity
3.2. Human activities and biodiversity	To give an overview of the interaction between human activities and biological diversity
3.3. Most widely used terms	To introduce widely used terms and concepts

3.1 Biological diversity concept

Biological diversity or biodiversity is quite a recent term, but it is being often used by scientists, the media, academic and scientific institutions, and governments. It covers all living organisms on Earth and the interactions between and among them as well as with the physical environment that has made this planet inhabitable by humans.

Biological diversity is vital natural heritage per se and has made it possible for the human race to survive. Species, the genes they contain, and the ecosystems where they occur are an integral part of the natural heritage. This diversity offers biotic resources for human life, including domestic animals, crops, and wild species of fauna and flora. Biological diversity provides living foundations to sustainable development.

The Convention on Biological Diversity (CBD) establishes that the term “biological diversity” is normally used to describe the quantity and variety of living organisms on the planet. It is defined in terms of genes, species and ecosystems that have resulted from over three billion years of evolution, including the ecosystems that are intensively managed by humans (for agriculture, forestry and aquaculture) and the ecosystems that are managed otherwise, such as grazing land, native forests, and fresh-water, coast and ocean ecosystems. Human survival depends on biological diversity. The term biological diversity can therefore be considered to be synonymous with life on Earth.

Biological diversity in Latin America and the Caribbean is the richest in the world and includes a wide range of ecosystems and species. According to UNEP – ECLAC (2001), all biomes on the planet other than tundra and taigas are represented in this region. Based on the diversity of amphibians, reptiles, birds, mammals, vascular plants, and endemic species, countries like Brazil, Colombia, Ecuador, Mexico, Peru and Venezuela are considered to be megadiverse. Colombia is home

to the highest number of birds and amphibians, not only in the region but also in the world. Brazil has the largest number of mammals and higher plants, and Mexico ranks first on reptiles in the region and second internationally.

3.2 Human activities and biodiversity

Biological diversity and living species/habitat variability have provided the foundations for human civilization. Aside from its intrinsic value, biological diversity supplies goods and services that support sustainable development efforts. Biological resources on Earth play a vital role in economic and social progress. Biological diversity sustains ecosystems that have an essential part in life on the planet, including fresh-water supply, soil conservation and climate stability, and supplies food, medicines and raw materials for industry.

Finally, many cultural values are closely related to biological diversity. Biodiversity has four major values for humanity, namely:

1. Economic value: It stems from the exploitation and direct use of biotic resources: forest wood, medicinal plants, commercial fish species, lobster, shrimp, ornamental birds, crocodile skin, mollusk shells, bat guano, ecotours, etc. This economic value can be classified as subsistence (resources consumed), commercial (resources sold), or recreational.
2. Ecological value: It has to do with free, mostly ignored services that are provided by species and ecosystems for the good of humanity, such as coast protection by mangroves, climate and soil-erosion control by forests, pest regulation by birds and insects, pollination, soil aeration, nitrogen fixation, etc.
3. Spiritual value: It involves the knowledge acquired from biodiversity studies and the spiritual satisfaction to transmit valuable natural heritage

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to future generations, including ecosystems and unique species of flora and fauna that represent or are symbols of our nationalities. This is best reflected in nature-inspired cultural expressions like folklore, poetry, music, painting, sculpture, story-telling, legends, dances, and handicrafts.

4. **Intrinsic value:** It shows the value of biodiversity at its best, regardless of its usefulness to humanity. Of course, the economic value makes it possible to transform biodiversity into biotic resources, and misuse of such resources calls for conservation actions through inventorying, monitoring and/or effective protection.

3.3 Most widely used terms

Ex-situ conservation means the conservation of components of biological diversity outside their natural habitats.

In-situ conditions means conditions where genetic resources exist within ecosystems and natural habitats, and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

Biological diversity means the variability among living organisms from all sources including, inter alia,

terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Ecosystem means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Habitat means the place or type of site where an organism or population naturally occurs.

Genetic material means any material of plant, animal, microbial or other origin containing functional units of heredity.

Biological resources includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.

Genetic resources means genetic material of actual or potential value.

Sustainable use means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

Basic bibliography

- Convention on Biological Diversity. Text and Annexes. Canada, 2000. 41 p.
- Plants of Dominica's Southeast. Descriptions, Uses, Folklore, Trails and Eco-sites. Compiled by Arlington James in collaboration with the Southeast Environment & Tourism Development Committee (SETDC). Edited by Alexandra Burton-James, PhD, Glenda Raphael, and Ronald Green. Southeast Environment & Tourism Development Committee. La Plaine, Dominica, 2008.
- Berovides, V. and Gerhartz, José L. Diversidad de la vida y su conservación. Editorial Científico Técnica. Havana, Cuba, 2007. 99 p.

Complementary bibliography

- De la Maza Elvira, J., Cadena González, R. and Piquerón Wirz, C. (2003). Estado Actual de las Áreas Naturales Protegidas de América Latina y el Caribe (Preliminary Version). United Nations Environment Programme (UNEP). Regional Office for Latin America and the Caribbean. Quercus Consultoría Ecológica S.C., Mexico.

Website of interest

- Convention on Biological Diversity: <http://www.cbd.int/>

Lecture No. 4

Theme: UNESCO's Man and the Biosphere (MaB) Programme

Topics	Objectives
4.1. The MaB Programme and Biosphere Reserves	To highlight the importance of the MaB Programme and the role of Biosphere Reserves
4.2. Biosphere Reserve definition	To define Biosphere Reserves and analyze their structures and components
4.3. Relationship between Biosphere Reserves and World Heritage Sites	To relate World Heritage Sites to Biosphere Reserves in the region
4.4. Biosphere Reserves in the Caribbean	To provide complementary information about Biosphere Reserves in the region

4.1 The MaB Programme and Biosphere Reserves

UNESCO's Man and the Biosphere (MaB) Programme was developed in 1971. Unlike any other initiative at the time, this programme provided a conservation approach to natural resources that was closely linked to human development, on the premise that it would be impossible to promote development or resource conservation otherwise in the future. This approach is today associated with "sustainable development."

The concept of "Biosphere Reserve" came up in 1974, and the first reserves under the Programme were designated in 1976. They were terrestrial or marine ecosystem areas, or a combination of both, representing wider biogeographic regions.

Creative, hard-working, local, national and international stakeholders, including politicians, scientists, and economic and social agents, have made it possible for the World Network of Biosphere Reserves (WNBR) to steadily grow, on the basis of MaB Programme principles and their domestication to specific realities.

Theory and practice have for over three decades advanced along an interesting road.

- The MaB Programme concept of "harmonizing conservation with humanity" was established in 1976.
- The First World Meeting on Biosphere Reserves was held in Minsk in 1984 to develop the First Action Plan emphasizing the development component and recommending actions to be taken by the World Network of Biosphere Reserves.
- The Seville Conference in 1995 focused on the immediate need to implement actions under a

sustainable development model, and adopted the Seville Strategy along these lines.

- Held in Madrid in 2008, the 3rd World Congress on Biosphere Reserves aimed to strengthen biosphere reserve associated functions as well as regional and thematic networks to experiment, learn from, synthesize, and exchange successful experiences. The Madrid Action Plan views the World Network of Biosphere Reserves as a dynamic, interactive entity involving places of excellence to develop and apply sustainable development based approaches. The future mission of the Network is to:
 - Develop and integrate knowledge (scientific and otherwise) to improve understanding of interactions between human settlements and nature.
 - Promote global training on complex socio-ecological system management.
 - Establish learning and demonstration sites.

There were 266 BRs in 70 countries by 1987, 324 in 82 countries by 1995, 408 in 94 countries by 2002, and 553 in 107 countries by 2002. There are today 68 BRs in 18 countries of Latin America and the Caribbean.

4.2 Biosphere Reserve definition

Biosphere reserves have been conceived of as ecologically and culturally representative terrestrial, marine or coastal ecosystem areas where the use of natural resources is made compatible with their preservation. All biosphere reserves are divided into three main areas:

- Core (intangible) area for conservation, monitoring and non-destructive research.
- Buffer area surrounding or adjacent to the core area for activities compatible with appropriate ecological practices.

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- Transition area for joint activities by various stakeholders focusing on sustainable resource management.

These reserves provide an ideal framework to test innovative sustainable development approaches that combine scientific knowledge with governance modalities. They play three main roles:

- Conserve biological and cultural diversity by making rational use of genetic resources, species and ecosystems.
- Improve life-sustaining activities by promoting economic and social development at human settlements in these areas, and environmentally sustainable approaches.
- Support research, monitoring, environmental education and capacity building activities.

Local communities and other stakeholders concerned should be actively involved in planning and managing these areas. Sponsored by UNESCO, the Regional Expert Meeting on Heritage, Biodiversity and Community that was held in October 2009 in

Havana highlighted the importance of Biosphere Reserves as laboratories where the conservation of the natural, cultural and intangible heritage is organically coordinated with sustainable development and improved quality of life.

4.3 Relationship between biosphere reserves and world heritage sites

A large number of Biosphere Reserves are also world heritage sites. This is the case of Sian Ka'an and Mariposa Monarch in Mexico, and Río Plátano in Honduras. Other reserves in the region have either core areas or conservation areas that are world heritage sites, such as Cuchillas del Toa in Cuba, whose central core is the Alejandro de Humboldt National Park (a world heritage site), Baconao, which has the site called Cultural/Archeological Landscape at coffee plantations in southeast Cuba, and the Mayan Reserve, whose main core is the Tikal National Park in Guatemala, which is a world mixed heritage site.

4.4 Biosphere Reserves in the Caribbean

Reserve	Country or territory	Year of declaration
Sierra del Rosario		1985
Cuchillas del Toa		1987
Baconao	Cuba	1987
Guanahacabibes Peninsula		1987
Buenavista		2000
Ciénaga de Zapata		2000
Jaragua - Bahoruco - Enriquillo	Dominican Republic	2002
Luquillo	Puerto Rico, USA	1976
Virgin Islands	Virgin Islands, USA	1976
Guanica	Puerto Rico, USA	1981
Guadeloupe Archipelago	Guadeloupe, France	1992

Basic bibliography

- Cantos Mengs, Francisco J. (2008). Paper 2: Las reservas de la biosfera y el desarrollo sostenible. Meeting on Sustainable Development in Rural Areas and Protected Natural Spaces. Ministry of the Environment, Rioja, Spain.

Complementary bibliography

- Herrera Álvarez, María (2001). Reservas de la Biosfera de Cuba. UNESCO's Man and the Biosphere (MaB) Programme National Committee, Havana.
- Jaeger, Tilman (2005). Nuevas perspectivas para el Programa MaB y las Reservas de Biosfera. Lecciones aprendidas en América Latina y el Caribe. South-South Cooperation Programme. Working Paper N° 35, 2005, Paris.
- World Heritage Convention and main multilateral environmental agreements. WHC-09/33.COM/5C

Websites of interest

- <http://www.unesco.org>
- www.unesco.org.uy/
- www.unesco.org/mab/wnbr.htm

Lecture No. 5

Theme: Convention on Wetlands of International Importance especially as Waterfowl Habitat

Topics	Objectives
5.1. The Ramsar Convention	To provide a general overview of this convention, which aims to protect wetlands (specific natural heritage ecosystems)
5.2. Wetland definition, classification and types under the Ramsar Convention	To offer further information on these ecosystems, their definition and types
5.3. Designation criteria for wetlands of international importance	To have a broad outlook on Ramsar List inscription criteria and discuss similarities to the Outstanding Universal Value assessment criteria under the World Heritage Convention
5.4 The Montreux List	To review points of contact with the Endangered Site List under the World Heritage Convention
5.5. Current List situation	To give complementary information on Ramsar sites in the region

5.1 The Ramsar Convention

The Convention on Wetlands of International Importance especially as Waterfowl Habitat, also called the Ramsar Convention, provides an ideal framework for national action and international cooperation seeking to conserve and make rational use of wetlands and the resources thereof. The Convention was adopted in the Iranian city of Ramsar on February 2, 1971, and entered into force in 1975. The official name of this instrument is: Convention on Wetlands of International Importance especially as Waterfowl Habitat. Ramsar became the first modern intergovernmental treaty related to the conservation and sustainable use of natural resources. It is the only global instrument on the environment which deals with a specific ecosystem, and the Contracting Parties cover all geographical regions of the world.

5.2 Wetland definition, classification and types under the Ramsar Convention

For the purpose of this Convention, wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres. Wetlands also include habitats having hydromorphic soil, hydrophilic vegetation and/or water conditions. For the purpose of protecting these sites in a comprehensive and consistent manner, the boundaries of each wetland shall be precisely described and delimited on a map,

and they may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands, especially where they have importance as waterfowl habitat. Considering the environmental functions wetlands perform, they have often been referred to as kidneys of the planet.

There are wetlands all over the Caribbean due to the island condition of this region. The list of outstanding wetlands in the area includes Ciénaga de Zapata (Cuba), the largest and one of the best conserved; Máximo River (Cuba), the main nesting place for flamingos (*Phoenicopterus ruber*) in the island Caribbean; Enriquillo Lake (Dominican Republic), situated 40 metres below sea level, unique in the world; and Caroni Swamp (Trinidad & Tobago), a dormitory site for abundant populations of scarlet ibis (*Eudocimus ruber*) that lend spectacular beauty to the area because of the red plumage of this species.

