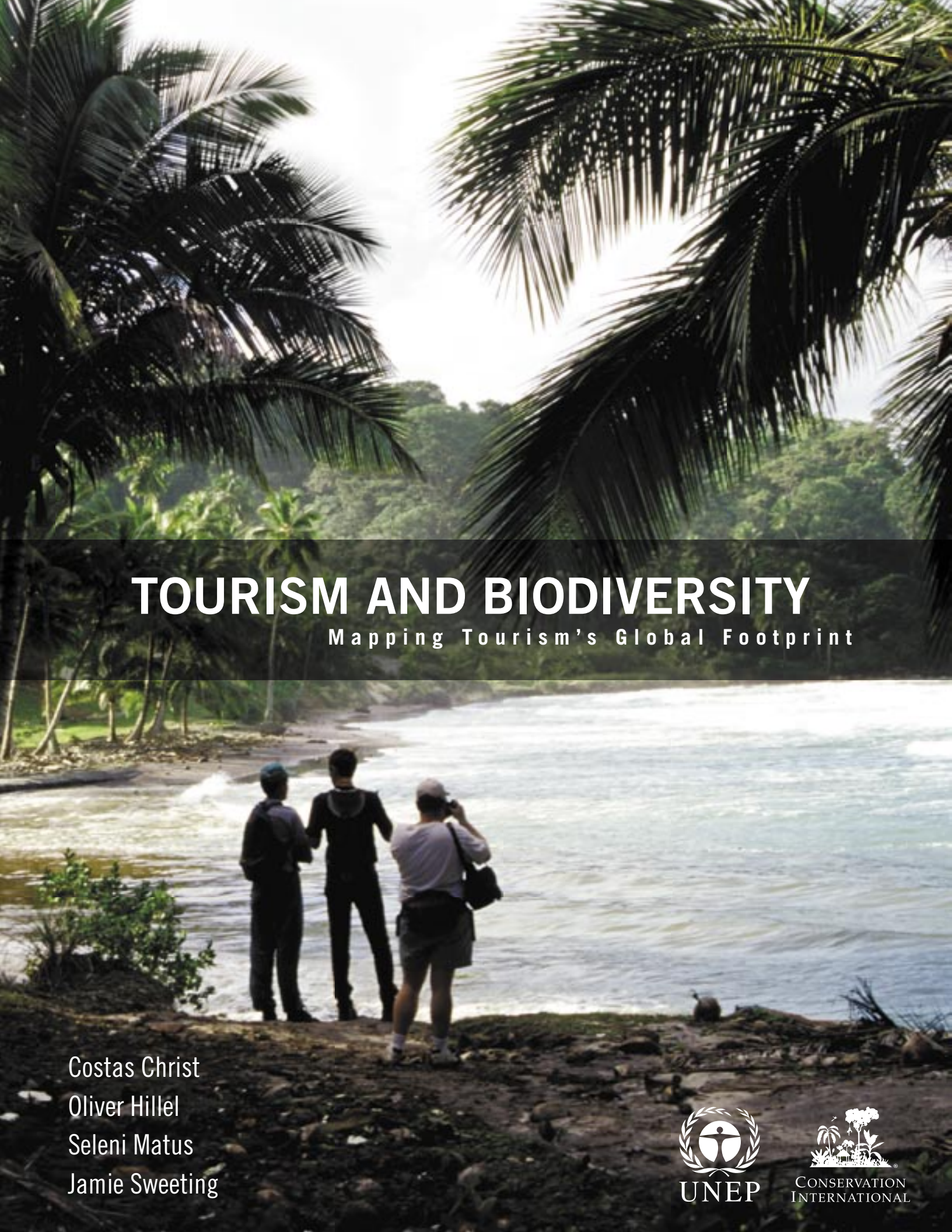

TOURISM AND BIODIVERSITY

Mapping Tourism's Global Footprint

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TOURISM AND BIODIVERSITY

Mapping Tourism's Global Footprint

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Foreword

by Russell A. Mittermeier, President of Conservation International

According to the World Travel and Tourism Council, tourism and its related economic activities generate 11 percent of Global Domestic Product, employ 200 million people, and transport nearly 700 million international travelers per year. This figure is expected to double by 2020. Tourism also represents one of the top five exports for 83 percent of all countries and is the main source of foreign currency for 38 percent of countries. Simply put, tourism is one of the largest, perhaps the largest, industry on our planet.

In the last decade, nature and adventure travel has emerged as one of the fastest-growing segments of this industry. From cruise ships plying the unspoiled islands of the Indian Ocean, where some of the rarest plants and animals on Earth are found, to groups of travelers, young and old alike, trekking into the cloud rain forests of Costa Rica, more and more tourists are seeking out nature and the thrill of exploring remote, wild places. It is interesting to note, especially in these times, that tourism has continued to expand rapidly during the past half century, despite a steady succession of revolutions and civil wars. Even following the September 11, 2001, terrorist attacks on New York City and Washington, DC, and other international terrorist incidents since, the World Tourism Organization reports that global tourism has continued to grow, even if at a somewhat slower pace than before. Tourism has repeatedly shown itself to be an incredibly resilient industry that bounces back quickly and then surges ahead again.

At Conservation International, we see tourism as both an opportunity for conserving nature and a threat if it is done improperly. For more than a decade, our strategy has been to concentrate our efforts on the highest priority areas for biodiversity conservation, a focus that has emphasized both biodiversity hotspots and high biodiversity wilderness areas in the terrestrial realm and, more recently, a series of high priority marine areas as well. The biodiversity hotspots are Earth's richest and most endangered terrestrial systems. They once covered more than 12 percent of Earth's land surface but have cumulatively lost nearly 90 percent of their original natural vegetation. What remains in them now accounts for only 1.4 percent of our planet's terrestrial environment, but they harbor more than 44 percent of all plants and 35 percent of mammals, birds, reptiles, and amphibians as endemics found absolutely nowhere else. These same areas are home to more than 1 billion people, many of them living below the poverty level. Examples of the highest priority hotspots include the Caribbean, Mesoamerica, the Tropical Andes, the Atlantic Forest Region of Eastern Brazil, Madagascar and adjacent Indian Ocean Islands, the Cape Floristic Region of South Africa, the Mediterranean, the Philippines, and Sundaland (western Indonesia and Malaysia). The high biodiversity wilderness areas are also rich in endemic species but, in contrast to the hotspots, are still largely intact. They are particularly important for the world's remaining indigenous people and include regions like Amazonia, the island of New Guinea, the Congo Forests of Central Africa, the great Miombo-Mopane Woodlands and Grasslands of Southern Africa (including the Okavango Delta), and the Deserts of the Southwestern United States and Northern Mexico. As should be obvious, most of these high-priority areas for biodiversity are also key regions for tourism development, often in large part because of the wonderful and unique species and ecosystems that they harbor.

At this time in our history, we find ourselves at a crossroads in many of these hotspots and wilderness areas, where the last strongholds of biodiversity, the make-or-break world of basic survival for millions of people, and the ever-expanding world of tourism meet. How tourism grows and develops is therefore of great consequence to the future of biodiversity conservation, as well as to the local people whose lives its growth will impact. "Tourism and Biodiversity: Mapping Tourism's Global Footprint" is a two-year research project that was conducted in partnership with the United Nations Environment Programme. It grew out of a sense of urgency about the need to minimize tourism's negative impacts and simultaneously maximize its positive contributions to nature protection and the quality of life of local people. By linking tourism with biodiversity conservation and the well-being of local communities and understanding how and where they overlap, we can develop strategies that both conserve Earth's most endangered ecosystems and make a significant contribution to alleviating poverty at the same time. Many challenges lie ahead in making this a reality but so too do great opportunities. With this publication, we hope to make a contribution to charting the way forward.

Left: A diver hovers over a giant barrel sponge on Grand Cayman Island's north wall.

Executive Summary

Tourism is often described as the world's "biggest" industry on the basis of its contribution to global gross domestic product (GDP), the number of jobs it generates, and the number of clients it serves. The scale of the industry and the rate at which it continues to grow present both opportunities and threats for biodiversity conservation.

Biodiversity is essential to human development because of the goods and services it provides. An estimated 40 percent of the global economy is based on biological products and processes. However, on a global scale, biodiversity is being lost at a rate many times higher than that of natural extinction. This is caused by a number of factors, including uncontrolled land conversion, climate change, pollution, unsustainable harvesting of natural resources, and the introduction of invasive species. So great is the concern over the rate of decline, and its implications for human welfare, that biodiversity was identified as one of the five priority areas for the 2002 World Summit on Sustainable Development.

To determine priority areas where biodiversity loss is a serious concern, Conservation International has identified a series of biodiversity "hotspots." These hotspots represent priority areas for urgent conservation action on a global scale. They are also useful for looking at the impact of tourism on biodiversity.

Orangutan, Tanjung Puting National Park, Indonesia.

In a growing number of instances, tourism delivers scarce funds for conservation and provides local people with an economic incentive to protect biodiversity. Tourism also offers an alternative to potentially damaging forms of development such as mining, logging, or consumptive use of wildlife. However, the relationship between tourism and biodiversity is not always positive, particularly when tourism development occurs without management standards and guidelines in place that seek to promote biodiversity conservation and deliver tangible benefits to local communities.

Using Geographic Information Systems (GIS) and maps to illustrate the geographical overlap between tourism development (and growth) and biodiversity hotspots, as well as areas of low human development, this report highlights the following key issues:

- Although most biodiversity is concentrated in the South,[1] many major tourism destinations in the North (e.g., the Mediterranean, the California coast, Florida Keys) are biodiversity hotspots.
- An increasing number of biodiversity hotspot countries in the South are experiencing very rapid tourism growth: 23 of them record over 100 percent growth in the last 10 years, and more than 50 percent of these receive over 1 million international tourists per year; 13 percent of biodiversity hotspot countries receive over 5 million international tourists per year.
- While receiving fewer tourists overall than the North, many biodiversity-rich countries of the South receive large numbers of tourists. Thirteen of them (Argentina, Brazil, Cyprus, the Dominican Republic, India, Indonesia, Macao, Malaysia, Mexico, Morocco, South Africa, Thailand, and Vietnam) receive over 2 million foreign visitors per year.
- More than one-half of the world's poorest 15 countries fall within the biodiversity hotspots, and in all of these, tourism is already significant or is forecast to increase.

- In a number of biodiversity hotspot developing countries (e.g., Madagascar, Costa Rica, Belize, etc.) biodiversity is the major tourism attraction.
- Forecasts suggest that tourism will become increasingly important in biodiversity hotspot countries—particularly in Southeast Asia—and will require careful planning to avoid negative impacts on biodiversity.

Tourism, when properly managed and directed, can contribute to biodiversity conservation and poverty reduction, both directly by capitalizing on biodiversity assets and indirectly by reducing the vulnerability of the poor to environmental degradation through biodiversity conservation.

The maps in this report are a useful tool for examining some of the potential impacts of tourism development. For example, plotting the ratio of foreign visitors to local residents shows that tourism pressure can be extraordinarily high in some countries, with the number of tourists outnumbering local residents in certain places. This information can be used in conjunction with other data to highlight potential environmental impacts. Plotting the availability of fresh water against tourist arrivals shows that in some countries where water is already very limited and tourism pressure is very high, proper planning and effective watershed management are essential to prevent continued growth of tourism from adversely affecting freshwater availability for local residents and wetland ecosystems.

In this regard, tourism development is a complex interaction among many actors. Most tourism development is driven by the private sector, but the establishment and development of facilities are also heavily dependent on resources strategically allocated by multi- and bilateral development agencies, through agreements with national and local governments. Other stakeholders also have important roles, but their actual contribution depends on their ability to influence the central players. Effective management of tourism to conserve biodiversity while contributing to poverty reduction requires strong and cooperative partnerships among the different stakeholders and decisionmakers involved in tourism development. These stakeholders include national and local governments, local communities, the private sector, and funding organizations in cooperation with civil society. The development "triad" of the public sector, the private sector, and civil society is as essential for tourism development as it is for any aspect of sustainable development.

Adventure tourist hiking in the Galapagos.

This report outlines a series of recommendations specific to each stakeholder group that may be involved in the process of tourism development. The recommendations for enhancing the contribution of tourism to biodiversity conservation and poverty reduction build upon other guidelines, such as the Quebec Declaration on Ecotourism, the United Nations Convention on Biological Diversity (CBD) Draft Guidelines for Sustainable Tourism in Sensitive Ecosystems, and the Cairns Charter on Partnerships in Ecotourism.

Endnotes

[1]There are many different ways of differentiating between the countries of the world. The term "Third World" is often used to describe poorer countries but can be interpreted as patronizing and inappropriate by some. The terms "South" and "North" are commonly used in development literature to differentiate between the industrialized OECD and Central and Eastern European states ("the North") and the less- or nonindustrialized states ("the South"). From a geographical perspective, there are some obvious anomalies–for example, the less-industrialized African Sahelian countries are north of the equator, and the more industrialized Australia and New Zealand are south of the equator. Another term widely used to describe less- or nonindustrialized states is "developing countries." In this report, both developing countries and South and North are used.

Introduction

This project, led by Conservation International (CI) in partnership with the United Nations Environment Programme (UNEP), aims to illustrate the overlap between tourism development (present and forecasted) and the biodiversity hotspots, in order to highlight tourism-related opportunities and threats for biodiversity conservation and improved human welfare. The project was developed on the basis of two hypotheses:

1. Tourism development is growing in or near biodiversity hotspots.
2. Tourism development implemented according to the principles of sustaining the environment, conserving nature, and contributing to the well-being of local peoples will have a net positive or a neutral impact on biodiversity.

To explore these hypotheses, a planning workshop was held at CI in Washington, DC, at which it was decided that two levels of analysis were required: first, a global overview of the trends in tourism development—particularly in relation to biodiversity hotspots; and second, a series of nature tourism case studies that explore in depth the relationship between tourism development, biodiversity conservation, and poverty reduction in specific contexts. This report is the outcome of Phase I of the project—the global overview. The results of Phase II, a meta-analysis of peer-reviewed case studies analyzing the direct relationship between tourism and biodiversity, will be published separately. It is also expected that the mapping techniques developed as a part of this research project can be applied at the regional and conservation corridor levels to provide additional insight and further recommendations for action.

Arboreal frog, Guinea.

Methods

To explore the relationship between tourism development, biodiversity conservation, and poverty reduction at the global level, a series of maps were produced plotting tourism and socioeconomic data against priority biodiversity areas defined by CI's "hotspot" strategy. The aim of this mapping exercise has been to explore whether tourism is increasing in high-biodiversity areas and, given that the majority of biodiversity hotspots fall in the South, whether tourism is a potential tool for poverty reduction. For this exercise, largely for the reasons discussed under "Data Limitations" below, tourism and socioeconomic data were aggregated at the national level only. The maps thus provide a broad level of analysis and serve to illustrate global and regional trends only. They are not intended to analyze the links between tourism, biodiversity, and local livelihoods within any specific country or to provide definitive conclusions as to the nature and scale of interactions. The maps are intended to raise awareness among key decisionmakers and planners as to the opportunities and threats of tourism as an engine for both biodiversity conservation and economic development.

Data Limitations

Priority biodiversity areas are defined by CI's hotspots strategy. Hotspots are the leading, but not the only, mechanism for identifying important biodiversity areas for this study.[2] For instance, although Botswana is both a case study for the role of tourism in conservation and a well-established destination, it is not categorized as

Tourist traffic inside Ngorongoro Crater Conservation Area, Tanzania.

a "hotspot" country. The tourism data used here are mainly derived from the World Tourism Organization (WTO) and focus on international flows of tourists, rather than on their activities or on the development of infrastructure necessary to support those flows—either of which may have positive or negative impacts on biodiversity. In addition, the data do not capture the volume of domestic tourism. In Europe, the world's leading international destination, domestic tourism is estimated by the European Environment Agency (EEA) to be seven times the volume of international arrivals (EEA 2002), and WTO's estimates are as high as 10 times. Economic data on tourism are supplied by the World Travel and Tourism Council (WTTC); much of the information is derived from models, and opinion is mixed as to what should and should not be included within the definition of the tourism industry. Tourism is not included as a sector in the international system of national accounts. "Tourism Satellite Accounts" have been developed to address this problem and to capture tourism data but still have limitations in the scope of the data collected. Finally, socioeconomic data from various sources are used, including the United Nations Development Programme (UNDP) and the World Bank. For many data sets, significant gaps exist in the country coverage.

CD-ROM Mapping Tool

Included with this publication, CI has developed an accompanying CD-ROM mapping tool. Using ArcExplorer software, users can both look at the data tables that were compiled from many different sources and view the data in Geographic Information System (GIS) map format. It is our hope that tourism planners, managers, and researchers will be able to use this tool to prioritize the implementation of positive tourism-management actions in those areas with the most biodiversity and in greatest need for human development.

Endnotes

[2]This issue is discussed further in Chapter 1.

Chapter 1

The International Tourism Industry: Opportunities and Threats for Biodiversity Conservation

1.1 The Growth of the International Tourism Industry

Since the Second World War, the growth of international tourism has been phenomenal. Annual tourist arrivals worldwide increased from 25 million in 1950 to 450 million in 1990. Between 1969 and 1979, the World Bank encouraged developing countries to invest in tourism as a strategy for attracting foreign investment, and the governments of developing countries began to see tourism as a means to redistribute resources from North to South.

In the words of the World Tourism Organization (WTO), tourism became "one of the most important economic, social, cultural and political phenomena of the twentieth century" (Ceballos-Lascurain 1996).

Today tourism is often described as the world's "biggest" industry on the basis of its contribution to global gross domestic product (GDP), the number of jobs it generates, and the number of clients it serves (see Box 1). However, these conclusions are based largely on arrivals statistics, which focus on international tourism and therefore hide the significance of *domestic* tourism. These statistics may also underestimate regional tourists traveling by land rather than air or sea. The WTO estimates that the ratio of domestic to international tourism is as high as 10:1—although this varies hugely from country to country (WTO 1997). The size of the industry and its rate of growth present both opportunities and threats for biodiversity conservation.

Box 1: The World's Biggest Industry?

Statistics produced by the World Travel and Tourism Council (WTTC) indicate that tourism generates 11 percent of global GDP,[3] employs 200 million people, and transports nearly 700 million international travelers per year—a figure that is expected to double by 2020.

According to the World Tourism Organization, international tourism

- accounts for 36 percent of trade in commercial services in advanced economies and 66 percent in developing economies;
- constitutes 3–10 percent of GDP in advanced economies and up to 40 percent in developing economies;
- generated US$464 billion in tourism receipts in 2001;
- Is one of the top five exports for 83 percent of countries and the main source of foreign currency for at least 38 percent of countries.

Above: Walking tour through the rural villages of Tuscany, Italy.

Left: A wild cheetah adapts to the presence of tourists by using a vehicle as a hunting lookout in Kenya's Maasai Mara Game Reserve.

> *"The tourism industry was considered by some to be a more reliable source of foreign exchange than minerals, raw materials, cash crops and manufactured goods, which had increasingly unstable prices. Tourism was also seen as an exceptional opportunity to valorize national culture, wildlife and unique natural features."*
>
> (Ghimire 1997).

At work building a rain forest canopy walkway for tourists in Ghana.

"The immense value of this vast resource remains largely unrecognized….Loss of biodiversity results in serious reductions in the goods…and services…that the Earth's ecosystems can provide and that make economic prosperity and human survival possible. In short, biodiversity is the very basis for sustainable development."

(WEHAB Working Group 2002).

1.2 Biodiversity Considerations

The Convention on Biological Diversity (CBD) defines biodiversity as "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" (CBD 1992). The common understanding of the term "biodiversity" is all the living things on Earth and the ecological processes associated with them. Vermeulen and Koziell (2002) note that, as such, biodiversity can be, and is, used as a synonym for "nature" or "life on Earth." Often lost in discussions of biodiversity is the emphasis on the *variability* and *variety* within species, among species, and among the ecological processes, and the key benefits these bring to humans in the form of choice—both in the present and in the future.

Biodiversity is essential to human development because of the goods and services it provides. Components of biodiversity may be used directly as food, medicine, building materials, and so on. Biodiversity provides more indirect benefits, in the form of environmental regulation, soil conservation, and pollution control. It also has what economists refer to as "non-use values"—for example, the simple enjoyment or "existence value" of some aspects of biodiversity and the option to use biological resources in the future. Many of the services biodiversity provides are not widely recognized or are not appropriately valued in economic terms. However, the combined economic value of 17 ecosystem services has been estimated at US$16.54 trillion per year (Costanza et al. 1997). Furthermore, one of the Working Groups for the World Summit on Sustainable Development (WSSD) reported that an estimated 40 percent of the global economy is based on biological products and processes (WEHAB Working Group 2002).