In general terms, there are five groups of natural wetlands: marine, estuarine, lacustrine, riparian, and marshy. There are also artificial wetlands, such as fish and shrimp breeding grounds, rice-growing fields, saltworks, dams, and canals.

The Ramsar Convention has adopted a wetland classification system of its own, which includes three categories: marine and coastal wetlands, continental wetlands, and artificial wetlands. The following is a general category framework for easy, rapid identification of major wetland habitats at each site.

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Marine and coastal wetlands	Permanent, shallow seawater and ground, marine and coastal water
	Subtidal sea beds
	Coral reefs
	Rocky coastlines
	Sandy or pebble beaches
	Estuaries
	Intertidal mud, sand or saline floors
	Swamps and marshes
	Intertidal wooded wetlands
	Lagoons
	Lakes
Continental wetlands	Karst and other systems
	Inner deltas
	Permanent rivers and streams
	Seasonal/intermittent/irregular rivers and streams
	Permanent lakes
	Seasonal/intermittent lakes
	Permanent lagoons
	Seasonal/intermittent lagoons and flood areas
	Permanent sea, brackish or alkaline water swamps, estuaries and ponds
	Seasonal/intermittent sea, brackish or alkaline water swamps, estuaries and ponds
	Permanent, fresh-water swamps, estuaries and ponds
	Inorganic soil, seasonal/intermittent fresh-water swamps, estuaries and ponds
	Non-wooded peat bogs
	Alpine/mountain wetlands
	Tundra wetlands
	Shrub-like vegetation swamps
	Wooded, fresh-water wetlands
	Wooded peat bogs
Fresh-water springs, oasis	
Geothermal wetlands	
Karst and other water systems	
Artificial wetlands	Aquiculture ponds
	Irrigation land
	Seasonally flooded agricultural land
	Saltworks
	Water storage areas
	Digging
	Wastewater treatment areas
	Transportation and drainage channels, ditches
	Karst and other groundwater systems

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5.3 Designation criteria for Wetlands of International Importance

The Ramsar Convention has a List of Wetlands of International Importance. Listed wetlands are included in a new national category and the international community recognizes that they have a significant value not only for the countries where they are situated but also for the entire world. This value should be based on their ecological, botanical, zoological, limnological or hydrological importance. These sites should meet the following selection criteria:

Group A: Sites featuring representative, rare or unique wetlands

Criterion 1: A wetland shall be considered to be of international importance if it contains a representative, rare or unique type of natural or almost natural wetland within an appropriate biogeographic territory.

Group B: Sites of international importance for biological diversity conservation

Species- and ecological-community-based criteria

Criterion 2: A wetland shall be considered to be of international importance if it sustains vulnerable, endangered or critically endangered species or ecological communities.

Criterion 3: A wetland shall be considered to be of international importance if it sustains plant and/or animal species that are significant for biological diversity conservation in a certain biogeographic region.

Criterion 4: A wetland shall be considered to be of international importance if it sustains plant and/or animal species in a critical stage of the biological cycle, or provides them with refuge under adverse conditions.

Specific waterfowl-based criteria

Criterion 5: A wetland shall be considered to be of international importance if it sustains a population of over 20,000 waterfowl on a regular basis.

Criterion 6: A wetland shall be considered to be of international importance if it sustains one percent of the individuals in a population

of waterfowl species or subspecies on a regular basis.

Specific fish-based criteria

Criterion 7: A wetland shall be considered to be of international importance if it sustains a significant proportion of native fish species, subspecies or families, biological cycle stages, and species and/or population interactions representing the benefits and/or values of a wetland and helping conserve biological diversity in the world.

Criterion 8: A wetland shall be considered to be of international importance if it is a major source of feed supply to fish, a spawning area, a development and growth area, and/or a critical migratory route for fish in and out of the wetland.

Specific other-species-based criteria

Criterion 9: A wetland shall be considered to be of international importance if it regularly supports one percent of the individuals in a population of a species or subspecies other than fowl and fish that is dependent on the wetland.

5.4 The Montreux List

The Montreux List contains the wetlands inscribed on the List of Wetlands of International Importance whenever the ecological character of such wetlands has changed, is changing or is likely to change as a result of technological developments, pollution, or any other human interference. The Convention defines "ecological character" and "change in the ecological character", and provides a wetland risk assessment framework. These definitions should be used to identify national and international priority sites for conservation purposes. The Contracting Parties can voluntarily inscribe a site on the List if:

- a. national commitment to dealing with such changes facilitates the task;
- b. emphasis on particularly serious cases is useful at the national and/or international level;
- c. a positive approach by national and international conservation circles favors the site; and/or
- d. the inscription on the List smoothes out the process of allocation of financial resources.

5.5 Current List situation

There are wetlands everywhere in the world, from tundra to the tropics. The number of Contracting

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Parties to the Convention had stood at 158 by October 2008, while the List of Wetlands of International Importance contained 1,758 sites covering 161.3 million hectares at the time. A number of Ramsar sites are, contain, or form part of World Heritage sites, such as Sian Ka'an in Mexico, Isla de Coco in Costa Rica, and the Everglades in the United States of America.

There were 42 Caribbean sites on the Ramsar List by May 29, 2008.

Country or territory	Site	Inscription date	Number of hectares
Antigua & Barbuda	Codrington Lagoon	02/06/05	3,600
Bahamas	Inagua National Park	07/02/97	32,600
Barbados	Graeme Hall Swamp	12/12/05	33
Belize	Crooked Tree Wildlife Sanctuary	22/04/98	6,637
	Sarstoon Temash National Park	19/10/05	16,955
Cuba	Ciénaga de Zapata	12/04/01	452,000
	Buenavista	18/11/02	313,500
	Ciénaga de Lanier and Southern Isle of Youth	18/11/02	126,200
	Northern Ciego de Ávila Wetland	18/11/02	226,875
	Cauto Delta Wetland	18/11/02	47,836
Dominican Republic	Máximo-Cagüey River Wetland	18/11/02	22,000
	Herniquillo Lake	15/05/02	20,000
Jamaica	Black River Lower Morass	07/10/97	5,700
	Palisadoes – Port Royal	22/04/05	7,523
Saint Lucia	Portland Bight Wetlands and Cays	02/02/06	24,542
	Mankoté Mangrove	19/02/02	60
Surinam	Savannes Bay	19/02/02	25
	Coppenamemonding Saramacca	22/07/85	12,000
Trinidad & Tobago	Buccoo Reef / Bon Accord Lagoon Complex	08/07/05	1,287
	Caroni Swamp	08/07/05	8,398
	Nariva Swamp	21/12/92	6,234
French Guyana	Basse-Mana	08/12/93	59,000
	Marais de Kaw	08/12/93	137,000
	Estuaire du fleuve Sinnamary	15/09/08	28,400
Martinique	Etang des Salines	15/09/08	207
Guadeloupe	Grand Cul-de-Sac Marin de la Guadeloupe	08/12/93	20,000
Aruba	Het Spaans Lagoen	23/05/80	70
	De Slagbaai	23/05/80	90
Bonaire	Het Gotomeer	23/05/80	150
	Het Lac	23/05/80	700
	Het Pekelmeer	23/05/80	400
	Klein Bonaire Island & adjacent sea	23/05/80	600
Cayman Islands	Booby Pond & Rookery	21/09/94	82
Bermuda	Hungry Bay Mangrove Swamp	11/05/99	2

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Country or territory	Site	Inscription date	Number of hectares
Bermuda	Lover's Lake Nature Reserve	11/05/99	2
	Paget Marsh	11/05/99	11
	Pembroke Marsh East	11/05/99	8
	Somerset Long Bay Pond	11/05/99	1
	Spittal Pond	11/05/99	10
	Warwick Pond	11/05/99	2
Turks & Caicos	North, Middle & East Caicos Islands	27/06/90	58,617
British Virgin Islands	Western Salt Ponds of Anegada	11/05/99	1071

Basic bibliography

- Ramsar Convention Secretariat, 2006. The Ramsar Convention Manual: A guide to the Convention on Wetlands (Ramsar, Iran, 1971), 4th ed. Ramsar Convention Secretariat, Gland, Switzerland.

Complementary bibliography

- World Heritage Convention and main multilateral environmental agreements. WHC-09/33.COM/5C

Websites of interest

- Regional Ramsar Centre: <http://www.creho.org/>
- Ramsar Convention: <http://www.ramsar.org/>
- Wetland International: <http://www.wetlands.org/>

Lecture No. 6

Theme: Convention on Biological Diversity

Topics	Objectives
6.1. Convention origins	To provide information about the origins of a convention that aims to protect and use biological diversity
6.2. Convention objectives	To review the objectives of this instrument
6.3. Convention goals	To go over the short- and mid-term goals of the Convention
6.4. Convention work programmes	To analyze mainly the Protected Area Work Programme
6.5. Ecosystem approach	To highlight the importance of the interrelationship between the natural heritage and its surroundings

6.1 Convention origins

The first efforts to establish ecological security principles were made at the United Nations Conference on the Human Environment in Stockholm (Sweden) in 1972. A large number of groups and coalitions have ever since made significant contributions to sustainable development principles.

In early 1983, the United Nations began to express concern over these issues and the impact of climate change on life on this planet. In 1987, a commission headed by Dr. Gro Harlem Brundtland urged to develop a new charter that would further strengthen and expand relevant legal principles guiding State actions toward sustainable development. The term sustainable development was first used in her report and was defined as meeting the needs of present and future generations. This was a major change as emphasis was placed on sustainability, mainly ecological, and on a framework covering the economic and social dimensions of development.

In November 1989, the United Nations Environment Programme (UNEP) established an ad hoc Expert Working Group on Biological Diversity to explore the need for a convention addressing basic growing-population needs and the strain on natural resources. The Group submitted the draft Convention on Biological Diversity for consideration and approval at a conference held in Nairobi in May 1992. It was finalized at the Conference on Environment and Development in Rio de Janeiro in June 1992, and entered into force in 1993. The Convention now has 188 Contracting Parties.

The so-called Rio Summit was attended by 172 countries, including 108 heads of state, and 2,400

representatives of non-governmental organizations. The Conference developed key instruments such as Agenda 21, the Forestry Principled Declaration, the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity, and the Rio Declaration on Environment and Development.

The Summit seriously addressed the issues of environment and development for the first time and sought to secure the implementation of decisions. It helped clarify and reveal the interrelationship between natural resources and development. The dissemination of these ideas became a global awareness-raising exercise about the impact of human actions on nature.

The Convention has been considered the first world arrangement applying a comprehensive approach to biological diversity, including genetic resources, species and ecosystems. It recognized for the first time that biological diversity conservation is a common interest of humanity and an integral part of the development process.

6.2 Convention objectives

The objectives of this Convention 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.”

It establishes a global agenda for the conservation and rational use of biological diversity, and promotes synergy and coordination with related conventions: the World Heritage Convention, the Ramsar Convention, the Convention on the Conservation of Migratory Species of Wild Animals, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

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In its Article 8 on in-situ conservation, the Convention asks the Contracting Parties to:

- (a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity; and
- (d) Promote the protection of ecosystems and natural habitats, and the maintenance of viable populations of species in natural surroundings.

6.3 Convention goals

In 2002, ten years after the Convention was open for signature, a decision was made to develop a framework to improve the evaluation over the progress made in the implementation of the Strategic Plan, reduce the loss of biological diversity at the national, regional and global levels, and pursue the objectives of the Convention by 2010 in a more effective and consistent manner:

- a. To reduce the loss of biological diversity components, particularly:
 - i. biomes, habitats and ecosystems;
 - ii. species and populations; and
 - iii. genetic diversity;
- b. To promote the sustainable use of biological diversity;
- c. To address the main threats to biological diversity, including those posed by exotic invasive species, climate change, pollution and habitat change;
- d. To preserve ecosystem integrity and secure biological-diversity-provided goods and services to enhance human well-being;
- e. To protect traditional knowledge, innovation and practices;
- f. To guarantee the fair and equitable sharing of the benefits arising out of the utilization of genetic resources; and
- g. To mobilize technical and financial resources, especially for developing countries, in particular for the least developed countries, including small island states and transition economies, over the implementation of the Convention and the Strategic Plan.

6.4 Convention work programmes

The Convention has since its inception featured seven thematic work programmes:

1. Agricultural biodiversity
2. Inland water biodiversity
3. Island biodiversity
4. Arid and semiarid land biodiversity
5. Forest biodiversity
6. Marine and coastal biodiversity
7. Mountain biodiversity

At the Seventh Meeting in Kuala Lumpur in February 2004, the Conference of the Parties adopted a work programme on protected areas. The idea was to establish and operate comprehensive, effectively managed, ecologically representative national and regional protected area systems (for land areas by 2010 and for marine areas by 2012), helping pursue the objectives of the Convention and its goal for 2010, that is to say, reducing the loss of biological diversity at the national, subnational, regional and global levels, reducing poverty, and promoting sustainable development under the Convention's Strategic Plan, the Action Plan of the World Summit on Sustainable Development, and the Millennium Development Goals.

The work programme has four closely interrelated, intersectorial elements. They are based on the need to avoid unnecessary duplication of existing thematic work programmes and other initiatives under the Convention on Biological Diversity, and to promote synergy and coordination with relevant programmes of various international organizations. Each element has specific objectives, goals and activities to be implemented by the Parties to and the Secretariat of the Convention.

ELEMENT 1: Develop actions seeking to plan, establish, manage and strengthen protected area systems and sites.

Objective 1.1. Set up and consolidate national and regional protected area systems well integrated into a world network, as a contribution to globally agreed goals.

Goal: Enhance the world network of comprehensive, effectively managed, ecologically representative national and regional protected area systems, as a contribution to: (i) the goal of the Convention's Strategic Plan and of the World Summit on Sustainable Development (significantly reducing the loss of biological diversity by 2010); (ii) the Millennium Development Goals – especially Goal 7 (guaranteeing environmental sustainability); and (iii) the World Strategy for the Conservation of Plant Species.

Objective 1.2. Integrate protected areas into wider terrestrial and marine ecosystems to maintain ecological structures and functions.

Goal: Incorporate all protected areas and protected area systems into wider terrestrial and marine ecosystems and relevant sectors by 2015, applying the ecosystem approach and considering ecological connectivity and, wherever appropriate, ecological networks.

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Objective 1.3. Establish and strengthen regional networks and transboundary protected areas (TBPAs), and boost collaboration between and among protected areas in bordering countries.

Goal: Set up and further TBPAs, other cooperation arrangements between and among neighboring protected areas in bordering countries, and regional networks to enhance the conservation and sustainable use of biological diversity, applying the ecosystem approach and boosting international cooperation.

Objective 1.4. Substantially improve site-based protected area planning and management.

Goal: Have all protected areas under effective management by 2012, promoting highly participatory, scientifically based sites, clear objectives, goals, strategies and monitoring programmes, implementing the existing methodology and long-term management plans, and involving all parties concerned.

Objective 1.5. Prevent and mitigate the negative impact of serious threats to protected areas.

Goal: Establish effective mechanisms to identify, prevent and/or mitigate the negative impact of serious threats to protected areas by 2008.

ELEMENT 2. Promote governance, participation, equity and benefit sharing.

Objective 2.1. Further equity and benefit sharing.

Goal: Devise equitable cost and benefit sharing mechanisms for the establishment and management of protected areas by 2008.

Objective 2.2. Increase and consolidate participation by indigenous and local communities and all parties concerned.

Goal: Secure full, effective participation by indigenous and local communities, respecting their rights and recognizing their duties, in keeping with applicable national and international laws, and guarantee participation by other parties in managing existing areas and in establishing and managing new areas by 2008.

ELEMENT 3. Develop a favorable framework.

Objective 3.1. Provide protected areas with a favorable policy, institutional and socio-economic framework.

Goal: Make a policy review, including social and economic recognition and incentives, to develop a framework favorable to the establishment and effective management of protected areas and protected area systems.

Objective 3.2. Promote capacity building in planning, establishing and managing protected areas.

Goal: Implement capacity building programmes and initiatives to develop know-how and professional skills at the individual, community and institutional levels.

Objective 3.3. Develop, apply and transfer appropriate technologies for protected areas.

Goal: Develop, validate and transfer appropriate technologies and innovative approaches to effectively manage protected areas by 2010, taking into account the decisions made by the Conference of the Parties in connection with technology transfer and cooperation.

Objective 3.4. Guarantee financial sustainability in protected areas and national and regional protected area systems.

Goal: Seek the resources necessary to cover national and regional protected area system implementation and management costs from national and international sources by 2008, paying special attention to the needs of developing countries, transition economies and small island developing states.

Objective 3.5. Strengthen public education, communication and awareness raising.

Goal: Significantly increase public understanding and awareness about the importance of and the benefits to be derived from protected areas by 2008.

ELEMENT 4: Develop standards for protected areas.

Objective 4.1. Prepare and implement minimum standards for and incorporate best practices into national and regional protected area systems.

Goal: Develop and adopt standards, criteria and practices helping plan, set up and manage

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national and regional protected area systems by 2008.

Objective 4.2. Increase and evaluate the effectiveness of protected area management.

Goal: Develop and implement monitoring, evaluation and reporting mechanisms to manage protected areas, national and regional protected area systems, and transboundary protected areas by 2008.

Objective 4.3. Evaluate and monitor protected area situations and trends.

Goal: Establish effective monitoring systems at the national, regional and world levels by 2010.

Objective 4.4. Secure that scientific knowledge is used to establish and manage protected areas and protected area systems as effectively as possible.

Goal: Apply scientific knowledge to establish and manage protected areas.

Approach principles to promote step-by-step discussion over planning and action. The approach enables researchers and field workers to focus on a number of issues at the same time, including ecosystems, populations, challenges, and opportunities.

The principles are as follows:

1. Natural resource management objectives should be set by society.
2. Natural resource management should be decentralized at the lowest possible level.
3. Ecosystem managers should take into account the (actual and potential) impact of human activities on adjacent and other ecosystems.
4. Given potential ecosystem-generated benefits, it is necessary to manage these areas within an economic context. The management programme should:
 - i. minimize market distortions that can negatively affect biological diversity;
 - ii. provide incentives to promote the conservation and sustainable use of biological diversity; and
 - iii. try to balance ecosystem costs and benefits as much as possible.
5. The conservation of ecosystem structures and functions should be prioritized under the ecosystem approach.
6. Ecosystems should be managed to their limits.
7. The ecosystem approach should be applied on appropriate spatial and temporal scales.
8. Long-term objectives in ecosystem management should be set considering temporal scales and the time-delay effect that is typical of natural processes.
9. Change is inevitable in any management action.
10. The ecosystem approach should seek to strike a balance between conservation and use of biological diversity.
11. It should be based on scientific, indigenous and local knowledge, innovations and practices.
12. It should involve all social sectors and relevant scientific disciplines.

6.5 Ecosystem approach

The Convention applies the ecosystem approach to protected areas. This approach provides a basic framework for action under the Convention and helps strike a balance between its objectives. It is very relevant to the management of world heritage sites because most of them are protected areas. The latter are part and parcel of various, complex ecosystems that cover both sites and their surroundings. The approach makes it possible to understand the relationship between sites and wider terrestrial and marine ecosystems, and clearly identify the goods and services they provide. It should be applied not only at the national but also at the regional level wherever an ecosystem goes beyond national borders.

The IUCN Ecosystem Management Commission has produced a document containing the 12 Ecosystem

Basic bibliography

- Convention on Biological Diversity. Text and annexes. Canada, 2000. 41 p.
- Shepherd, Gill (2006). The Ecosystem Approach: Five Steps for its Implementation. IUCN, Gland, Switzerland, and Cambridge, UK. x + 30 pp.
- UNEP/CBD/COP/7/21. Decisions made by the Conference of the Parties to the Convention on Biological Diversity at the Seventh Meeting.

Complementary bibliography

- World Heritage Convention and main multilateral environmental agreements. WHC-09/33.COM/5C

Websites of interest

- Convention on Biological Diversity: <http://www.cbd.int/>
- GAIA: <http://www.gaia.org.mx/news.php>
- PNUMA/ORPALC: <http://www.pnuma.org/>

Lecture No. 7

Theme: Other conventions related to the World Heritage Convention

Topics	Objectives
7.1. Convention on International Trade in Endangered Species of Wild Fauna and Flora	To provide information on this convention, which seeks to protect endangered species of fauna and flora
7.2. Convention on the Conservation of Migratory Species of Wild Animals	To provide information on this convention, which is aimed at protecting migratory species
7.3. United Nations Convention on the Law of the Sea	To provide information on this convention, whose objective is to protect the marine environment
7.4. FAO and the Parks Network	To provide information on the FAO National Parks Network

There are major conventions and treaties under implementation by United Nations agencies, mainly UNEP, FAO, UNDP and UNESCO, which are directly or indirectly related to natural heritage protection.

7.1 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The Convention on International Trade in Endangered Species of Wild Fauna and Flora, known as CITES, is an international agreement between governments that regulate trade in endangered species of wild fauna and flora, and seeks to conserve species by controlling trade. It was signed by 21 countries on March 3, 1973, in Washington, and entered into force in 1975. A total of 174 countries (Contracting States) are parties to this Convention today.

International trade in wildlife species is estimated to amount to billions of dollars and negatively affects hundreds of millions of plant and animal species every year. It covers a wide range of specimens, from live animals and plants to products thereof, such as foodstuffs, leather goods, musical instruments, wood, souvenirs and medicines. Indiscriminate use of and trade in animals, along with other factors like natural habitat destruction, have considerably reduced populations and threatened some species with extinction. Many species under trade are not endangered, but the treaty seeks to secure sustainable trade to preserve these resources for future generations.

The Convention establishes a world trade-control network for endangered species and products thereof, which requires official export/import permits, exemption certificates, and other special provisions so

that any import and/or export can be well documented, including origin, destination and reason for trade.

Around 5,000 animal species and 28,000 plant species are covered by CITES. The Convention has several lists of species that are grouped, depending on how much endangered they are, into three appendixes. In some cases, they cover entire groups like primates, cetaceans (whales, dolphins and porpoises), sea turtles, corals, parrots, cactus and orchids. In some other cases, only a subspecies or a geographically separate population of some species (for example: a country population) is included.

- Appendix I includes all species threatened with extinction which are or may be affected by trade. Trade in specimens of these species must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized under exceptional circumstances, including scientific research. Trade is in these cases authorized through export permits (or re-export certificates) and imports permits.
- Appendix II includes all species which, although not necessarily now threatened with extinction, may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival. It also includes other species which must be subject to regulation in order that trade in specimens of certain species may be brought under effective control. Trade in animals and plants captured in or taken from the wild, and born in captivity or reproduced artificially, is permitted but regulated. Trade is authorized by issuing export permits or re-export certificates.

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- Appendix III includes all species which any Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation, and as needing the cooperation of other Parties in the control of trade. An export permit is required when the specimen is native to the country that has asked to include it herein. In any other cases, what is required is a certificate of origin issued by the Management Authority of the State of export or re-export.

7.2 Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or Bonn Convention)

The aim of this Convention is to help conserve migratory species of wild animals. Since its entry into force on November 1st, 1983, the number of Contracting Parties has been steadily growing, reaching 112 on August 1st, 2009. It includes countries of Africa, Central and South America, Asia, Europe, and Oceania.

The Convention has two appendixes containing all species of interest. The Contracting Parties help conserve not only these species but also their habitats, and include endangered species in Appendix I. They seek to restore their habitats, mitigate migration obstacles, and control other negative factors. The Convention establishes their obligations and promotes concerted action by them.

It focuses mainly on the conservation needs of the 117 species currently included in Appendix I.

The migratory species in need of or significantly benefiting from international cooperation are listed in Appendix II. The Convention encourages the Contracting Parties to reach regional and/or international cooperation agreements, ranging from binding treaties to memoranda of understanding.

Formal agreements should include well-coordinated plans to conserve and make rational use of species, specific provisions to conserve and restore habitats, migration control measures, research and follow-up activities, public education campaigns, and exchange of information between the Parties concerned.

7.3 United Nations Convention on the Law of the Sea (UNCLOS)

The United Nations Convention on the Law of the Sea was finalized in 1982 and entered into force in 1994, when it was ratified by the appropriate number of States Parties. It is internationally recognized as providing a regime for all issues pertaining to the law of

the sea and as giving States rights and responsibilities for the rational, sustainable use of the living resources of the sea.

It covers, inter alia, maritime zones, exclusive economic zones, continental shelf and high seas, rights of navigation, straits used for international navigation, archipelagic States, peace and security in the seas and oceans, conservation and management of living resources of the sea, protection and preservation of the marine environment, marine scientific research, and dispute settlement procedures.

The Convention utilizes terms, such as:

Territorial sea. Every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baselines determined in accordance with this Convention. Where the coasts of two States are opposite or adjacent to each other, neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the median line every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured. The above provision does not apply, however, where it is necessary by reason of historic title or other special circumstances to delimit the territorial seas of the two States in a way which is at variance therewith.

Contiguous zone. In a zone contiguous to its territorial sea, described as the contiguous zone, the coastal State may exercise the control necessary to:

- prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea; and
- punish infringement of the above laws and regulations committed within its territory or territorial sea.

The contiguous zone may not extend beyond 24 nautical miles from the baselines from which the breadth of the territorial sea is measured.

Exclusive economic zone. This is an area beyond and adjacent to the territorial sea, subject to the specific legal regime established herein. In the exclusive economic zone, the coastal State has:

- sovereign rights for the purpose of exploring, conserving and exploiting the natural resources, whether living or non-living, of the waters superjacent to the seabed and its subsoil, and with regard to other activities for the economic exploration and exploitation of the zone, such as the production of energy from the water, currents and winds;

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- jurisdiction as provided for in the relevant provisions of this Convention with regard to:
 - the establishment and use of artificial islands, installations and structures;
 - marine scientific research; and
 - the protection and preservation of the marine environment;
- other rights and duties provided for in this Convention.

The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

Continental shelf. It is the natural prolongation of a continent that is occasionally covered by relatively shallow waters. The shelf therefore stretches from the coast to the slope (called continental barrier). The seabed after this barrier is the continental slope. Right after the slope, there lies the continental rise, which meets the deep ocean floor (deep-sea plain).

The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, where the outer edge of the continental margin does not extend to that distance. On the other hand, the continental margin comprises the submerged prolongation of the land mass of the coastal

State, and consists of the seabed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.

7.4 FAO and the Parks Network

Supported by FAO, the Latin American Technical Cooperation Network for National Parks, Other Protected Areas, and Wild Flora and Fauna (REDPARQUES) was established in 1983 to address management needs and share know-how and expertise. It is made up of public and private institutions and experts of member states, and seeks to promote capacity building using regional technical, human and financial resources. Following a request from member countries, the FAO Regional Office in Santiago de Chile plays the role of Technical Secretariat.