UNEP's Global Environmental Outlook (GEO) report on the state of the global environment (UNEP 2002) highlights that, on a global scale, biodiversity is being lost at a rate many times higher than that of natural extinction. This loss is due to land conversion, climate change, pollution, unsustainable harvesting of natural resources, and the introduction of invasive species. Human population growth, together with unsustainable patterns of consumption, increasing production of waste and pollutants, urban development, and international conflict, further contributes to biodiversity loss. Over the past three decades, major losses of virtually every kind of natural habitat have occurred, and the decline and extinction of species have emerged as major environmental issues. Although insufficient information is available to determine precisely how many species have become extinct in the past 3 decades, about 24 percent (1,130) of mammals and 12 percent (1,183) of bird species are currently regarded as globally threat-

ened. So great is the concern over the rate of decline, and its implications for human welfare, that biodiversity was identified as one of the five priority areas for the 2002 World Summit on Sustainable Development (WSSD).[4]

A common strategy for biodiversity conservation has been identify priority areas and focus conservation efforts on those areas. The international system of national and regional protected areas is a clear example of this approach, and it is also implemented through a variety of international agreements: the Ramsar Convention produces a list of Wetlands of International Importance, and the World Heritage Convention identifies sites of natural heritage considered to be of outstanding value. Several international conservation organizations have also adopted this strategy: BirdLife International designates Important Bird Areas (IBAs), based, *inter alia,* on the presence of globally threatened or endemic species; and World Wildlife Fund (WWF) has defined a "Global 200" set of priority conservation areas, with the central concept being to conserve the broadest variety of the world's habitats and the most endangered wildlife.

1.3 Conservation International's Priority-Setting Mechanisms: Biodiversity Hotspots, Wilderness Areas, and Coral Reef Hotspots

CI has developed a priority-setting strategy that focuses its attention on biodiversity hotspots around the world. CI notes that two factors are considered for hotspot designation: "Hotspots are regions that harbor a great diversity of endemic species and, at the same time, have been significantly impacted and altered by human activities" (Meyers, et. al. 2000).

Plant diversity is the biological basis for hotspot designation—to qualify as a biodiversity hotspot, a region must support at least 1,500 endemic plant species (0.5 percent of the global total). Existing primary vegetation is the basis for assessing human impact in a region, and a hotspot must have lost 70 percent or more of its original habitat. Overall, the hotspots have lost nearly 90 percent of their original natural vegetation.

The biodiversity hotspots contain 44 percent of all known endemic plant species and 35 percent of all known endemic species of birds, mammals, reptiles, and amphibians in only 1.4 percent of the planet's land area (Meyers, et. al. 2000).

Given the great concentration of plant and animal species in such a small and highly threatened terrestrial fragment of the world, it is extremely important that these areas receive very special conservation attention, along with research and monitoring to prevent further extinctions.

Map 1 illustrates the location of each of the hotspots. The biodiversity hotspots span countries of different sizes, economic and resource endowments, and social contexts. Mass tourism, as well as nature-based and adventure tourism, is a significant revenue generator in many of these countries.

CI has also identified 10 coral reef hotspots. Eight of the 10 are adjacent to terrestrial biodiversity hotspots. Extending terrestrial conservation efforts seaward in those places offers an effective and affordable strategy for protecting global biodiversity. Coral reef hotspots, many of which receive significant tourism volumes, are also identified in Map 1.

An additional and complementary terrestrial prioritization category used by CI is that of wilderness areas. Three major tropical wilderness areas are shown in Map 1 —Amazonia, the Congo Forest of Central Africa, and the island of New Guinea. They are at least 70 percent intact and are generally under less pressure from encroaching human populations than are the biodiversity hotspots, having fewer than five people per square kilometer. As such, these areas are among the last places where indigenous people can maintain traditional lifestyles. These wilderness areas are among the largest remaining tracts of pristine land on Earth but, compared to similarly intact desert, arctic, or boreal regions, they hold a high proportion of the planet's biodiversity. They are also of crucial importance to climate regulation and watershed protection.

1.4 Tourism Development and Biodiversity Conservation: Linkages and Disconnects

The travel and tourism industry claims that it is well placed to contribute to sustainable development on the grounds that it

- has less impact on the environment than many other industries,
- is based on an enjoyment of the natural and cultural environment and so is motivated to protect them,
- can play a positive role in awareness raising and consumer education through its vast distribution channels, and
- provides an economic incentive to protect habitat that might otherwise be converted to less environmentally friendly land uses (WTTC and IHRA 1999).

The above points can be made equally in relation to tourism's potential contribution to biodiversity conservation, because biodiversity is a critical component of the natural environment that tourists enjoy. It is true, as this research project illustrates, that tourism has been growing and increasing particularly in biodiversity hotspots in the South. Given the rapid growth in nature and adventure travel within the global tourism industry during the past 2 decades, it is reasonable to assume that tourism's growth in these high biodiversity areas is linked to their relatively unique natural environments. Destroying the environment on which the success of the industry is based is therefore like killing the goose that lays the golden egg.

Tourism can, and sometimes does, make significant contributions to protected-area systems of conservation. Direct benefits from tourism to conservation can be clustered in five areas (Brandon 1996):

1. a source of financing for biodiversity conservation, especially in legally protected areas;
2. economic justification for protected areas;
3. economic alternatives for local people to reduce overexploitation of wildland and wildlife resources on protected areas;
4. constituency-building, which promotes biodiversity conservation; and
5. an impetus for private biodiversity conservation efforts.

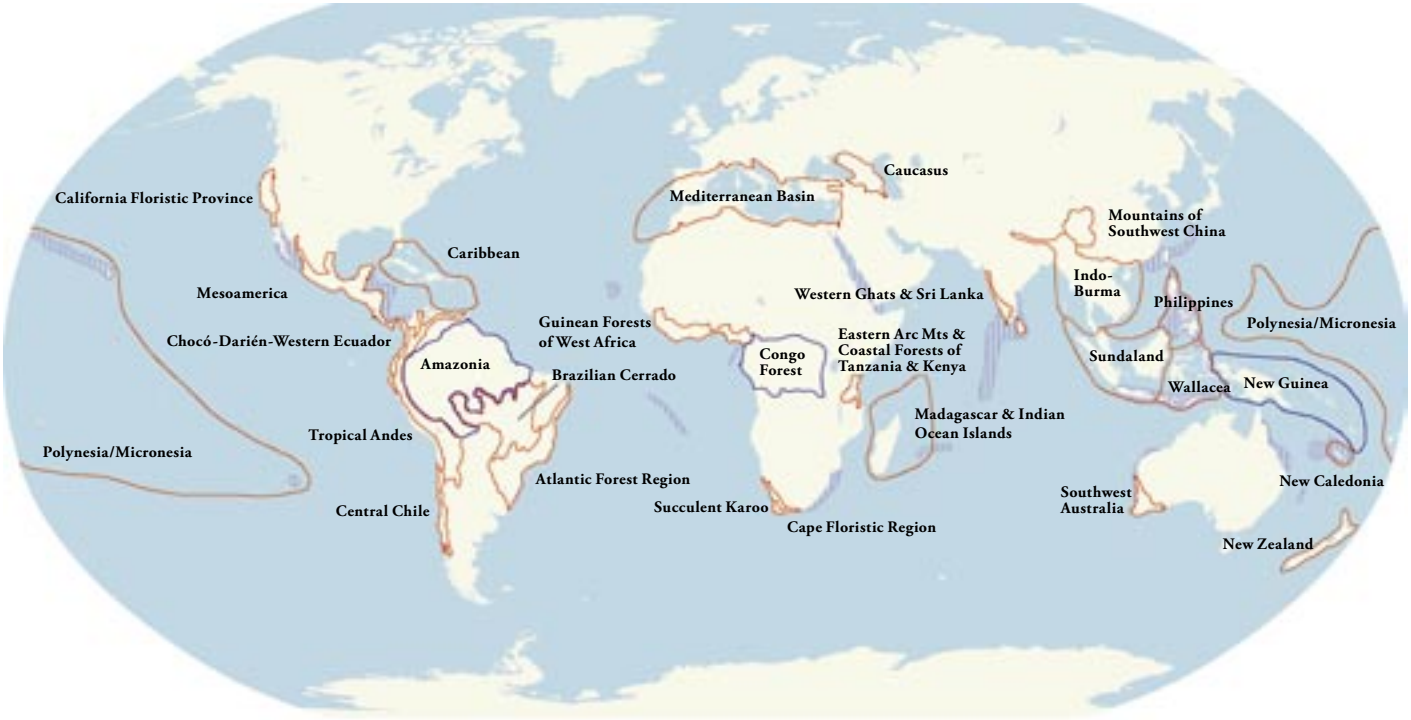
In the South, tourism is often the overriding justification for governments to support the creation of new protected areas. In addition, since the mid-1980s, the trend toward wildlife needing to "pay its way" and for local communities to be actively involved in conservation efforts has led to the emergence of ecotourism as a more responsible form of nature-based travel that promotes biodiversity conservation and also brings benefits to local communities (see Box 2). During the seventh session of the United Nations Commission on Sustainable Development (CSD) in 1999, UNEP reemphasized the growing recognition that "the involvement of local communities in tourism development and operation appears to be one important condition for the conservation and sustainable use of biodiversity." Obligations of donors and governments under the CBD, with its emphasis on sustainable use and benefit sharing, have served to reinforce this trend, resulting in

Box 2: Ecotourism—Linking Tourism and Biodiversity Conservation

"Ecotourism is an idea, a concept, that is challenging tourism as we have known it. Defined most succinctly as 'responsible travel to natural areas, that conserves the environment and sustains the well being of local people,' ecotourism fundamentally reshapes the basic precepts behind tourism, which is quite simply travel undertaken for pleasure. Nature tourism, which is frequently but erroneously considered the same as ecotourism, is defined as travel to unspoiled places to experience and enjoy nature. Its close cousin, adventure tourism, is described as nature tourism with a kick—nature tourism with a degree of risk taking and physical endurance. Nature and adventure tourism focus on what the tourist is seeking. In contrast, ecotourism is qualitatively different. It focuses on what the traveler does, plus the impact of this travel on both the environment and the people in the host country. Ecotourism posits that this impact should be positive. Ecotourism is not, therefore, simply another niche market within the tourism industry. Rather, ecotourism is a philosophy, a set of practices and principles that, if properly understood and implemented, will transform the way we travel."

(Honey 2002)

Map 1: Hotspots, Major Tropical Wilderness Areas, and Coral Reef Hotspots



BIODIVERSITY HOTSPOTS, MAJOR TROPICAL WILDERNESS AREAS, AND CORAL REEF HOTSPOTS

- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: Conservation International 2002
Cartography: M. Denil

the *CBD Guidelines on Sustainable Tourism in Vulnerable Ecosystems*, approved in the convention's Scientific and Technical advisory body in March 2003.

Communities that receive significant income from tourism may be motivated to conserve biodiversity. However, if benefits are small—or not sufficiently linked with conservation inputs—they may be reinvested in activities that undermine biodiversity conservation such as livestock rearing (WCPA 2000).

Sustainable tourism has emerged as a more responsible form of mass tourism development (see Box 3). In the past, traditional mass tourism developments have been a major threat to biodiversity conservation because management controls and effective planning mechanisms have been lacking. Drawing from the concepts of ecotourism, namely that tourism should "conserve the environment and sustain the well-being of local people" (TIES 1991), sustainable tourism seeks to minimize the negative footprint of tourism developments and at the same time contribute to conservation and community development in the areas being developed.

It might be expected that tourism development following the principles associated with ecotourism would go hand in hand with biodiversity conservation and improvements in rural livelihoods. In many instances, tourism has been instrumental in delivering scarce funds for conservation and providing local people with an economic incentive to protect biodiversity from other, potentially more damaging forms of develop-

Atlantic Forest, Brazil.

> *The role of tourism in biodiversity conservation is especially significant in Southern nations because many Southern nations have particularly rich biodiversity but…protected area agencies with few funds and little political power. Northern tourism can provide incentives to conserve biodiversity through foreign exchange and economic opportunities for Southern governments and local communities.*
>
> (Buckley 2002)

Box 3: Sustainable Tourism and Biodiversity Conservation

Sustainable tourism (which draws on the principles of ecotourism) can directly contribute to biodiversity conservation by:

- offering less destructive livelihood alternatives to local communities and landowners in buffer zones and conservation corridors, away from unregulated logging, intensive cattle-ranching, monoculture, hunting, and unsustainable tourism;
- providing an incentive for public and private landowners in critical ecosystems to permanently conserve biodiversity-rich properties, by offering revenue-producing, low-impact economic use;
- providing protected-area managers with additional financial resources from visitation and donations; and
- raising visitor awareness, promoting community involvement and interest in conservation issues, and generating political support for conservation through environmental education during travel.

ment such as mining, logging, or consumptive use of wildlife. Maintaining an attractive resource base has in turn continued to attract more tourists and support a healthy tourism industry, thus generating more funds for conservation. A mutually supporting circle of success can develop. However, this positive relationship is not always the case, particularly where tourism development occurs without management standards and guidelines that seek to promote conservation of nature and deliver tangible benefits to local communities.

Moreover, whatever the form of tourism developed, infrastructure and facilities for the tourism industry usually require significant tracts of land and building materials. Tourism development regularly takes place in a rapid and unplanned manner, resulting in total landscape transformation in a very short period of time, often leading to deforestation and drainage of wetlands. Such habitat disruption can result in significant loss of biodiversity. The problem is exacerbated by the fact that a lot of tourism occurs in fragile areas (e.g., coastal zones, mountains, protected areas) or areas of high biodiversity.

The very nature of the mainstay product of the tourism industry—sand, sea, and sun—highlights the fact that the industry is very dependent on coastal areas. Alongside increasing urbanization and industrialization, UNEP's Global Environment Outlook (GEO) report notes that uncontrolled, mass tourism is one of the root causes behind coastal degradation today (UNEP 2002). As well as its direct environmental impacts, resource depletion can also have indirect socioeconomic effects, as essential resources become scarce for local people. The World Conservation Union

(IUCN) notes that this can, in turn, have additional negative impacts on biodiversity, by concentrating local resource use in smaller areas and/or by undermining local resource management systems (WCPA 2000).

In addition to resource depletion and habitat disruption, littering and water pollution are problems associated with mainstream tourism that can have negative consequences for biodiversity conservation. The littering problem is exacerbated in remote areas, where waste collection can be logistically difficult (e.g., on mountains, in the middle of the ocean). Waste disposal from cruise ships has been problematic, as they have limited capacity to carry all their waste until they reach their home port, and destination ports have limited incentive (and capacity) to accommodate periodic discharges. However, "most of the major cruise lines have begun to implement comprehensive waste management programs and wastes such as glass, cardboard, aluminum and steel cans are processed onboard through crushing, reuse and/or recycling and incineration" (Sweeting & Wayne 2003). Construction of hotels, recreation, and other facilities often leads to increased sewage pollution. Wastewater has polluted seas and lakes surrounding tourist attractions, damaging the flora and fauna.

Coral reefs are at a particular risk from unplanned tourism development. Holden (2000) notes that, as well as being mined for building materials, reefs suffer from sewage runoff that stimulates the growth of algae, covering the filter-feeding corals and hindering their ability to survive. In addition, reefs are often damaged by the activities of careless tourists—as divers and snorkelers kick and stand on coral, for example, or boats and jet skis scrape the surface of the reef. Furthermore, dive/snorkel boat operators may throw their anchors into corals, and local entrepreneurs often break off pieces of coral to sell as souvenirs.

Mountains are also popular locations for tourism and, because of their fragile soils, they are particularly sensitive to environmental impacts. Deforestation from tourism (through construction, use of wood for fires, etc.) can have direct implications for habitat conservation and watershed management and can also increase the likelihood of landslides.

It is these negative impacts of unmanaged tourism development on the environment and local cultures that gave rise to ecotourism in the 1980s and 1990s as an alternative set of principles and practices to harness tourism's economic potential for biodiversity conservation and sustainable development. During the last decade, ecotourism has emerged from small model projects demonstrating how tourism can be a catalyst for conserving nature and promoting the well-being of local peoples into a wider set of sustainable tourism principles that can be applied across a larger segment of the travel and tourism industry. However, just how far, and to what degree, these principles will ultimately be able to transform the mass tourism industry to be a more positive force for biodiversity conservation remains to be seen.

Box 4: Tourism's Resource Consumption

Using consumption averages from various countries, statistics from WTO, and estimates of national tourism in relation to international arrivals, UNEP proposed some estimates of the order of magnitude of resource consumption from tourism.

If the global tourism industry were represented as a country, it would consume resources at the scale of a northern developed country.

International and national tourists use 80 percent of Japan's yearly primary energy supply (5,000 million kWh/year), produce the same amount of solid waste as France (35 million tons per year), and consume three times the amount of fresh water contained in Lake Superior, between Canada and the United States, in a year (10 million cubic meters).

Endnotes

[3]The WTTC commonly quotes this figure, although the WTO puts the figure lower. The difference reflects the difficulty in defining what is and is not included within the tourism "industry" and whether services such as transport are included in the calculation. The WTTC figure also incorporates the multiplier effect of tourism spending and therefore reflects the economic impact of the wider "tourism economy" rather than just the industry itself.

[4]WSSD focused on water, energy, health, agriculture, and biodiversity (WEHAB Working Group 2002).

Chapter 2

Mapping Tourism's Global Footprint: Impacts on Biodiversity and Local Livelihoods

2.1 The Maps

Chapter 1 has highlighted the broad relationships between tourism development, biodiversity, and local livelihoods. This chapter reviews this relationship in more depth, focusing on the impact of tourism in the biodiversity hotspot countries.

The maps presented serve to illustrate the following key issues:

- Although most biodiversity is concentrated in the South, many major tourism destinations in the North (e.g., the Mediterranean, the California Coast, Florida Keys) also coincide with biodiversity hotspots.
- Although they receive fewer tourists overall than the North, many economically poor, but biodiversity-rich, countries in the South receive large numbers of tourists.
- Many hotspot countries in the South are experiencing very rapid tourism growth.
- Over one-half of the poorest 15 countries fall within the biodiversity hotspots, and in all of these, tourism is already significant or is forecast to increase.
- In many destinations within hotspot developing countries, biodiversity is the major tourism attraction.
- Forecasts suggest that tourism will become increasingly important in hotspot countries—particularly in Southeast Asia—and this will require careful planning to avoid negative impacts on biodiversity.

The maps can also be used to illustrate the potential impacts of tourism in different countries or regions—for example, plotting the number of tourism arrivals against the population of each country allows us to predict where tourism pressure is likely to be high and environmental and social impacts more severe.

2.2 Is Tourism Significant in Biodiversity Hotspot Countries?

The hotspots map in Chapter 1 shows that, on a global level, the majority of hotspots are concentrated in the South. A map of international tourist arrivals by country for 2000 shows, however, that the majority of tourist arrivals are in the North: North America, Western Europe, and Russia stand out as significant areas for tourist visitation (Map 2). This finding is borne out by a map of arrivals by region (1995), which also shows that Southeast Asia and South America receive medium levels of arrivals. Africa, South Asia, Oceania, and Central America experience lower levels of arrivals at the regional level (Map 3).

An analysis based solely on total

Above: Togian woman preparing coconuts, Malenge Island, Indonesia.

Left: Tourists explore Africa's first canopy walkway in Kakum National Park, Ghana.