Network programmes are based on five guiding principles:

- Promote technical cooperation between and among member countries through joint activities and experience sharing.
- Encourage training of human resources at all levels.
- Strengthen the technical capacity of national institutions to identify problems and devise appropriate solutions.
- Further develop regional knowledge and capabilities.
- Maximize human, material and financial resources in the area.

Basic bibliography

- CITES: <http://www.cites.es/citesapp/EI+Convenio+CITES/EIConvenioCITES.htm>
- Convention on Migratory Species: <http://www.cms.int/about/index.htm>.
- <http://www.rlc.fao.org/Foro/red/pdf/anex1.pdf>
- UNCLOS: http://www.un.org/Depts/los/convention_agreements/texts/unclos/closindx.htm

Complementary bibliography

- http://es.wikipedia.org/wiki/Convención_de_las_Naciones_Unidas_sobre_el_Derecho_del_mar
- http://es.wikipedia.org/wiki/Portal:Ciencias_naturales_y_formales
- <http://www.tematea.org/spanish/?q=node/50>
- Operational Guidelines for the Implementation of the World Heritage Convention (2008). WHC, UNESCO, Paris
- World Heritage Convention and main multilateral environmental agreements. WHC-09/33.COM/5C

Websites of interest

- Convention on Biological Diversity: <http://www.cbd.int/>
- GAIA: <http://www.gaia.org.mx/news.php>
- http://portal.unesco.org/culture/es/ev.php-URL_ID=36040&URL_DO=DO_PRINTPAGE&URL_SECTION=201.html
- PNUMA/VORPALC: <http://www.pnuma.org/>

Lecture No. 8

Theme: Protocol Concerning Specially Protected Areas and Wildlife (SPA W)

Topics	Objectives
8.1. The SPA W Protocol	To provide information on this Caribbean initiative
8.2. Specially Protected Areas	To highlight the importance of protected areas under this Protocol
8.3. SPA W selection criteria	To explain the selection criteria for significant natural heritage conservation sites

8.1 The SPA W Protocol

The Protocol Concerning Specially Protected Areas and Wildlife (SPA W) to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region was adopted at Kingston, Jamaica, on January 18, 1990. The Contracting Parties, conscious of the economic and social value of the marine environment, including coastal areas, and of their obligation to protect this environment due to the hydrographic and ecological characteristics of the region and its vulnerability to pollution, decided to establish this Protocol. It covers the Gulf of Mexico, the Caribbean Sea, and areas adjacent to the Atlantic Ocean, south of latitude 30°N and within 200 nautical miles from the Atlantic coasts of member States. SPA W is a legally binding instrument seeking to delimit and establish the protected areas required under the 1983 Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (known as the Cartagena Convention). The Protocol has been signed by States Parties to this Convention and entered into force in 2000.

8.2 Specially Protected Areas

SPA W designates Wider Caribbean areas in need of special protection, including unique ecosystems, habitats critical to threatened species, and areas economically or socially important to local populations.

Marine ecosystems in the Wider Caribbean are home to several threatened species, such as the manatee, the black coral, and a wide range of sea turtles and migratory birds. They are also used for fishing and tourist development, which are essential to the local economies. Biodiversity is vital to all and its protection in the Caribbean is indispensable. Many species generate irreplaceable goods and services for humans, including food, recreation, and air and water purification. The overall value of marine biodiversity

has been estimated at 20 trillion U.S. dollars, which is the world's annual gross domestic product several times over. The Wider Caribbean comprises a significant portion of these valuable, diverse resources.

Caribbean species and ecosystems are faced with various threats, including human activities like non-sustainable use of coastal areas and dumping of sewage, pesticides and oil in the water. Sewage is particularly problematic because it involves nutrients that stimulate excessive alga growth. These plants can prevent sunshine from reaching coral reefs, and consume fish-needed oxygen as they decompose. Inappropriate use of coastal areas often causes deforestation and erosion, which damage marine ecosystems. SPA W has three main goals:

1. Protect marine ecosystems to preserve their threatened species.
2. Protect other species so that they are not threatened.
3. Exchange information and technology, and promote training actions all over the region.

In this context, the Contracting Parties to the Protocol are asked to:

- establish and manage protected areas for unique ecosystems and threatened habitats;
- manage threatened species in a sustainable manner;
- help other Caribbean States protect their marine resources;
- prevent and control activities, such as the release of toxic substances and the introduction of exotic species harmful to marine life; and
- conduct research, allocate funding, and promote public awareness and education for the protection of natural resources.

SPA W also coordinates actions with world environmental conventions in the Wider Caribbean region, including

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the Convention on Biological Diversity, Ramsar, CITES, and several agreements on coral reefs.

The Contracting Parties to the Protocol have so far established over 300 protected areas and a Steering Group to facilitate the exchange of information between and among them. They have also developed and implemented regional recovery programmes for protected species like the manatee and six sea turtle species, which are currently threatened. They have set up a regional training and research centre in Guadeloupe.

8.3 SPAW selection criteria

The Protocol establishes common guidelines and criteria to help identify, select, manage and supply protected area information. There is a list for the purpose of identifying areas particularly important to the Wider Caribbean region, giving them priority in scientific and technical research, and protecting listed areas from any activity that could undermine their status.

The Protocol List is based on general principles and selection criteria:

- i. The List of Protected Areas includes sites devoted to conserve natural resources and make ecologically rational and appropriate use of such areas, as well to promote knowledge and recreation.
- ii. The listed areas should help:
 - protect and preserve habitats and species of special ecological, cultural and/or socio-economic value;
 - prevent species from becoming threatened or endangered; and
 - meet the special needs of threatened, endangered, endemic and migratory species.
- iii. The protected areas in the region will soon set up a network for effective natural heritage conservation in the Caribbean.
- iv. The Parties should develop bilateral and multilateral cooperation agreements on natural area conservation and management to make the network more effective. It will provide a tool to promote regional and international cooperation with regard to supplementary environmental treaties that are consistent with SPAW criteria and listing.
- v. The network should finally put in place a wide, representative protected area system covering all bioregions, ecosystems and ranges.
- vi. There is no limit to the number of areas to be included on the list and to the number of areas to be nominated by the Parties for inscription.
- vii. The areas will be selected on scientific, technical, cultural and socio-economic considerations, and will be included on the list in keeping with the criteria set out below.
- viii. The areas to be proposed for the list should have a legal, institutional and management framework in place for the protection and conservation of their natural features.
- ix. The network should, to the extent possible, help adapt to and mitigate the impact of climate change. The protection of functional habitats within the eco-region should help species better adapt to changing climate conditions and increase resilience in the ecoregion.

Any area to be included on the List of Protected Areas under the Protocol should meet the requirements thereto as well as the following criteria.

Ecological, cultural and socio-economic criteria

Protected areas will be established to sustain the natural resources of the Wider Caribbean region, and promote ecologically rational and appropriate use of these areas as well as knowledge and recreation, in keeping with the objectives and characteristics of each of them.

They need to meet at least one of the ecological criteria and, wherever applicable, one of the cultural and socio-economic criteria. When they meet other desirable criteria, they become all the more likely to be listed. They also need to be in line with appropriate long-term conservation elements that are to be included on the list.

Ecological criteria

- a. Representativeness. The area includes physiographic characteristics, species populations, habitats and ecosystems or ecological processes that are representative of the region or ecoregion.
- b. Species viability. The area contributes to manage flora and fauna species, subspecies and populations in a way that prevents them from becoming threatened or endangered.
- c. Rareness. The area conserves rare or unique species, habitats or ecosystems. An area or ecosystem is considered to be rare if it does not abound in the country or region, or if it is restricted to a limited geographical area. It may contain very limited habitats, or rare, endemic, threatened or endangered species whose distribution is restricted to a small area.
- d. Natural features. The degree to which the area has been protected from (or subject to) man-induced changes. The natural environment

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should ideally be free from any man-made biophysical disturbance.

- e. Critical habitats. The area features populations, habitats or ecosystems that are crucial to the survival and recovery of threatened, endangered, endemic or Protocol-listed species.
- f. Diversity. The area has the all the species, communities, ecosystems, marine and terrestrial landscapes, and genetic diversity necessary to ensure long-term viability and integrity, especially of threatened, endangered, endemic and/or Protocol-listed species.
- g. Connectivity or coherence. The area is adjacent to, ecologically connected with, or situated within an ecological or biological corridor, thereby helping maintain the ecological integrity of the Wider Caribbean region. This criterion can apply to protected areas within a country or extending beyond a country's borders.
- h. Resilience. The area contains biological components (habitats and/or species populations) that have managed to recover from disturbances within reasonable timeframes or are naturally resilient to the impact of climate change. The protection of this area, which is a source of larva and juvenile specimens, helps recover affected ecosystems in any place of the ecoregion.

Cultural and socio-economic criteria

- a. Productivity. The protected area helps conserve, maintain or restore the natural processes that increase man-used natural resources and consequently boost sustainable development efforts in the region.
- b. Cultural and traditional use. The protected area is of enormous value to the conservation, maintenance and/or restoration of biological integrity and productivity of natural resources that promote sustainable, traditional or cultural activities in indigenous communities and the region at large.
- c. Socio-economic benefits. The protected area is of enormous value to the conservation,

maintenance and/or restoration of biological integrity and productivity of natural resources that generate economic or social benefits for population groups such as subsistence fishermen and rural communities, or for sectors like tourism.

Legal framework criteria

The protected area legal status should ensure effective, long-term protection under the national and international legislation in force and the SPAW Protocol.

Planning, protection and management measures

Any protected area on the List should have a management framework and an implementation mechanism in place, in keeping with the following:

- a. The protected area should have its management framework adopted by the Contracting Party, specifying the legal and institutional framework in place and the protection measures to be implemented in the area under Article 6 of the Protocol.
- b. The protected area should have a functional management body duly empowered and equipped to implement the management framework.
- c. The area conservation and management objectives should be clearly defined in the nomination-supporting documents, the management guidelines, and the management framework, and they should be pursued under Article 5.2 of the Protocol.
- d. The protected area management framework should be integrated, whenever possible, into the general planning framework developed by the Party.
- e. Planning, management and law-enforcement measures should be based on available traditional, scientific, technical and management-oriented information and knowledge. The management framework should include the formulation and implementation of programmes seeking to bridge information and knowledge gaps.

Basic bibliography

- United Nations Environment Programme. UNEP (DEPI)/CAR IG.25/3. Evaluation guidelines and criteria for protected areas to be listed under the SPAW Protocol. 4th Meeting of the Contracting Parties to the Protocol Concerning Specially Protected Areas and Wildlife (SPAW) in the Wider Caribbean Region. Montego Bay, Jamaica, November 2006.

Complementary bibliography

- • UNEP: <http://www.unep.org/>

Website of interest

- Caribbean Environmental Programme, UNEP Regional Coordinating Unit: <http://www.cep.unep.org>

Lecture No. 9

Theme: International NGOs and natural heritage conservation

Topics	Objectives
9.1. International Union for the Conservation of Nature	To provide information on the role of this NGO in conserving the natural heritage and on its ties with the World Heritage Committee
9.2. BirdLife International	To provide information on IBAs in bird protection
9.3. Conservation International	To provide information on hotspots and their significance
9.4. The Nature Conservancy	To provide information on the objectives and goals of this NGO
9.5. Wildlife Conservation Society	To provide information on the objectives and goals of this NGO
9.6. World Wide Fund for Nature	To provide information on the Global List 200
9.7. Caribbean Natural Resources Institute	To provide information on this regional NGO

Many non-governmental organizations (NGOs) were established in the second half of the 20th century. They have focused mainly on environmental preservation and conservation, the rational use of natural resources, the dissemination of information on the natural heritage, and the development of natural site management tools, including site selection, classification, evaluation and research methodologies, and financing schemes. They have made a significant contribution to natural heritage conservation and information dissemination.

9.1 International Union for the Conservation of Nature (IUCN)

With its headquarters in Gland (Switzerland), the International Union for the Conservation of Nature (IUCN) was established in 1948 to promote conservation actions. Its unique structure is made up of over 10,000 specialists and experts, and 1,000 member organizations, including 81 States, 113 government agencies, and around 850 NGOs. Its Expert Commissions are:

- Commission on Education and Communication
- Commission on Environmental, Economic and Social Policy
- Commission on Environmental Law
- Commission on Ecosystem Management
- Commission on Species Survival
- Commission on World Protected Areas

The commissions make up a network of scientists, experts and volunteers involved in IUCN conservation, advising and work programme implementation, seeking to influence, encourage and help countries all over the world preserve natural integrity and diversity,

and ensure equitable, ecologically sustainable use of natural resources.

IUCN is the consultative body of the World Heritage Convention Heritage Committee, and its mission is to review nominations for inscription on the Heritage List, monitor the conservation status of world natural heritage sites, deal with international assistance requests from States Parties, and support capacity building actions.

9.2 Birdlife International

Operating in over 100 countries of the world, BirdLife International is a network of conservation organizations seeking to protect bird habitats and global diversity, and actively promote sustainable use of natural resources by:

- preventing bird species from extinction;
- maintaining and, whenever possible, improving bird conservation status;
- preserving and, whenever possible, increasing the number and size of major bird habitats and sites;
- contributing to biological diversity conservation and improving quality of life; and
- integrating bird conservation into natural resource management for the benefit of people and biodiversity.