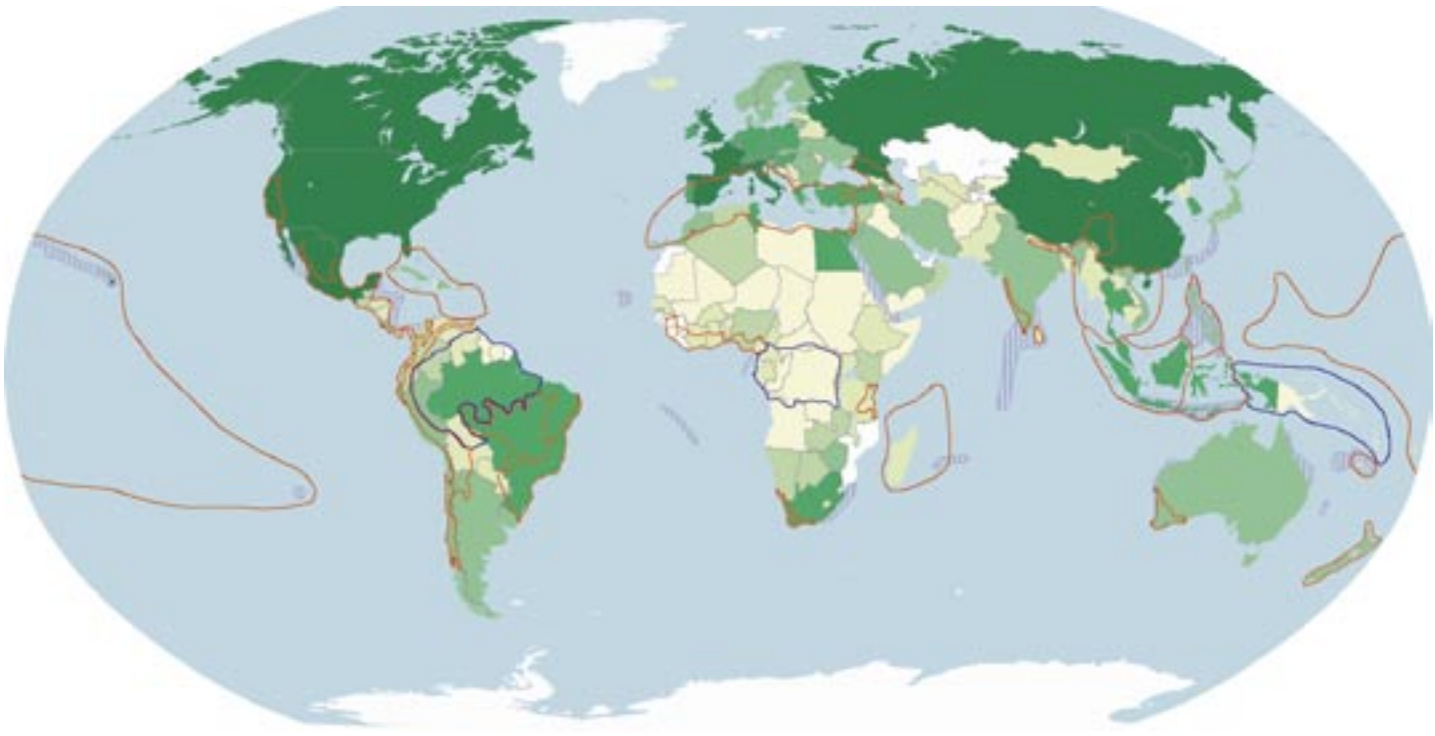
arrivals figures can obscure the pressure of tourism in some cases, as it does not take into account the size of the country to which the tourists are arriving and the amount of tourism infrastructure and planning in place. Map 2 shows fewer tourists arriving in the Caribbean than in the United States, for example, but when the relative sizes of these regions are taken into account, the implications of even this lower number of arrivals becomes clear. Although the Caribbean region, a major biodiversity hotspot, accounts for only 4 percent of international tourist arrivals, tourism plays a major role in many Caribbean economies, accounting for 15.5 percent of total employment, or one in 6.4 jobs (Hawkins et al. 2002). The biodiversity impacts of tourism development in the Caribbean may be much more significant than the statistics initially convey.

In addition, data on the volume of tourism provide no indications as to how tourists are distributed within a particular country—they may be extremely concentrated in some areas and virtually nonexistent in others. The Caribbean is again a good example, where the vast majority of tourism impacts happen at the coast, the site of often critically endangered coral reefs. Obviously, the distribution of tourists in relation to sensitive areas will affect the impact of tourism both on local livelihoods and on biodiversity.

2.2.1 Tourism is significant and growing in poor, biodiversity-rich countries

Although they receive fewer tourists overall than the North, parts of the South receive large numbers of international arrivals, and many of these coincide with

Map 2: International Arrivals Circa 2000



TOTAL ARRIVALS (IN THOUSANDS)

- Fewer than 100
- 100–500
- 500–1,000
- 1,000–5,000
- 5,000–20,000
- 20,000–70,000
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Tourism Organization 2001* (Tourism Market Trends)
Conservation International 2002
Cartography: M. Denil

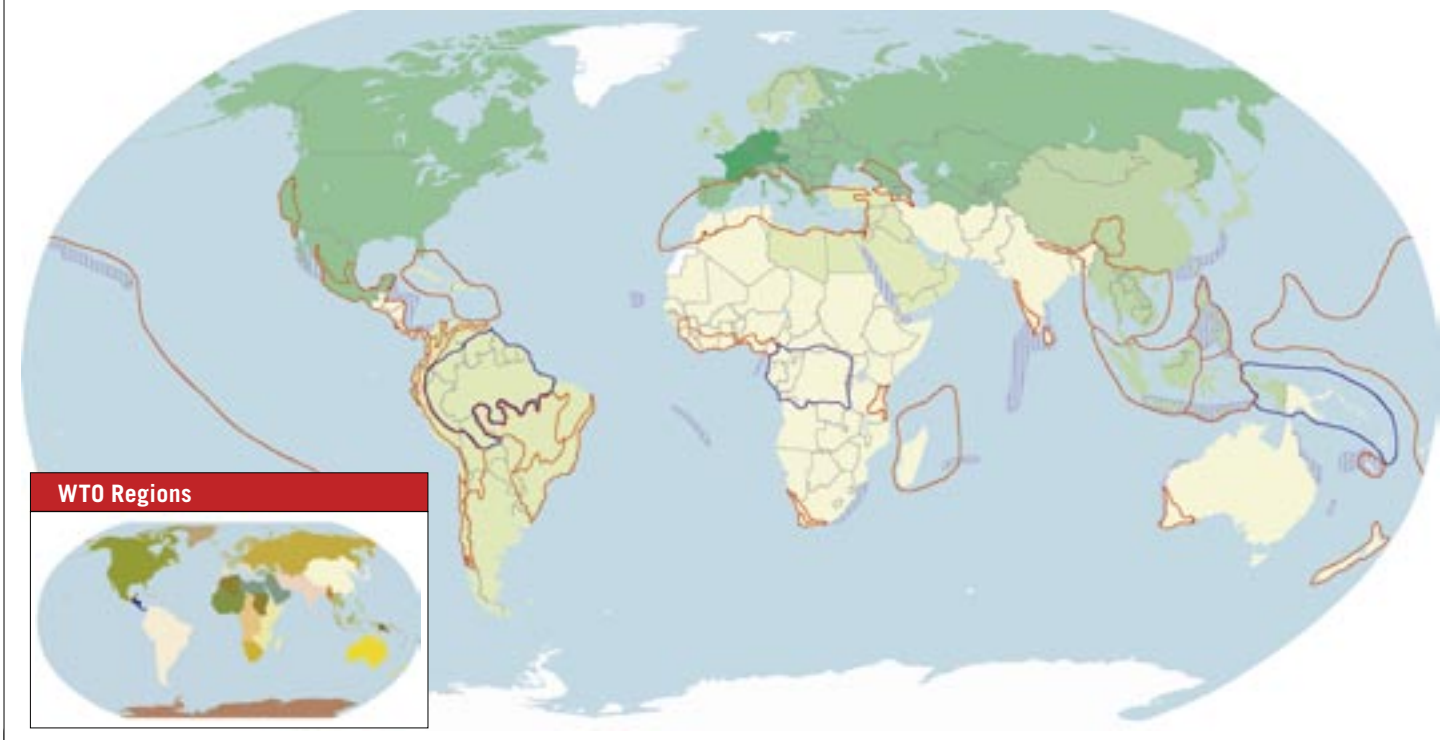
*Data for each country may be for activity from the years 1998 through 2000. Data for the latest date available in this range was selected for display here.

hotspots: Mexico (Mesoamerica hotspot), Brazil (Atlantic Forest and Cerrado), South Africa (Cape Floristic Region), Thailand (Indo-Burma), Malaysia, and Indonesia (Sundaland and Wallacea) stand out as countries with high levels of international tourism arrivals, particularly during the past decade (Map 2). At a subnational level, the Cape Floristic Region of South Africa is an important tourism destination, and the resort island of Bali falls squarely within the Sundaland hotspot.

It is also important to note that Map 2 shows only the numbers of international arrivals, yet *domestic tourism* is also highly significant in Mexico, China, South Africa, and Thailand. In Brazil, domestic tourists provided six times more room nights in classified hotels in 2001 than the 5.5 million foreign tourists (FIPE/EMBRATUR 2002). Ghimire (1997) notes that in Mexico, it was estimated that as much as 40 percent of the country's population participated in domestic tourism activities in 1994. In Thailand, domestic tourists outnumber international tourists at all major attractions. On the Philippine island of Palawan, listed by CI as one of the world's most threatened biodiversity hotspots, domestic tourism accounts for more than 50 percent of arrivals in 2003 (Christ 2003). Although the international arrivals represented in Map 2 figures are not exclusively vacation tourists, tourists can be considered a large, if not the largest, segment of those arrivals; the statistics therefore do represent significant increasing tourism travel to each biodiversity hotspot country.

Furthermore, although North America may receive many arrivals, Map 4 shows that the average annual growth rate over the last