BirdLife has developed the Important Bird Areas (IBAs) Programme to ensure long-term conservation of places critical to birds and biodiversity.

IBAs are duly identified conservation sites for:

- endangered species worldwide;
- restricted range species in endemic bird areas;

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- biome characteristic birds;
- congregations; and
- internationally important bird places.

IBAs are selected under internationally agreed, standardized criteria:

- They should be big enough to sustain major bird populations.
- They should be managed from a conservation perspective and, to the extent possible, clearly delimited.
- They should be established, preferably and wherever possible, in existing natural protected areas.
- They should be integrated into comprehensive conservation areas covering species, sites, habitats and people.

The Caribbean region has been given top priority by BirdLife because this area is home to 560 bird species, including endemic species (over 25 percent) and 56 threatened species. Its regional programme has been under implementation since 2000, focusing on integrated bird conservation actions.

9.3 Conservation International (CI)

Conservation International (CI) seeks to secure planet health and productivity for the benefit of all. The so-called biodiversity hotspots are a valuable contribution to conservation.

The concept was developed by British ecologist Norman Myers in 1988 to identify the most important, prioritized areas for biological diversity conservation, as it was literally impossible to face the problem in all its magnitude at that time. Conservation International has established 34 biodiversity hotspots all over the world, including the Caribbean. They cover 2.3 percent of the land area on the planet. They are all exposed to extreme threats and have lost at least 70 percent of original vegetation. Over 50 percent of plant species and 42 percent of vertebrate species are endemic at these hotspots.

The island Caribbean hotspot is composed mainly of three island groups between North and South America: the Bahamas and the Greater and Lesser Antilles. It covers around four million square kilometers, including 230,000 million of the land area (90 percent) on four islands (Cuba, Hispaniola, Jamaica, and Puerto Rico).

9.4 The Nature Conservancy (TNC)

The Nature Conservancy (TNC) is an international NGO seeking to conserve plants, animals and natural communities that are representative of biodiversity on Earth by protecting land and water resources they

need to survive. Founded in 1951, TNC is currently operating in over 30 countries and has some 400 offices throughout the world. It has helped protect more than 48 million hectares of land around the globe through innovative strategies. They include 33 million hectares of natural areas in Latin America and the Caribbean, which have been acquired and protected using federal funds. TNC has also helped develop a biological inventorying of over 50,000 species and ecological communities.

It protects specific places for long-term plant and animal survival by conducting scientific studies on a regular basis to identify the most suitable, flora-and-fauna-rich areas.

The Bahamian Government launched the Caribbean Challenge Initiative in May 2008, at the 9th Conference of the Parties to the Convention on Biological Diversity, held in Bonn (Germany). Supported by TNC, the initiative involves five Caribbean countries: the Bahamas, the Dominican Republic, Jamaica, Grenada, and Saint Vincent & the Grenadines. The idea is to conserve at least 20 percent of their marine resources by 2020. Other countries and territories in the area are also working along these lines, including Antigua & Barbuda, U.S. Virgin Islands, Cayman Islands, Saint Lucia, and Saint Kitts & Nevis.

9.5 Wildlife Conservation Society (WCS)

Originally established in 1895 as the New York Zoological Society, the Wildlife Conservation Society (WCS) adopted its current name in 1993. Its mission is to protect wild flora and fauna around the world. In the early 20th century, it helped recover the American bison in the western prairies of the United States. It is currently seeking to protect emblematic species like the Congo gorilla, the Indian tiger, and the Arctic polar bear, and it is implementing around 500 conservation projects in over 60 countries.

Committed to protecting 25 percent of biological diversity in the world, WCS is making special efforts to deal with four major wildlife issues: climate change, irrational use of natural resources, wildlife/human-health interrelationship, and sustainable, human development.

9.6 World Wide Fund for Nature (WWF)

The originally established World Wildlife Fund (WWF) became the World Wide Fund for Nature, an active conservation organization that has for over 45 years protected the future of the natural environment. Its five million members are presently working in more than 100 countries around the globe.

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WWF works for a living planet, and its mission is to stop environmental degradation on Earth and build an environmentally friendly future by:

- conserving world biodiversity;
- securing sustainable use of renewable natural resources; and
- promoting pollution and over-consumption reduction measures.

This NGO is committed to redressing environmental degradation on Earth and building a future based on harmony between humans and nature. It attaches utmost importance to poverty alleviation and changes in consumption patterns. It has divided the planet into (terrestrial, freshwater and marine) ecoregions under the so-called Global 200 List.

The List actually contains 238 ecoregions, made up of 142 terrestrial, 53 freshwater and 43 marine ecoregions, which have resulted from extensive studies of 19 major habitat types. Selection of the ecoregions was based on analyses of species richness, species endemism, unique higher taxa, unusual ecological or evolutionary phenomena, and global rarity of major habitat types. All these ecoregions are assigned specific conservation statuses. Over half of them are considered to have endangered species.

The List encompasses all types of major habitats, ecosystems and species on each continent, including

tropical rainforests, coral reefs, etc. The ecoregion is used as a scale unit for comparative purposes.

Two Caribbean ecoregions appear below.

9.7 Caribbean Natural Resources Institute (CANARI)

The Caribbean Natural Resources Institute (CANARI) is an organization operating in Saint Lucia, Saint Croix, and Trinidad & Tobago. With its headquarters in Port of Spain, it seeks to promote equitable participation and effective cooperation in managing natural resources that are indispensable to development projects.

It has been referred to as CANARI since 1989, but it had in the past been called the Rockefeller Brothers Fund (RBF) Initiative, the University of Michigan School for Natural Resources (UM-SNR), and the Eastern Caribbean Natural Area Management Programme (ECNAMP).

Since its inception, it has been constantly reviewing its programmes and developing new concepts so that its strategic guidelines are in line with regional and global developments, conducting research, implementing monitoring actions, innovative policies and new approaches to governance, exchanging and disseminating lessons learnt, and promoting regional capacity building and cooperation.

Code	Ecoregion	Ecozone	Biomes	Countries
037	Greater Antilles rainforests	Neo-tropic	Tropical rainforests	Cuba, Dominican Republic, and Puerto Rico
062	Greater Antilles pine forests	Neo-tropic	Tropical and subtropical coniferous forests	Cuba, Dominican Republic, and Haiti

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Basic bibliography

- BirdLife: <http://www.birdlife.org/index.html>
- Conservation International (CI): www.conservation.org/
- Fauna and Flora International (FFI): <http://www.fauna-flora.org/>
- http://es.wikipedia.org/wiki/Global_200
- The Nature Conservancy (TNC): <http://www.nature.org/?src=logo>
- IUCN: <http://cms.iucn.org/>
- Wildlife Conservation Society (WCS): <http://www.wcs.org>
- World Wildlife Fund for Nature (WWF): <http://www.worldwildlife.org/>

Complementary bibliography

- <http://conserveonline.org/>
- <http://www.biodiversityhotspots.org/xp/hotspots/caribbean/Pages/default.aspx>
- <http://www.canari.org/default.asp>
- <http://www.maweb.org/en/Index.aspx>
- The Nature Conservancy (TNC) (2002). Conservation design: A scheme for success
- World Heritage Convention and main multilateral environmental agreements. WHC-09/33.COM/5C

Websites of interest

- World Commission on Protected Areas: <http://cms.iucn.org/about/union/commissions/wcpa/index.cfm>
- <http://www.birdlife.org/regional/caribbean/>
- <http://www.wwf.es/>
- Millennium Ecosystem Assessment: <http://www.maweb.org/en/index.aspx>

Lecture No. 10

Theme: Main natural heritage problems and threats

Topics	Objectives
10.1. Human activities and global developments	To highlight nature-society interrelationship
10.2. Main threats	To provide information on the main threats to the natural heritage

10.1 Human activities and global developments

Ecosystems are being negatively affected by human action on a local, regional and global scale, and the use of natural resources and functions is largely influenced by culture. Humanity cannot be considered a single, homogeneous whole because not all peoples have the same interests or interact with nature in the same way.

A UNEP study over the last three decades showed that environmental degradation in Latin America and the Caribbean is increasing. It is associated with population growth, unequal income distribution, limited planning, and heavy reliance on natural resources. The most serious environmental problems in coastal and marine areas of the region include natural habitat changes and destruction due to tourist projects; infrastructure, urbanization, agricultural and fish farming development; and overuse of fishing resources (UNEP, 2003). The study anticipated that these problems would be further compounded by climate change and sea level rise, particularly in the Caribbean.

The system made up of the biosphere and interrelated abiotic factors has self-regulating mechanisms, but their maximum capacity is about to be reached. Exceeding such a limit will damage the entire system. There is an urgent need to face pressing problems and develop integrated approaches and concepts to put good ideas and commitments into practice. The current environmental situation is closely related to social, economic, cultural and political development. Environmental problems usually arise from the search for immediate economic benefits without considering the potential negative impact of such actions. In this context, the rich, diverse natural environment of the region is faced with a wide range of threats.

10.2. Main threats

The Caribbean natural heritage is under economic and social development pressure. This includes tourist,

agricultural, livestock production, fisheries, mining and urban projects, and makes it extremely difficult for small island states to manage these sites. The main threats include:

- **Non-sustainable, ever-expanding agriculture**

Forests are being destroyed to develop wood, livestock, food and biofuel production. According to the 2005 Millennium Ecosystem Assessment, forest destruction continues at an incredible rate (13 million hectares per year). Over 35 percent of mangroves in data-contributing countries and 12 to 52 percent of higher taxonomic species under study are actually endangered.

- **Oil and mining development**

The damage caused by mining and oil/gas production projects seems to be irreversible. Oil extraction, for example, reduced the habitat of the Arab Oryx in such a way that the species was no longer viable in an area where it used to be the Outstanding Universal Value. This became the first site that had to be removed from the Convention List at the 31st Session of the World Heritage Committee in Christchurch (New Zealand) in 2007.

- **Tourism**

Tourist development projects can negatively affect mangroves and coastal areas (including coral reefs) and exceed maximum load capacities. The 33rd Session of the World Heritage Committee in Seville (Spain) in 2009 decided to include the Belize barrier reef reserve system on the endangered site list because unmanaged tourism had been threatening the system, which is the Outstanding Universal Value of this site.

- **Illegal hunting and fishing, deforestation, and overuse of natural resources**

The extraction of natural resources does not cost anything; it merely requires some effort by those involved in the action. Local socio-economic conditions often put high pressure on these resources, because people try to improve living

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conditions by directly using or illegally selling them. This is the case of exotic or very rare species whose demand has been growing lately. Most of these animals die as a result of inappropriate transportation conditions or feeding, or disease. The region has high population density and rich biodiversity, but very small economies.

- **Exotic species**

Increased travel, trade and tourism have made exotic species introduction rates go up. They can become biological pollutants and affect trophic chain regulation because newly introduced species usually compete with native species, feed on or live as parasite in them, occupy their niches, and change habitats. They can become invasive species as they do not have any natural regulators to strike a balance in the new habitats.

- **Urban and infrastructure development**

Urban and infrastructure development projects change natural cycles because they call for resources (including energy) from other sites and cannot recycle wastes. The fact that many small Caribbean islands have high population density

poses quite a challenge to sustainable development efforts. Density per square kilometer in this area is as follows: Bermuda, 1,220; Barbados, 643; Aruba, 554; Saint Martin, 551; Puerto Rico 449, Martinique, 360; Haiti, 348, U.S. Virgin Islands, 328; Grenada, 306, Saint Lucia, 293; Saint Vincent & the Grenadines, 273; and Jamaica and Trinidad & Tobago, 255, just to mention a few.

- **Climate change**

Climate change is a critical issue today and is closely related to greenhouse gases and aerosols ejected into the atmosphere as a result of human activities that can have a negative impact not only on the natural environment but also on society. This poses a direct threat to the outstanding universal values of world heritage sites. The Caribbean is highly sensitive to such an impact, including a rise in temperature and sea level that causes increasingly intense, frequent weather events and damages biodiversity (resulting in coral bleaching, for example). UNESCO's World Heritage Committee and other international organizations are implementing different activities to face this threat. They include 16 "Case Studies on Climate Change on World Heritage."

Basic bibliography

- Arguedas Mora, Stanley (2002). Las tendencias globales, las áreas protegidas y el enfoque ecosistémico. Latin American School of Protected Areas (ELAP). University for International Cooperation (UCI), San José, Costa Rica.
- Bandarin, Francesco, et al (2007). World Heritage: Challenges for the Millennium, UNESCO. World Heritage Centre.
- Colette, Augustin (leading author); Rao, Kishore (supervisor and coordinator; et al (2007). Case Studies on Climate Change on World Heritage. UNESCO. World Heritage Centre.
- Jaeger, Tilman (2005). Nuevas perspectivas para el Programa MaB y las Reservas de Biosfera. Lecciones aprendidas en América Latina y el Caribe. South-South Cooperation Programme. Working Document N° 35, 2005, Paris.
- Stovel, Herbert S. CCBP, Caribbean Capacity Building Programme on World Heritage. Module 3: Risk management. UNESCO Regional Office for Culture in Latin America and the Caribbean, Havana, Cuba.

Complementary bibliography

- Badman, Tim and Dingwall, Paul (leading authors) (2007). World Heritage Nominations for Natural Properties. A resources manual for practitioners. WCPA-IUCN and UNESCO. World Heritage Centre.
- Duarte, Carlos M. (coordinator) (2006). Cambio global: Impacto de la actividad humana sobre el sistema Tierra. Higher Scientific Research Council, Madrid, Spain.
- http://es.wikipedia.org/wiki/Lista_de_pa%C3%ADses_por_densidad_de_poblaci%C3%B3n
- World Heritage (issue 42), June 2006. UNESCO. World Heritage Centre.

Website of interest

- <http://www.gcrio.org/ocp2001/>

Lecture No. 11

Theme: Natural heritage site management instruments

Topics	Objectives
11.1. Forms of conservation	To review the main, most widely used conservation instruments
11.2. Protected Area definitions and objectives	To define the concept and general objectives of a protected area as a major conservation instrument
11.3. Management categories	To describe the main categories used for natural heritage conservation at protected areas
11.4. Planning cycle	To provide information on different plans and show how interrelated they all are

11.1 Forms of conservation

There are various tools and instruments used for natural heritage conservation, protection and management. They include country policies, legal frameworks, national implementing agencies, intersectoral coordination and control mechanisms, heritage education and information dissemination programmes, and conservation, protection, management and restoration plans.

The list of legal standards covers monument, heritage and environmental laws, and specific legislation on certain resources, activities and territories. These resources include forestry, fisheries and mining, as well as those related to biological diversity, and coastal and mountain areas.

There are also plans to implement actions and pursue objectives within pre-established timeframes. They may cover a site, a country or a group of countries making up a region.

Ex situ conservation is used for biological diversity related heritage, and means the conservation of components of biological diversity outside their natural habitats. Zoos, botanical gardens, aquariums, and gene banks are established for this purpose.

The most important and viable long-term modality, however, has to do with in situ conservation, which means the conservation of genes, species, ecosystems and natural habitats through specific measures such as regulating the use of natural resources, introducing sustainable practices, rehabilitating and restoring degraded ecosystems and habitats, enacting endangered species protection laws, and establishing protected areas.

Protected areas have played a critical role not only in conserving biological diversity and providing

environmental services but also in protecting threatened human communities and places of cultural and spiritual value. They have provided a basic tool for national and international conservation strategies that have been supported by governments and international instruments like the Convention on Biological Diversity.

11.2 Protected Area definitions and objectives

The first Protected Area definitions focused on a geographically defined area that was used to achieve specific conservation objectives. With the advent of new concepts like sustainable development, they started to change and expand to include areas where the use of natural resources and human action became increasingly intense and self-evident.

The importance of protected areas in the implementation of the Convention on Biological Diversity has been repeatedly emphasized in decisions made by the Conference of the Parties (CoP). As indicated in Lecture No. 6, the 7th CoP held in Kuala Lumpur in February 2004 adopted a specific work programme on protected areas.

According to the 1992 Convention on Biological Diversity, a protected area is *"a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives."*

In 2009, IUCN developed a new definition:

"A geographical space clearly defined, recognized, dedicated and managed through legal or any other effective means to achieve long-term conservation of nature, its ecosystem services, and related cultural values."

General objectives of protected areas:

- Conserve biological diversity, evolutionary processes, genetic resources as they occur

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in nature, fragile ecosystems and habitats representative of genetic diversity, and endemic and endangered wild species;

- Conserve biotic communities, biogeographic units, and physiographic regions in a country;
- Help formulate and implement regional conservation strategies (including key reserves, buffer zones, corridors, and migratory species areas);
- Maintain landscape, habitat and associated ecosystems and species diversity;
- Conserve and protect significant landscape features, geomorphology, geology and paleontology, as appropriate;
- Provide ecosystem regulating services, including climate change impact mitigation;
- Protect watersheds and ground water systems;
- Conserve natural areas and landscapes of national and international importance, archeological sites, colonial monuments, indigenous cultural products and old architectural structures of cultural, spiritual, historical or scientific value;
- Generate recreational benefits in line with management objectives, and provide opportunities for leisure and tourist development;
- Facilitate scientific research and environmental monitoring activities to preserve the values of these areas;
- Promote specific cultural attributes and traditional knowledge of local populations;
- Generate benefits for local communities in keeping with management objectives;
- Boost environmental education and provide educational opportunities based on the management approach;
- Develop ecologically and environmentally appropriate income-generating activities to support the National System of Protected Areas and improve economic and social conditions in neighboring communities; and
- Pave the way for nature tourism modalities based on sustainable development principles.

Operational criteria:

- Protected areas should be big enough or susceptible to be expanded so as to guarantee long-term, specific, comprehensive objectives.
- They should operate under a specific plan and a monitoring and evaluation programme to support adaptive management.
- They should have a clear, equitable governance system in place.
- They should implement adaptive management strategies to enhance long-term, effective, quality governance.

11.3 Management categories

Management categories make it possible to classify protected areas depending on management objectives, and natural, historical and cultural values and characteristics. Each category has a definition and objectives of its own, and is managed under specific criteria.

Protected areas were gradually established in many countries throughout the 20th century. Each State developed its own management approach, and no common standards and concepts were applied. Protected areas were therefore referred to using various terms, and international systems of protected areas were put in place under different global instruments. In an effort to redress this situation, the IUCN World Commission on Protected Areas developed a six-category system under the relevant Convention on Biological Diversity work programme. The idea was to provide countries with guidelines to establish protected areas, homogenize names, and contribute information to facilitate international comparison.

Category Ia: Strict nature reserve

It includes areas strictly reserved for the protection of biodiversity and specific geological/geomorphologic features. Visits to and use of such areas are strictly limited and controlled for conservation purposes. They can serve as reference areas indispensable to scientific research and monitoring.

Category Ib: Wildlife area

It usually covers large, unspoiled or literally unspoiled natural areas with no significant or permanent human settlements. They are protected and managed in such a way that their natural conditions can be preserved.

Category II: National Park

It involves natural or almost natural areas established to protect large-scale ecological processes to complement characteristic species and ecosystems. They provide the basis for spiritual, scientific, educational and recreational opportunities, and for environmentally and culturally compatible visits.

Category III: Natural monument or feature

It has to do with areas that are established to protect specific natural monuments, including terrestrial formations and underwater mountains and caverns, as well as geological features like caves or living elements such as old groves. These areas are usually small and attractive to visitors.

Category IV: Habitat/species management areas

It includes areas that aim to protect specific habitats or species and are managed on a priority basis. They

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usually call for active, regular interventions to address specific needs and maintain specific habitats, but this is not a requirement under the category.

Category V: Protected terrestrial/marine landscape

It covers areas where man-nature interaction has produced distinctive ecological, biological, cultural and/or aesthetic values, and where safeguarding plays a key role in protecting and maintaining such values.

Category VI: Protected area making sustainable use of natural resources

It involves areas that conserve ecosystems and habitats, along with associated cultural values and traditional natural resource management systems. They often cover vast, mostly natural areas where a sustainable management approach is applied to conserve nature and discourage industrial applications.

11.4 Planning cycle

Planning is generally defined as advanced decision making and action. It is a process seeking to review the past and the present, and project the future, building upon failures as well as success stories.

Planning always implies mental formulation and sometimes graphic representation, and includes exploring opportunities, analyzing advantages and disadvantages, setting goals and objectives, and assessing whether or not the actions being taken today will be effective tomorrow.

It provides a tool to build the future under short-, mid- and long-term programmes.

There is a Strategic Plan under the National System of Protected Areas, which is implemented at the country level, and there are specific management plans, financing schemes, and actions for each and every protected area. They are all closely interrelated; the strategies under the Plan should be carefully considered when developing management plans.

Basic bibliography

- Several authors (2006). Enhancing the IUCN Evaluation Process of World Heritage Nominations. A contribution to achieving a credible and balanced World Heritage List. Proceedings of the IUCN-WCPA World Heritage Workshop at the International Academy for Nature Conservation, Isle of Vilm, Germany. IUCN – WCPA.
- Convention on Biological Diversity. Text and annexes. Canada. 2000. p 41.
- Dudley, N. (Editor) (2008). Guidelines for the implementation of protected area management categories. Gland, Switzerland. IUCN. x + 96pp.
- Hernández, E. et al (2004). Áreas Protegidas de Cuba. Universidad para todos. National Centre for Protected Areas. Ministry of Science, Technology and the Environment, Havana.
- Patry, M. (2003). World Heritage Report 16, World Heritage at the 5th IUCN World Parks Congress, Durban (South Africa), UNESCO. World Heritage Centre.

Complementary bibliography

- Amend, St.; Giraldo, A.; Oltremari, J.; Sanchez, R.; Valarezo, V; and Yerena, E. (2003). Management Plans, Concepts and Proposals. National Parks and Environmental Conservation, issue 11, Panama.
- Miller, Kenton (1980). Planning National Parks for Ecodevelopment in Latin America. Foundation for Ecology and Environmental Protection (FEPMA), Spain.

Website of interest

- World Commission on Protected Areas: <http://cms.iucn.org/about/union/commissions/wcpa/>

Lecture No. 12

Theme: National systems of protected areas

Topics	Objectives
12.1. National systems of protected areas	To provide information on this tool, which is used to manage and conserve natural sites
12.2. National System Plan	To identify the elements that need to be considered when developing a national system plan

12.1 National systems of protected areas

Protected areas should not be seen as isolated entities, but as part and parcel of wider conservation settings that include both protected area systems and terrestrial/marine ecosystem conservation approaches. The need for countries to have national systems of protected areas has been highlighted since 1942, when the Washington Convention on Scenic Beauty and Wild Fauna and Flora was held. The International Union for the Conservation of Nature and Natural Resources (IUCN), the World Wide Fund for Nature (WWF), the 4th World Congress on National Parks and Other Protected Areas in Caracas in 1992, and the 1st Latin American Congress in Santa Marta in 1997 have made special calls and recommendations so that countries establish national systems of protected areas or take special measures to conserve biological diversity. The idea has been to preserve all representative ecosystems and protect endangered areas that are extremely valuable because of their biodiversity and their potential for sustainable development.

There is a need to plan, manage and develop a number of protected areas for specific conservation purposes. The Convention on Biological Diversity, in its Article 8 (In-situ Conservation), encourages the Contracting Parties to establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity.

Against this background, a National System of Protected Areas covers a number of conservation areas and a conceptual framework that includes management criteria and standards, and seeks to ensure the conservation and sustainable use of natural resources. In the pursuit of these long-term goals, conservation units should be designed and planned under the following criteria:

1. Representativeness, comprehensiveness and balance in:
 - main national ecosystems (mountains, forests, wetlands, coral reefs, etc.);

- representative features of major biogeographic regions to ensure continuity in evolutionary processes;
- rare and unique plant and animal species and geological formations (endangered and endemic species, outstanding geological formations, etc.);
- important biological processes (nesting, mating and spawning sites, sources of feed, shelters, etc.);
- sites of historical and/or cultural value (ruins, pictorial representations, forts, etc.); and
- environmental services important to society (water supply from watersheds, seed banks, areas of scenic beauty for tourism and recreation, etc.).

2. Adaptation: Integrity, sufficient space, area distribution, and effective management are needed to ensure viable environmental processes and/or species, populations and communities making up a country's biodiversity.
3. Coherence and complementarity: Protected areas should make a positive contribution to national conservation and sustainable development goals.
4. Consistency: Standardized management objectives, policies and classifications should be implemented to clearly identify specific goals and maximize opportunities.
5. Profitability, efficiency and equity: There should be appropriate cost-benefit ratios (benefit sharing and cost-effectiveness). The number and size of protected areas should make it possible to reach these goals.

12.2 National System Plan

The National System Plan includes a general strategy for the effective and sustainable management of protected areas, and a framework to develop specific conservation plans and actions in a country. These areas are managed by public or private entities

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that operate at the local, national or regional level. The System Plan provides a standard-setting, methodological tool to coordinate environmental activities in protected areas.

The Plan should be based on the following considerations:

- The identification of natural spaces to be included in the system. It can be made up of protected areas with different management categories, management units, conservation regions, or any other type of spaces whose aim is to conserve natural values.
- The definition of how representative the areas are and how many conservation needs they cover.
- The System institutional components. They include those managing the areas, developing conservation policies, doing monitoring and research work, and/or using available resources.
- The System conceptual framework. It involves legal standards and technical regulations.

- Strategic planning to identify main working lines.
- Programmatic planning to develop actions under strategic guidelines and objectives.

The final version of the Plan can include an introduction to describe the country's natural characteristics, biodiversity, biogeographic aspects, phytogeographic regions, main ecosystems, and the way the Plan relates to the local population, culture and history.

The second part of the Plan can feature a diagnosis made on the basis of the conceptual and legal frameworks, the current situation in the National System, and its goals and gaps. It also identifies main problems, devises solutions, and can list both domestic and foreign stakeholders here or in annex to the document.

The third (last) part of the Plan should be devoted to planning and main strategic guidelines, programmes and actions to be implemented.

Basic bibliography

- Dudley, N. (Editor) (2008). Guidelines for the implementation of protected area management categories. Gland, Switzerland. IUCN. x + 96pp.
- Miller, K. (1980). Planning National Parks for Ecodevelopment in Latin America. Foundation for Ecology and Environmental Protection (FEPMA), Spain.