Map 3: Regional Tourist Arrivals 1995

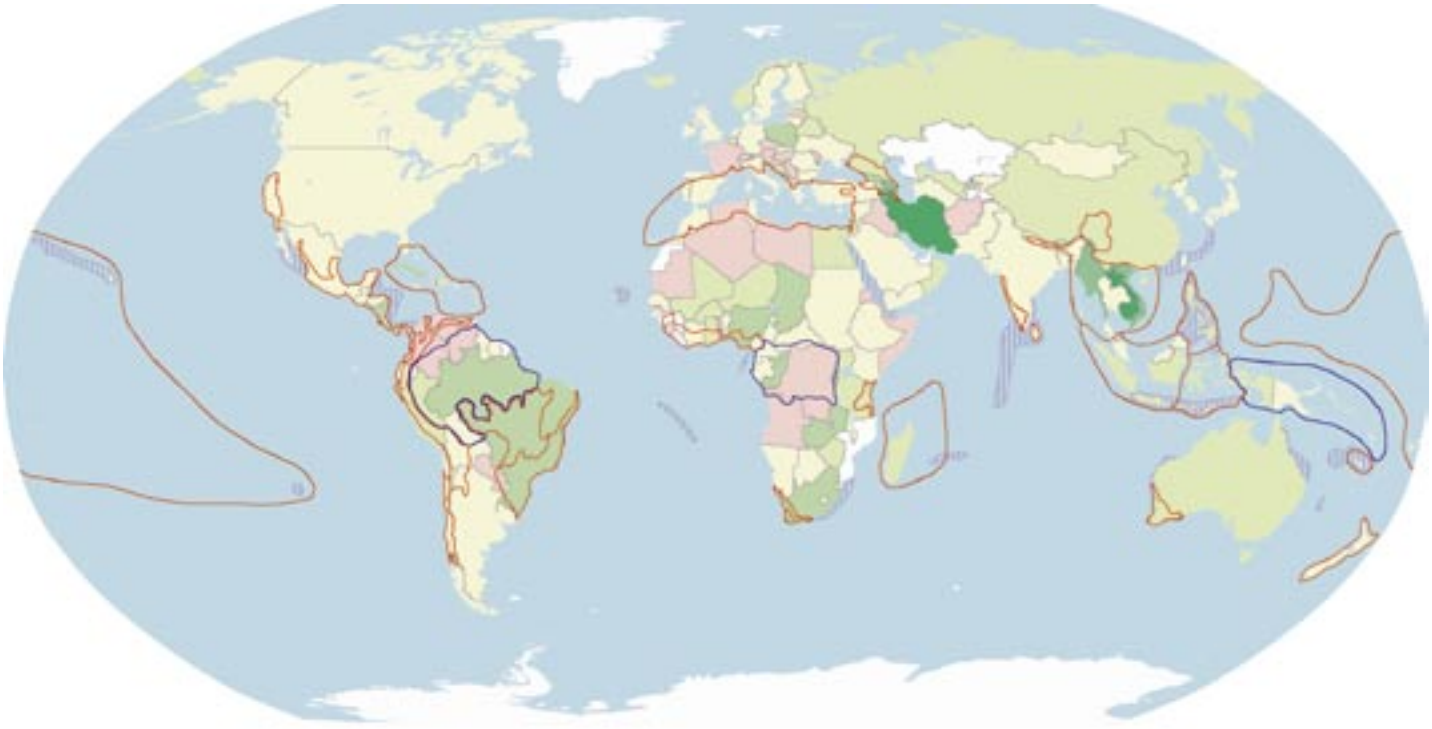


INTERNATIONAL TOURISTS ARRIVALS 1995 BY WTO REGIONS IN MILLIONS OF PEOPLE

- Up to 10
- 10–20
- 20–50
- 50–100
- 100–150
- 150–250
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Tourism Organization 2001 (Tourism Market Trends)
Conservation International 2002
Cartography: M. Denil

Map 4: Average Annual Growth 1990–2000



AVERAGE ANNUAL GROWTH IN TOURISM THROUGH THE 1990s

- No growth or negative growth
- Less than 100%
- 100%–250%
- 250%–500%
- 500%–1000%
- Over 1000%
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Tourism Organization 2001*
(Tourism Market Trends)
Conservation International 2002
Cartography: M. Denil

*Data for each country may be for activity from the years 1990 through 1995 and for 1998 through 2000. Data for the latest date available in this range was selected for comparison here.

10 years has been slower in North America than in other biodiversity hotspot countries such as Brazil. South Africa is among several hotspot countries where the number of international arrivals is not only large but also rapidly growing. Tourism in Laos and Cambodia (Indo-Burma) has also grown dramatically, as it has in Vietnam and Burma.[5]

Of particular importance, Table 1 identifies 22 hotspot countries where visitor arrivals have increased by more than 100 percent between 1990 and 2000. At the top of the list, Laos shows a staggering tourism increase of over 2,000 percent. Although starting from a small base (14,000 international arrivals in 1990), if Laos follows the pattern of its neighbor Vietnam, which has increased from 250,000 to 1,890,000 tourist arrivals in the last decade, the implications could be very significant in terms of negative impacts on biodiversity. Not only did the number of international arrivals in China top 10,000,000 in 1990, but it nearly tripled to 31,000,000 in 2000. By contrast, the United States, while capturing a larger number of international arrivals (51,000,000), has experienced only a comparatively modest growth rate of 29 percent in the last decade.

These patterns of growth are particularly important, since it is reasonable to assume that a significant percentage of new tourism facilities in developing countries high in biodiversity will be built on coastal and natural destinations harboring threatened ecosystems.

Further prioritizing exercises may be proposed: for example, focusing on countries with high

Table 1: Examples of Hotspot Countries Exhibiting Tourism Growth of More Than 100 Percent

Hotspot/Country	International Arrivals (in thousands)			Growth 1990–2000 (in thousands)	Percentage Growth 1990–2000
	1990	*1995*	*2000*		
Indo-Burma					
Laos	14	60	300	286	2043
Myanmar	21	117	208	187	890
Vietnam	250	1351	2140	1890	756
Macao	2,513	4,202	6,682	4,169	166
Succulent Karoo/Cape Floristic Region					
South Africa	1,029	4,684	6,001	4,972	483
Caribbean					
Cuba	327	742	1,700	1,373	420
Turks and Caicos Islands	49	79	156	107	218
Dominican Republic	1,305	1,776	2,977	1,672	128
Brazilian Cerrado/Atlantic Forest					
Brazil	1,091	1,991	5,313	4,222	387
Mesoamerica					
Nicaragua	106	281	486	380	358
El Salvador	194	235	795	601	310
Costa Rica	435	785	1,106	671	154
Panama	214	345	479	265	124
Guinean Forests					
Nigeria	190	656	813	623	328
Tropical Andes					
Peru	317	541	1,027	710	224
Madagascar and Indian Ocean Islands					
Madagascar	53	75	160	107	202
Eastern Arc Mountains and Coastal Forests					
Tanzania, United Republic of	153	285	459	306	200
Mountains of Southwest China					
China	10,484	20,034	31,229	20,745	198
Sundaland/Wallacea					
Indonesia	2,178	4,324	5,064	2,886	133
Mediterranean Basin					
Israel	1,063	2,215	2,400	1,337	126
Southwest Australia					
Australia	2,215	3,726	4,946	2,731	123
Micronesia/Polynesia					
Cook Islands	34	48	73	39	115

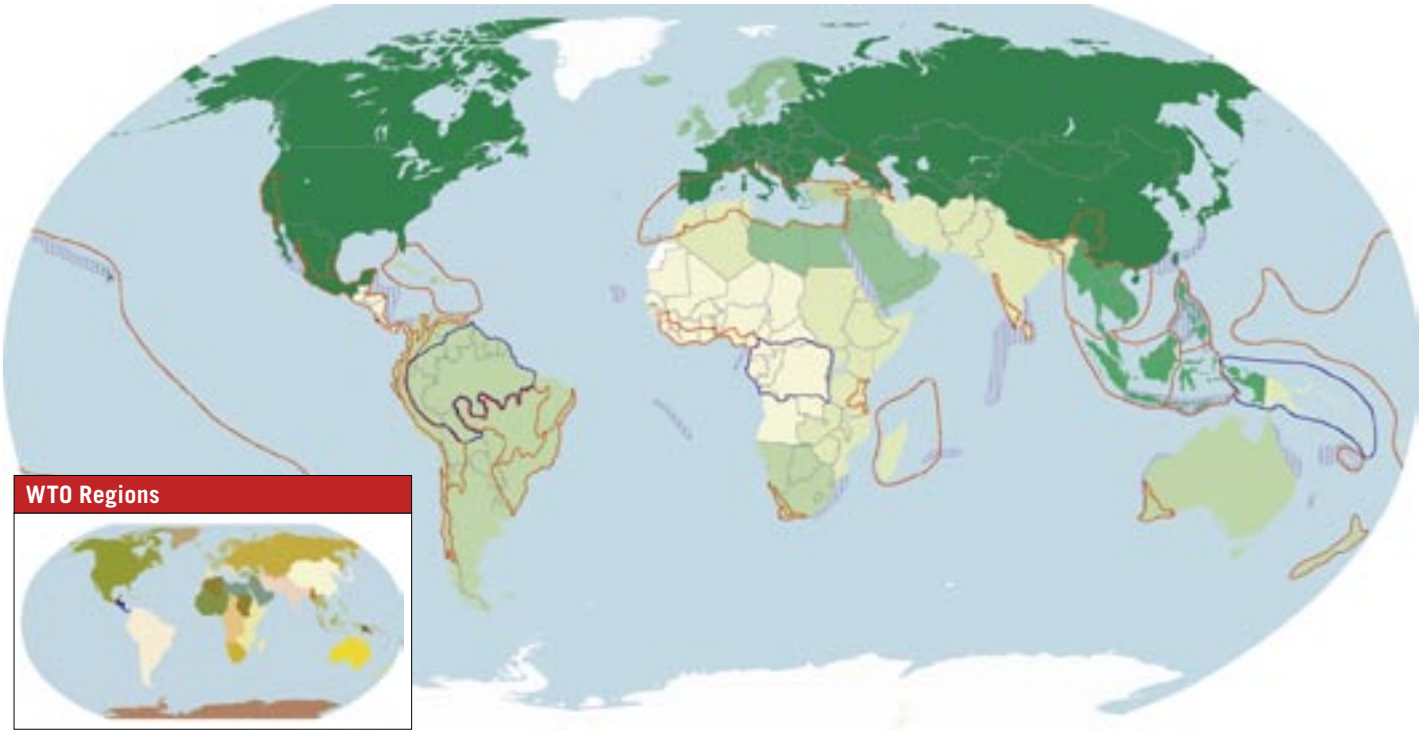
volumes of international arrivals (38 hotspot countries show over 1 million international arrivals per year, and 16 of them show over 5 million arrivals per year); or combining arrival numbers with growth rates—12 of the 22 hotspots countries with over 100 percent growth rates had over 1 million international tourists in 2000 (Australia, Brazil, China, Costa Rica, Cuba, the Dominican Republic, Indonesia, Israel, Macao, Peru, South Africa, and Vietnam). These countries clearly need to ensure that biodiversity considerations are incorporated into tourism development strategies and policies and that tourism is considered in strategic biodiversity action plans. (The Data Sets, located in the back of this book, provide a full listing of the international arrivals data for all hotspot countries.)