Complementary bibliography

- Secretariat of the Convention on Biological Diversity (2004). Biodiversity issues for consideration in the planning, establishment and management of protected area sites and networks. Montreal, SCBD, 164 pages (i to iv). (CBD Technical Series No. 15).

Website of interest

- <http://www.iucn.org/>

Lecture No. 13

Theme: Management plans

Topics	Objectives
13.1. Management Plan definition	To provide information on this tool, which is used to manage natural sites
13.2. Management Plan guiding principles	To describe some elements that need to be considered when developing the plan
13.3. Steps to be taken in management plan development	To discuss the methodology used to develop the plan

13.1 Management Plan definition

Managing a natural site of heritage value is a complex process that requires scientific and technical knowledge about ecological processes, bargaining skills to reconcile the interests of a wide range of stakeholders, and organizational abilities to obtain and manage the resources necessary to protect natural properties.

It is widely accepted today that the management and conservation of the natural heritage go far beyond pre-established areas and that the concept of protection means much more than prohibiting the use of specific resources. Protected areas play a key role in sustainable development. The way they are managed is closely linked to the way they are integrated into the economic and social context where they are situated and established as a closely interrelated system, including production and service matrixes.

Successful management poses quite a challenge as a long-term effective conservation instrument and can be achieved only under careful planning. Management plans play a key role in this connection.

They provide a valuable tool to use and regulate resources and develop sustainable conservation actions, taking into account specific characteristics and objectives. They help identify “what, where, when and how” to implement activities in protected areas. They cover a period of time ranging from five to 10 years, and should be included in a concise document containing the key characteristics and main values of a site, clearly established management objectives, and well-defined actions to pursue them. They should be flexible enough to adapt to events over the implementation period. The document should contain a zoning study as detailed as possible to guide the implementation process.

13.2 Management Plan guiding principles

Protected areas are managed under the following guiding principles:

- They should be considered as integrated, interrelated spaces that go far beyond legally delimited areas. They are not isolated elements or airtight boxes.
- They should be planned in a comprehensive manner, including planning, implementation, management, follow-up, evaluation and adjustment processes.
- They should be managed on the basis of appropriate, accurate, objective, scientifically founded information for sound decision making.
- There should be an effective approach to problem solving. Planning should always be based on conservation objectives.
- Local communities and institutions should be actively involved in conservation actions because the latter have a social function that needs to be shared by all. Social and institutional stakeholders should be recognized in keeping with their relationship to and attitude toward conservation. Social participation should be part and parcel of the fundamental strategy formulated to legitimize conservation objectives and make the plan socially, politically and economically viable. There is thus a need to involve as many stakeholders as possible and take their interests into account. The plan should be approached as a bargaining tool, and the final document should be considered as important as the plan development process itself.
- The plan can be developed without having in-depth knowledge of current realities. Information gaps can be well bridged along the way.

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- It is necessary to design realistic plans, including short-, mid- and long-term viable actions. Proposed actions should be in line with available resources.
- The plan should also be in keeping with management categories and System Plan requirements.
- Planning is not a linear process; it is constantly moving back and forth.
- Maps should contain as much information as possible.
- Once developed, the plan should be updated on a regular basis.

The management authority is responsible for the formulation of a Management Plan to guide all actions. This document can be developed by the authority itself or by a third party if it does not have the technical capacity required for it. In any case, the plan should be designed in a participatory manner, involving all main stakeholders.

The list of stakeholders who are usually involved in protected areas includes:

- The management authority
- Institutions managing natural resources in the area or its surroundings
- Government agencies
- Local communities
- Those using area resources
- Those owning or possessing area resources
- Business companies not involved in conservation (but in mining, forestry, fisheries, agriculture, etc.)
- Non-Governmental Organizations
- Visitors
- Scientists

13.3 Steps to be taken in management plan development

A. Establishing the planning team

It is extremely important to establish a planning team considering specific site characteristics and the need to have a multidisciplinary group in a position to deal with various conservation-related issues. The team composition will differ from site to site.

For instance, a land site will not demand the same specialists as a marine site. And a site whose main values involve physical and/or geographical elements will not have the same team as another one focusing on the conservation of biological diversity. The team can have specialists who are not from the area but work there and should always include local community leaders or representatives.

B. Gathering information

The plan development process includes collecting the necessary information from bibliographic materials

and key research centres. It also involves looking at databases (both conventional and GIS formatted), digital maps, aerial and satellite pictures, and reviews of previous plans, projects and programmes to identify strong and weak points, and those related to territorial distribution and specific branches that may have an impact on the new plan, as well as management plans designed for other areas that have similar characteristics. And last but not least, it is important to have a clear picture of standards and pieces of legislation in force.

Good information can help identify as much as 70 to 80 percent of the diagnosis, without being packed full of useless data.

The team becomes familiar with field characteristics in this stage, including the problems that need to be addressed for good information collection. The tools to be used for this purpose include forms, interviews, surveys, databases, etc. The team also prepares a detailed schedule, including field work and participatory workshops.

C. Conducting a diagnosis

A good diagnosis ensures successful plan development by 70 percent, according to experts. It covers two stages: a first one to characterize the protected area and its surroundings, considering the natural and socio-economic elements making it up, and a second one to identify the problems to be solved.

This characterization has to do with the description of natural elements and socio-economic activities in the area, and the identification of properties and heritage values to be conserved and protected. It makes it possible to establish a baseline for these purposes. The plan should never be turned into a monograph. The characterization is not an end in itself; it only provides a tool to better understand the situation in the area. Mapping should be used as much as possible for the spatial distribution of all local features and characteristics.

An ecological and environmental approach is applied to identify problems and review conservation status, threats and traditional use of landscapes. There is also a need to assess the institutional capacity of the management authority and the research work that is necessary to support planning and management activities.

It is also appropriate to analyze the socio-economic problems facing the communities in the area, to see how they relate to conservation actions and the pressure they put on local resources, know their living conditions, and identify potential contradictions between the use of land and other natural resources on the one hand and conservation efforts on the other.

D. Setting standards

This stage focuses on the limits of and management categories for the protected area, the identification

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of management objectives and conservation goals, the establishment of the zoning process, and the regulations on the use, management and protection of local resources.

E. Developing management programmes

They provide the way to achieve management objectives and formulate the strategic guidelines to implement the plan. They include the actions to be implemented for problem solving in the area, under the pre-established zoning process. They cover one or several problems, and can be grouped as follows: resource protection and management, public use, scientific research and monitoring, and management.

F. Reviewing and adopting the plan

For the plan to be binding, it needs to be certified and legally approved by the relevant authorities.

G. Implementing actions

Actions are implemented under annual operational management plans seeking to improve on and adapt the Plan. They can cover up to 10 years, but are usually developed for five-year periods due to increased scenario uncertainty.

H. Conducting monitoring and evaluation

Actions under the Plan are monitored and evaluated using specific indicators. They should be incorporated into the planning system so that they can help develop operational plans and adapt the Plan as appropriate.

Basic bibliography

- Gerhartz, J. L.; Estrada, R.; Hernández, Enrique H.; et al (2007). Metodología para la elaboración de los planes de manejo de las Áreas Protegidas de Cuba. National Centre for Protected Areas, Feijóo publishing house.
- Miller, Kenton (1980). Planning National Parks for Ecodevelopment in Latin America. Foundation for Ecology and Environmental Protection (FEPMA), Spain.
- Thomas, Lee and Middleton, Julie (2003). Guidelines for Management Planning of Protected Areas. IUCN, Gland, Switzerland, and Cambridge, UK.

Complementary bibliography

- Amend, St.; Giraldo, A.; Oltremari, J.; Sanchez, R.; Valarezo, V; and Yerena, E. (2003). Management Plans: Concepts and Proposals. Parques Nacionales y Conservación Ambiental, issue 11, Panama.

Websites of interest

- <http://www.iucn.org/>
- <http://cms.iucn.org/about/union/commissions/wcpa/>

Lecture No. 14

Theme: Environmental functions and services

Topics	Objectives
14.1. Nature-society interdependence	To show the interdependence between nature and society
14.2. Environmental functions and services	To discuss the conservation approach to natural heritage sites

14.1 Nature-society interdependence

Nature and society are so closely interrelated that no social development project can be implemented without considering nature. Natural ecosystems provide basic life-sustaining products and services indispensable to human civilization. They include resources that are often taken for granted, such as clean air and water, wood, fisheries, stable climate, and native and agricultural plant pollination, just to mention a few.

World heritage sites and protected areas also provide key environmental services and contain representative ecosystems, communities, populations, species and/or genes that make up a country's history and natural and cultural wealth. Likewise, protected areas serve to support cultural traditions, social capital, and poverty alleviation efforts at the community level.

The number of land-based protected areas in the world is not enough, however. Most of them are unfortunately being poorly managed. Participants in a World Nature Congress held in Barcelona (Spain) in October 2008 concluded that, for a biome to be successfully safeguarded, it needs to have at least 10 percent of its overall area under protection. It is well known, however, that this is not always the case, despite the fact that biomes provide a basic tool to deal with climate change, preserve biological and cultural diversity, and reach social equity and justice.

14.2 Environmental functions and services

Ecosystem services largely benefit society. They include supply, regulation and support for other services. In this context, protected areas perform functions that go far beyond the exclusive protection of pristine ecosystems. They play a significant social role because they interact with the communities situated within them and in border or influence areas.

While the monetary value of ecosystem services has not been exactly calculated, it has been estimated at billions of dollars.

Environmental functions include:

Regulating functions

- Control atmosphere and ocean chemical composition.
- Act as natural carbon sinks, and regulate climate.
- Collect, filter and supply fresh water to human settlements.
- Protect ecosystems by mitigating the impact of natural disasters (natural barriers and buffer zones), such as storms, hurricanes, floods and droughts.
- Provide protection from erosion, and control sediments.
- Protect natural processes for commercial activities like fishing.
- Fix solar energy and produce biomass.
- Store and recycle organic matter, nutrients and human wastes.
- Exert biological control and strike a biological balance (barriers against diseases).
- Provide breeding grounds and habitats for migratory species.
- Protect biological diversity and ecological/ evolutionary processes.

Productive functions

- Supply food and provide breeding grounds for land and marine wild animals.
- Conserve genetic resources for agriculture, including endemic and threatened crops, and domestic land species for food production.
- Supply medicinal plants and biochemical components for the pharmaceutical industry.
- Supply raw materials for textiles.
- Supply raw materials for construction.
- Supply fuel and energy.
- Supply ornamental resources.

Carrier functions

- Provide habitation for indigenous peoples.
- Generate direct economic benefits and become a major asset for the tourist industry.

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- Provide people with leisure, recreation and spiritual renewal.

Information functions

- Provide for wildlife observation, become a source of aesthetic pleasure, and facilitate open-air recreational activities like fishing, hunting, swimming, sailing, skiing, trekking, and sunbathing.

- Protect indigenous and local community rights and territories, and provide them with resources to keep traditional lifestyles and full control over their lives.
- Conserve irreplaceable, immeasurable spiritual values.
- Store historical information.
- Become a source of artistic inspiration.
- Store scientific and educational information, as if they were laboratories for natural process studies.

Basic bibliography

- Barzetti, V. (Editor) (1993). "Parques y Progreso. Áreas Protegidas y Desarrollo Económico en América Latina y el Caribe". International Union for the Conservation of Nature (IUCN), Cambridge, UK.
- Mulongoy, K. J. and Gidda S. B. (2008). El Valor de la Naturaleza: Beneficios Ecológicos, Económicos, Culturales y Sociales de las Áreas Protegidas. Secretariat of the Convention on Biological Diversity, Montreal, Canada.

Complementary bibliography

- <http://exploradominicana.wordpress.com/2009/06/05/servicios-ambientales-y-areas-protegidas/>

Websites of interest

- Action Bioscience. <http://www.actionbioscience.org/>
- Green Facts. <http://www.greenfacts.org/es/index.htm>
- http://www.ecotourism.org/site/c.orLQKXPCLmF/b.4832143/k.CF7C/The_International_Ecotourism_Society__Uniting_Conservation_Communities_and_Sustainable_Travel.htm

Lecture No. 15

Theme: Natural heritage and community participation

Topics	Objectives
15.1. Concept positioning	To understand the role of communities in natural heritage conservation
15.2. Main stakeholders	To identify internal and external heritage-related stakeholders
15.3. Participation typology	To review participation modalities for natural site planning and management

15.1 Concept positioning

Protected areas generate benefits that go far beyond their borders and can only be maintained and increased if these areas are effectively managed. Decision-making and management processes, which are an integral part of good governance, seek to be in line with and meet the interests of a wide range of stakeholders, particularly of indigenous and local communities situated in these areas or their surroundings. Equitable participation by these communities in conservation actions can make net benefits further grow. Jointly managed and community-conserved areas are two general conservation categories that involve good governance principles.

Following a proposal by the host country, the World Heritage Committee, at its 31st Session in Christchurch (New Zealand) in 2007, adopted Decision 31 COM 13^a to add a fifth "C" to its four strategic objectives, as had been set forth in the Budapest Declaration issued at the 26th Session of the Committee in 2002. In an effort to further promote the implementation of the World Heritage Convention, these strategic objectives included credibility, conservation, capacity building and communication, and the newly identified "C" (communities).

In keeping with the New Zealand proposal, successful heritage identification, management and conservation should involve human communities, wherever possible, and seek to solve conflicts of interests.