Looking forward to 2020, regional forecasts prepared by the World Tourism Organization (Map 5) suggest that tourism will become increasingly important in hotspot countries. South America, southern Africa, and Oceania are all expected to experience significant growth in numbers of tourists, but the Southeast Asia region stands out as one where the increase is likely to be particularly dramatic. This projection implies that, as the home to four biodiversity hotspots and one major tropical wilderness area, this region will require very careful tourism planning if it is not to suffer a serious negative impact on biodiversity.[6]

2.2.2 Prime tourism destinations in the North are located in biodiversity hotspots

Tourism in the North also has significant implications for biodiversity conservation, because biodiversity hotspots also occur in these northern destinations: the

Map 5: Regional Tourist Arrivals—Projections for 2020



INTERNATIONAL TOURIST ARRIVAL PROJECTIONS FOR 2020 BY WTO REGIONS IN MILLIONS OF PEOPLE

- Up to 10
- 10–20
- 20–50
- 50–100
- 100–150
- 150–250
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Tourism Organization 2001 (Tourism Market Trends)
Conservation International 2002
Cartography: M. Denil

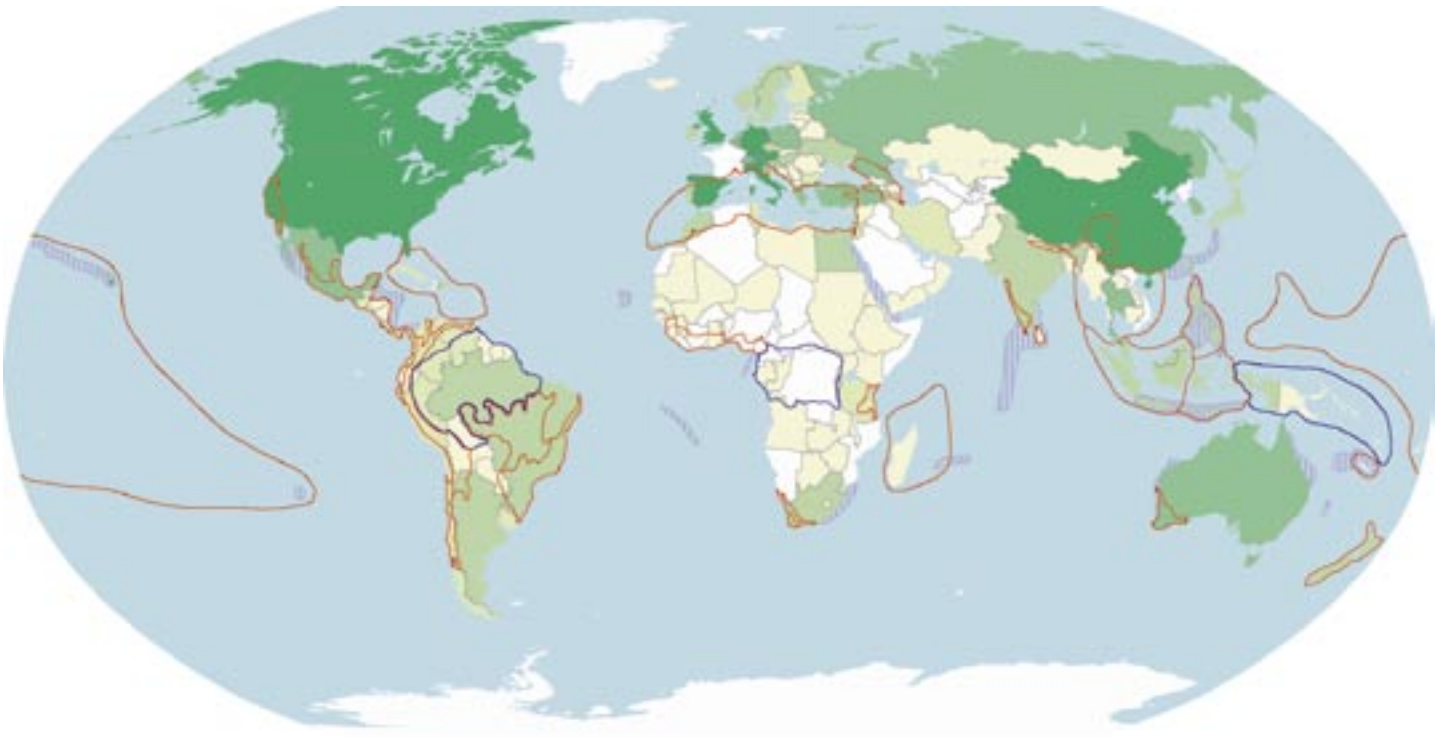
California Floristic Province, the northern part of Mesoamerica, the Mediterranean Basin, the Caucasus, and the mountains of south-central China, for example.

From the level of analysis of the global mapping exercise, it is not possible to examine the distribution of visitor arrivals across these regions—it is theoretically possible that none of China's tourists visit the south-central mountains, for example. But in actuality, tourism pressure is well documented in this area of China, and significant growth in China's domestic tourism is anticipated, with some major tourism development projects already under way. The Mediterranean is the most visited tourism region in the world, accounting for 30 percent of international arrivals and 25 percent of receipts from international tourism. The number of tourists in the Mediterranean countries is expected to increase from 260 million in 1990 (with 135 million to the coastal region) to 440–655 million in 2025 (with 235–355 million to the coastal region) (EEA 2001). It can also be noted that "the construction of infrastructure and the direct impacts of people using and trampling ecosystems remains a key threat to coastal areas in Turkey, Cyprus, Tunisia, Morocco, and Greece." (CI 2003).

2.3: Tourism, Biodiversity, and Poverty Reduction

We have already noted above that the majority of biodiversity hotspots are located in the developing countries of the South. In light of the linkages between biodiversity and tourism, and between biodiversity and sustainable livelihoods, it is clear that no biodiversity conservation strategy based on tourism alone is likely to succeed unless it

Map 6: International Tourism Receipts Circa 2000



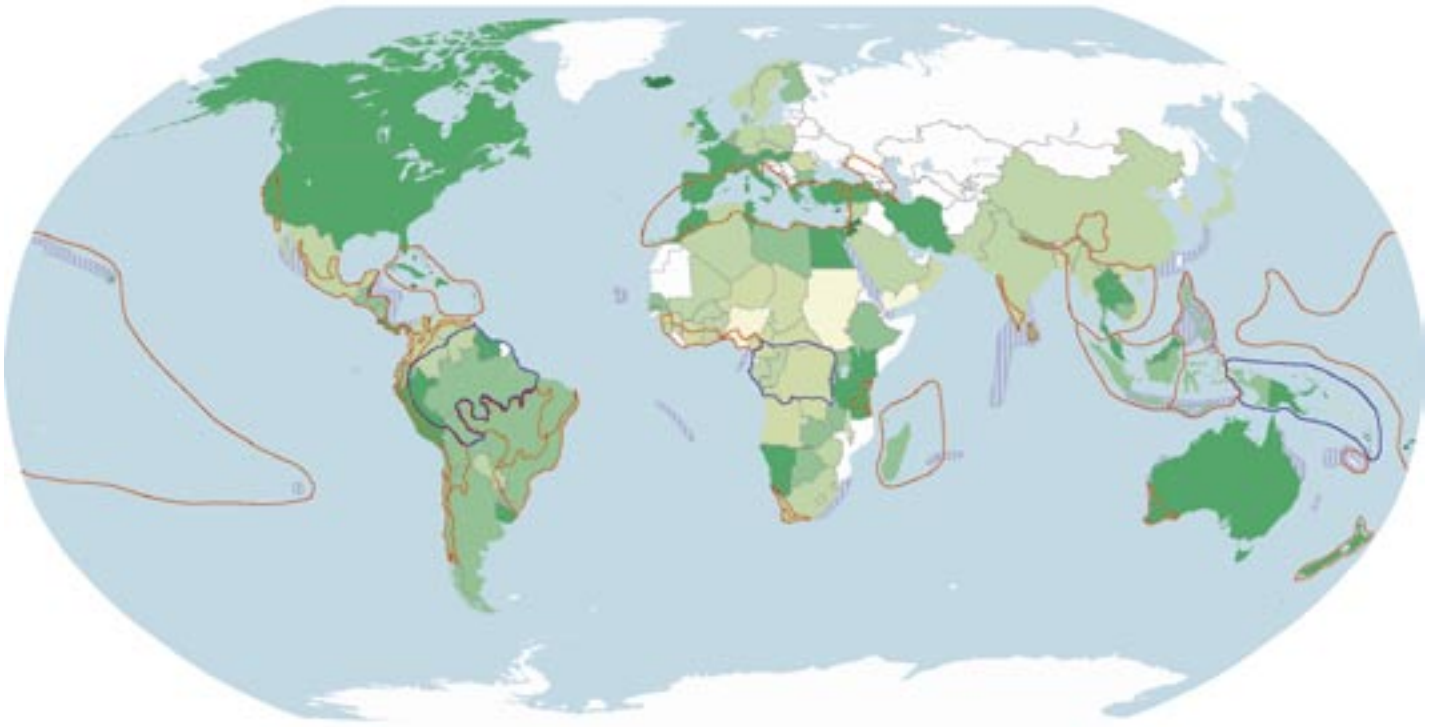
INTERNATIONAL TOURISM RECEIPTS IN MILLIONS OF U.S. DOLLARS

- Less than 500
- 500–2,000
- 2,000–6,000
- 6,000–10,000
- Over 10,000
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Tourism Organization 2001*
Conservation International 2002
Cartography: M. Denil

*Data for each country may be for activity from the years 1990 through 2000. Data for the latest date available in each range were selected for display here.

Map 7: Tourism as a Percentage of Gross Domestic Product 1999



TOURISM AS A PERCENTAGE OF GROSS DOMESTIC PRODUCT 1999

- Less than 1%
- 1%–2%
- 3%–4%
- 3%–4%
- 4%–8%
- 8%–47%
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Travel and Tourism Council 2002
Conservation International 2002
Cartography: M. Denil

incorporates some poverty reduction goals.

Developing countries currently have only a minority share of the international tourism market (approximately 30 percent), but their share is growing rapidly. International tourism arrivals in developing countries as a group have grown by an average of 9.5 percent per year since 1990, compared with 4.6 percent worldwide (Deloitte and Touche, IIED and ODI 1999). In these countries, tourism makes important contributions to the national economy through foreign exchange earnings, employment, and GDP. On average, international tourism receipts account for around 10 percent of export revenues of developing countries. The United Nations Conference on Trade and Development (UNCTAD) notes that tourism is a principal export of 49 least-developed countries and number one for 37 of them (Diaz Benevides and Perez-Ducy 2001). Tourism's contribution to GDP varies from 3 to 5 percent in Nepal and Kenya to 25 percent in Jamaica; contribution to employment is estimated at 6–7 percent in India and South Africa (Deloitte and Touche, IIED and ODI 1999).

Maps 6 and 7 illustrate the significance of tourism as a percentage of GDP in developing countries. The maps demonstrate that in the industrialized North, high levels of tourism receipts correlate to their significance in terms of GDP. In the less industrialized countries of the South, however, even low levels of tourism receipts can be very important to the national economy. In short, even modest levels of tourism, carefully planned and implemented, can be a positive force for biodiversity conservation and local economic benefit.

Although we cannot accurately determine the degree to which tourism is directly dependent on biodiversity, we can assume with confidence that in many hotspot countries, such as Australia, Belize, Brazil, Costa Rica, Kenya, Madagascar, Mexico, South Africa, and Tanzania, a significant proportion of tourism's GDP contribution can be directly linked to attractions and destinations in biodiversity hotspots, where biodiversity itself represents the primary tourism attraction.