The Expert Meeting on Heritage, Biodiversity and Communities, held in Havana in 2009, ratified the validity of this proposal and of the Committee Decision. Regional case studies had shown how valuable and fruitful it is for local communities to feel that they are really benefiting from natural site conservation actions. There is a direct relationship between living conditions and quality of life on the one hand and community commitment to natural heritage conservation on the other. The idea should

not be to promote out-and-out conservation but to make rational, sustainable use of natural resources. Against this background, there is an imperative need to involve communities in planning and management processes from the very beginning.

Most protected areas in Latin America and the Caribbean have traditionally been inhabited or used by local populations. This is still the case in many places. Due to high population density in the majority of countries of the region, particularly in island States, the interest in conservation areas and the presence of rural communities go hand in hand. In continental areas, these communities are usually made up of indigenous groups that have been living there long before the new conservation concepts were developed. There has been a growing consensus about the need to involve communities in integrated conservation and development plans since the 4th World Congress on Natural Parks and Protected Areas, held in Caracas in 1992, and other regional events. The new concepts that promote the participation of civil society, including local and indigenous populations, seem to be based on sound principles and pragmatic considerations to overcome actual problems and deal with what Davey defined in 1993 as the unacceptable face of conservation.

15.2 Main stakeholders

There is a wide range of stakeholders at a community level. They include individuals, groups, institutions and organizations that have different interests and opinions and occupy various positions. It is vitally important to identify them properly because the idea should always be to conduct truly participatory planning and management processes aimed at obtaining expected results and avoid or solve any conflicts between stakeholders.

It is also of the essence to review their interests and expectations at the very beginning of the planning process and when solutions are devised and projects

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and programmes are implemented. Any action involving potential users in a protected area should always seek to be responsive to the needs of society or of the groups concerned.

There are various stakeholder categories because not all of them relate to protected areas in the same manner and to the same extent. This relationship can be either direct or indirect, and can be approached from different perspectives:

- Geographic:
 - They live inside, in the buffer or influence zone, or outside.
 - How do they live? Isolated, in small settlements, or cities. Are they permanent or temporary residents?
- Economic:
 - Land tenants
 - Companies
 - Small owners
 - Others
 - Protected area operators
 - Companies
 - Cooperatives
 - Small owners
 - Others
- Sociological:
 - Children
 - Young people
 - Formal workers
 - Informal workers
 - Women
 - Older people
 - Religious people
- Political:
 - Local government representatives
 - Political parties or organizations
 - Social organizations
- Ecological:
 - Protected area management authorities
 - Resource protection and monitoring entities
 - Research and planning entities
 - Non-Governmental Organizations

Another stakeholder classification is based on the role stakeholders play in protected areas:

- Those involved: Individuals or entities having certain interests in the area. They can either benefit from or be affected by plans and

projects.

- Those involved with decision-making power: Individuals or entities empowered to make decisions.
- Partners: Individuals or entities familiar with and participating in the actions implemented in a protected area.
- Sponsors: Individuals or entities not committed to but having certain interests in an area. They have resources available to operate a protected area.

15.3. Participation typology

Participation is the general term used to describe the involvement of individuals and groups in the decision-making process. While there are many interpretations of this term, the levels of participation have been defined as follows:

Information. This is the lowest level of participation in the decision-making process. Individuals or groups are informed of proposed plans and actions, but they can introduce no changes whatsoever. The purpose of information is usually to persuade or convince people of what project leaders have proposed. It is one-way, top-to-bottom communication.

Consultation. This level is higher than that of information. Local communities, key stakeholders, and organizations are informed about a project or plan. They are expected to give their views, but they are not necessarily taken into account in the final proposal.

Joint decision-making. This is the case when those affected by some decision are invited to hold a dialogue so that a final agreement between the parties can be reached.

Joint action. This is the case when the parties are involved in the decision-making process and take up joint responsibility in the implementation of actions.

Support for community interests. This is the highest level of participation. Communities are responsible for establishing their own agendas and implementing decisions. Experts and other agents provide them with support in terms of information, expertise, and resources.

Basic bibliography

- Eléonore de Merode, E., Smeets, R. and Westrik, C. (2004). World Heritage Paper 13: Linking Universal and Local Values: Managing a Sustainable Future for World UNESCO. World Heritage Centre.
- Hernández, E. H. and Gerhartz, J. L. (in preparation). Herramientas para la Planificación y el Manejo de las Áreas Protegidas. National Centre for Protected Areas, Havana.
- Jaeger, Tilman (2005). Nuevas perspectivas para el Programa MaB y las Reservas de Biosfera. Lecciones aprendidas en América Latina y el Caribe. South-South Cooperation Programme. Working Document N° 35, 2005, Paris.
- Mulongoy, K. J. and Gidda S. B. (2008). El Valor de la Naturaleza: Beneficios Ecológicos, Económicos, Culturales y Sociales de las Áreas Protegidas. Secretary of the Convention on Biological Diversity, Montreal.
- Patry, Marc (2003). World Heritage Report 16, World Heritage at the 5th IUCN World Parks Congress, Durban (South Africa), UNESCO. World Heritage Centre.
- Thirty-first Session. Christchurch, New Zealand (2007). WHC-07/31.COM/13B. Evaluation of the results of the implementation of the Committee's Strategic Objectives, Proposal for a 'Fifth C' to be added to the Strategic Objectives, Paris.

Complementary bibliography

- Decisions adopted at the 31st Session of the World Heritage Committee (Christchurch, 2007). Decision 31 COM 13A. Evaluation of the results of the implementation of the Committee's Strategic Objectives, Paris.
- Operational Guidelines for the Implementation of the World Heritage Convention (2008). WHC, UNESCO, Paris.

Website of interest

- <http://www.whc.unesco.org>

Lecture No. 16

Theme: Management effectiveness and monitoring

Topics	Objectives
16.1 Natural site management	To define natural site management
16.2 Assessing management effectiveness	To introduce the criteria for effective management actions
16.3 Practical application	To identify the factors that need to be considered in the application of a methodology

16.1 Natural site management

Assessing management effectiveness goes far beyond world heritage sites and covers other areas where management actions are also implemented, including cultural landscapes and protected areas. The idea that environmental, social and economic benefits can be generated only under effective management is widely accepted today. Management involves a set of political, legal, administrative, research, planning, protection, coordination, promotion and educational actions designed to help reach the objectives set for an area or site under intervention.

The importance of developing protected areas has been increasingly recognized in the last few years. As many of them have been officially declared as such without any management and protection action being implemented, they operate only on paper. Some others are seeing management actions and resource allocations, but not always in the most effective and strategic manner. Monitoring and evaluation actions are an integral part of the management process and make it easier to adopt decisions to identify problems and devise solutions.

Assessing management effectiveness provides protected area managers with a valuable tool, and has been increasingly requested by national governments and international institutions. For example, the Convention on Biological Diversity (CBD), through its Work Programme on Protected Areas (adopted in February 2004), encouraged the Contracting Parties to implement management effectiveness assessments at least in 30 percent of their protected areas by 2010.

16.2 Assessing management effectiveness

Effectiveness can be defined as the capacity to make efficient use of resources (human, material, financial, administrative, technological, technical, informational and otherwise), and create the conditions necessary

to reach expected outcomes under specific projects and programmes. Such an assessment makes it possible to improve planning strategies and actions. New methodologies and other materials have been developed in the last few years to follow-up and assess the effectiveness of management actions in protected areas. De Faria made the first systematic, methodological selection of basic indicators for this purpose in 1993.

These methodologies should not remain unchanged or be applied in a dogmatic manner; they should rather take into account a broad spectrum of situations and management categories. Effective management in an area heavily relies on the knowledge of the ecosystems making it up. Management actions are often difficult to implement due to the characteristics of the legal systems in place, the interests and cultural values of local communities, and natural-resource-dependent production activities close to or inside a protected area. As there may be as many situations as areas, it is necessary to have appropriate evaluation methodologies.

Against this background, the IUCN World Commission on Protected Areas (WCPA) established a Management Effectiveness Task Force (METF) in 1998 to develop and test a reference framework for this purpose. By late 1999, MEFT delivered a workshop under the auspices of UNESCO's World Heritage Centre to review the implementation of the WCPA reference framework at World Heritage Sites and its potential use to meet reporting requirements under the Convention. It recognized such a use, but highlighted the need to deal explicitly with World Heritage conservation and to develop monitoring and evaluation programmes for protected areas that have not been listed as World Heritage Sites.

The UNESCO-IUCN project Enhancing Our Heritage – Successful Monitoring and Management of Natural World Heritage Sites has been implemented by the

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Queensland University and financed by the United Nations Foundation. It got underway in 2001 and is currently under operation at 10 Natural World Heritage Sites in Africa, Southern Asia and Latin America, which have been recognized for their rich biodiversity. The implementation of the project first stage in this region (Plátano River in Honduras, Sangay in Ecuador and Canaima in Venezuela) has generated very important lessons learnt.

The World Heritage Centre has developed a number of materials along these lines, including “World Heritage Paper 10: Monitoring World Heritage”, in 2002, “World Heritage Report 16, World Heritage at the 5th IUCN World Parks Congress”, in 2003 and “World Heritage Paper 23: Enhancing our Heritage Toolkit: Assessing management effectiveness of natural World Heritage sites”, in 2008.

16.3 Practical application

Management effectiveness is based on the premise that good management of protected areas usually results from a six-phase process that seeks to develop monitoring and evaluation systems:

- Identifying values and threats;
- Conducting planning;
- Allocating resources (inputs);
- Implementing management actions;
- Generating goods and services (outputs);
- Leading to impacts or outcomes.

Methodologies should not remain unchanged or be applied in a dogmatic manner; they should rather take into account a broad spectrum of situations and management categories. This makes it possible to

incorporate new indicators adapted to specific realities and evaluated using the above-mentioned tools.

Assessing management effectiveness provides a tool to establish a good monitoring system only if it is conducted on a regular, sequential basis. The first assessment involves a review of the management situation compared to an ideal scenario. Subsequent assessments make it possible to see the progress made toward improved management of a site or protected area, provided that they are made applying the same criteria and under the same conditions as in the first exercise. This is the only way to compare outcomes between exercises and see how effective and efficient management objectives have been.

The process includes assessing the elements that clearly show how management actions have been implemented. Assessing management should therefore be considered a self-evaluation. It is indispensable to count on the direct, objective participation of officials in assessing different variables in due course. This should be a participatory process that includes key institutional and community representatives, and provides for a transparent, integrated exercise.

Indicators are structured around domains or dimensions (administrative, political, legal, planning, resource utilization, etc.), which contain a number of variables (staff, financing, organization, infrastructure, etc.) and sub-variables, if any. They are used to develop management effectiveness criteria that provide the basis for the evaluation system. If the evaluation team identifies new indicators, the assessment criteria for such indicators should be previously discussed with and agreed upon by consensus by all team members, relevant officials and stakeholders, and the core team.

Basic bibliography

- National Centre for Protected Areas (CNAP) (2003). 7th Protected Area Planning and Management Course, Havana.
- Several authors (2002). “World Heritage Paper 10: Monitoring World Heritage, Vicenza, Italy. UNESCO. World Heritage Centre.
- Hillary, Annie; Kokkonen, M; and Max, L. (editors) (2002). World Heritage Paper 4: Proceedings of the World Heritage Marine Biodiversity Workshop, Hanoi, Vietnam. UNESCO. World Heritage Centre.
- Hockings, M.; James, R.; Stolton, S.; Dudley, N.; Mathur, V.; Makombo, J.; Courrau J.; and Parrish, J. (2008). World Heritage Paper 23: Enhancing Our Heritage Toolkit. Assessing management effectiveness of natural World Heritage sites. UNESCO. World Heritage Centre.
- Patry, Marc (2003). World Heritage Report 16, World Heritage at the 5th IUCN World Parks Congress, Durban (South Africa), UNESCO. World Heritage Centre
- Stolton S.; Hockings, M.; Dudley, N.; MacKinnon, K.; and Whitten, T. (2003). How to report on protected area management progress. A tool to follow-up management effectiveness in individual protected areas. WWF and World Bank.

Complementary bibliography

- Gutiérrez, Mario (2003). Propuesta Metodológica para la Medición de la Efectividad del Manejo de Áreas Protegidas en Cuba, tomando como base el manual elaborado por Miguel Cifuentes, Arturo Izurieta y Helder Henrique de Faria. First Version (Working Document), CNAP, Havana.

Website of interest

- http://www.equilibriumconsultants.com/upload/clientroom/EoH_booklet.pdf

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**ENRIQUE HIGINIO HERNÁNDEZ HERNÁNDEZ (1947)****Architect, University of Havana, 1970.****Specialized in regional and urban planning.**

Has published works on territorial, regional and urban planning; helped establish protected areas and national systems, conducted studies on investment projects, and put together community-based and rural development programmes and territorial planning methodologies on various scales for protected area management plans.

Has also set up multidisciplinary and multicultural working groups seeking to formulate development strategies and obtain financing for effective protected area management.

Has worked as a specialist and executive at the National Institute of Physical Planning for 28 years and at the National Centre for Protected Areas for 12 years. He is currently the Centre's deputy-director.

Has gained a lot of experience in connection with international instruments like the RAMSAR Convention, the SPAW Protocol, the Convention on Biological Diversity, the World Heritage Convention, and the MaB Programme.

Has also been involved in studies over the national, regional and global environmental situation.

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For World Heritage



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MODULE

6

WORLD PATRIMONIAL HERITAGE