Tourists prepare for a beach picnic in Zanzibar.

Tourism is clearly of great economic significance to developing countries. However, that significance varies widely from country to country, with those economies most dependent on tourism tending to be small island states: The Caribbean is the most tourism-dependent region in the world, and the Maldives the most tourism-dependent country. Although these countries are not the poorest in the world (they are classified by the World Bank as middle-income on the basis of indicators such as numbers of people living on less than US$1/day), they still contain significant numbers of impoverished people. Of the poorest 100 countries, however, well over half have a tourism industry that is growing and/or significant (Deloitte and Touche, IIED and ODI 1999). Table 2, below, shows 6 of the world's 15 poorest countries where tourism is significant or growing. All are in biodiversity hotspots.

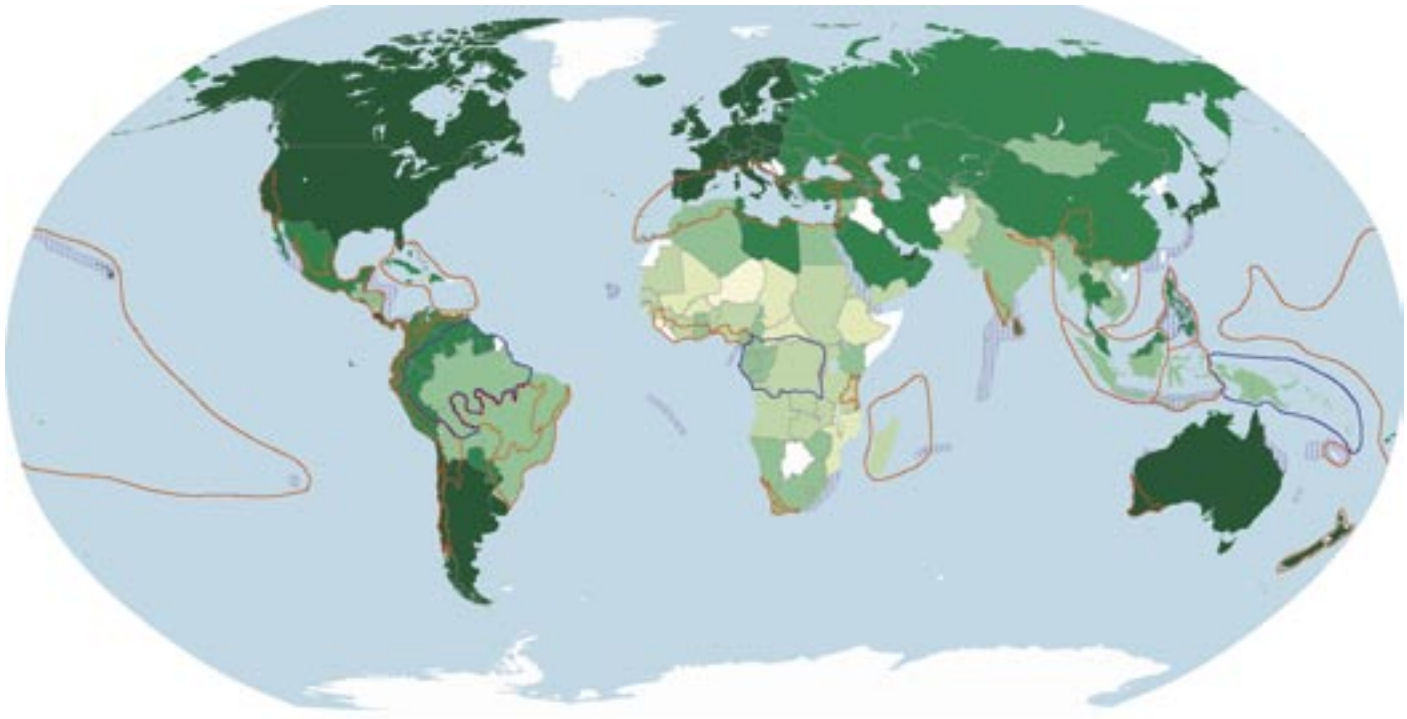
Up-to-date poverty data (from the World Bank Development

Table 2: Significance of International Tourism to Poor, Biodiversity-Rich Countries

Country	Hotspot	Percentage of population below US 1$ a day[a]	Percentage contribution of tourism industry to GDP[b]
Nigeria	Guinean Forest	70	0.5
Madagascar	Madagascar and Indian Ocean Islands	63	3.8
India	Western Ghats and Sri Lanka	44	2.5
Honduras	Mesoamerica	41	4.4
Ghana	Guinean Forest	39	5.5
Nepal	Indo-Burma	38	4.5

[a]World Bank 2001 World Development Indications
[b]WTTC Year 2001 Country League tables

Map 8: UNDP Human Development Index 2000



HUMAN DEVELOPMENT INDEX

- Below .3
- .4
- .5
- .6
- .7
- .8
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Tourism Organization 2001*
(Tourism Market Trends)
Conservation International 2002
Cartography: M. Denil

*Data for each country may be for activity from the years 1998 through 2000. Data for the latest date available in this range were selected for comparison here.

Indicators) are not available to plot a comprehensive map for all biodiversity hotspots. However, an analysis of tourism arrivals against the Human Development Index (HDI)[7] of the United Nations Development Programme (UNDP) serves to illustrate the overlap between levels of development, biodiversity, and tourism. In particular, several hotspot countries have a low HDI rating and high levels of visitation—for example, Brazil, Indonesia, and South Africa (Map 8). The map also illustrates the overlap between hotspots and countries with a low HDI rating (Cambodia, Gabon, Ghana, Guatemala, Indonesia, Ivory Coast, Madagascar, Papua New Guinea, southern Nigeria, Tanzania).

A key question that might be asked is, if these countries are apparently doing so well in tourism and are so well endowed with biodiversity, why are they still so poor? Some argue that because foreign, private sector interests often drive tourism, it has limited potential to contribute much to poverty elimination in developing countries. This can apply to biodiversity-based tourism, as well as other forms of tourism development. Tourism is often noted for having high levels of revenue "leakage," and of the revenue that is retained in the destination country, much is captured by rich or middle-income groups—not the poor. Tourism is also a volatile industry, being extremely susceptible to events that are difficult to control—natural disasters, exchange rate fluctuations, and political unrest. For example the 2002 terrorist bombing on the resort island of Bali led to an immediate drop in tourism arrivals and it was almost a year before tourism on Bali began to

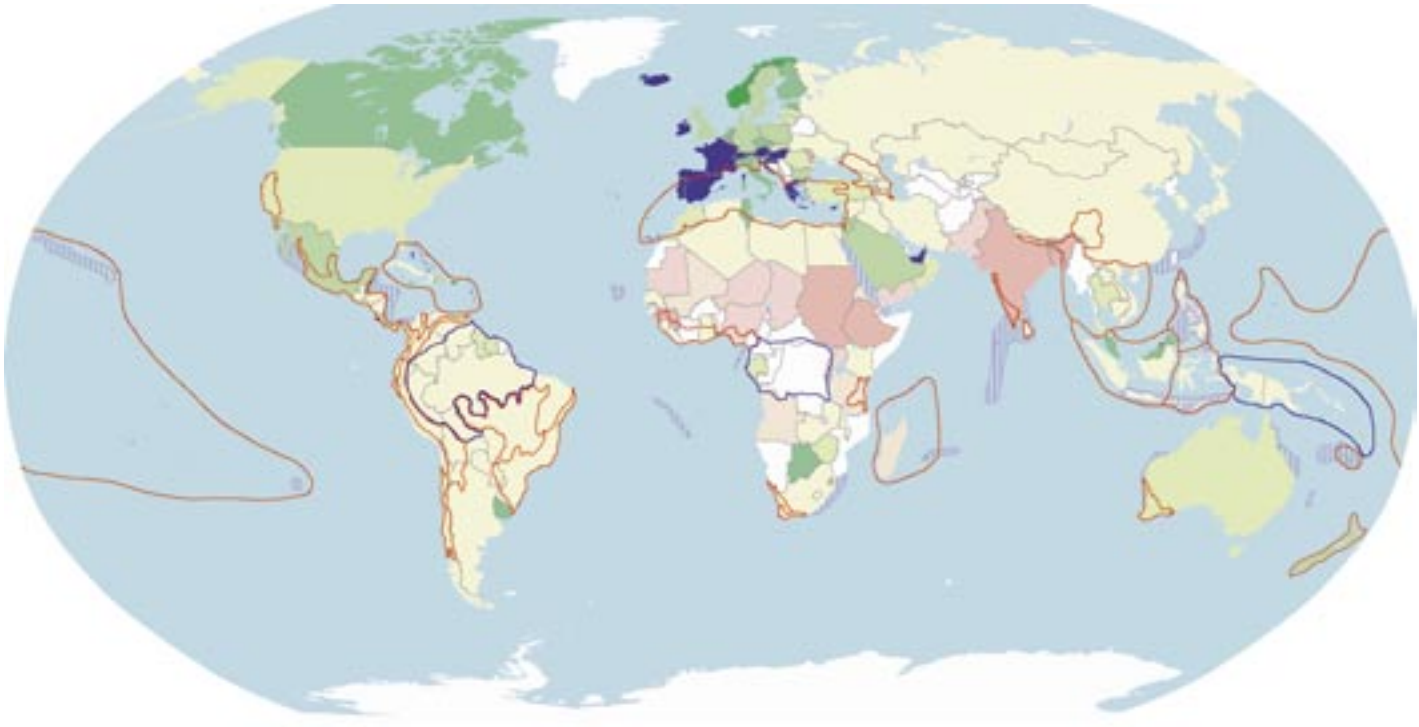
increase again. In poor countries, tourism can have a particular effect on the poor themselves, causing displacement, increased local costs, loss of access to resources, and social and cultural disruption.

Tourism does, however, have a major advantage over other forms of development (such as timber extraction, mining, etc.) with respect to biodiversity conservation and poverty reduction: Not only is tourism highly dependent on the natural and cultural environment—assets that the poor have and on which they can capitalize—but, properly managed, it can contribute to biodiversity conservation, which can directly support poverty reduction.[8] Strategies for making tourism more "pro-poor" have shown some success at the local level (Ashley et al. 2001). Scaling these approaches up and applying them to biodiversity-based tourism could result in positive synergies between tourism growth, biodiversity conservation, and human development in the future.

2.4: Analyzing the Maps to Assess Impacts

The ratio of visitors to local residents (Map 9) is used by the World Tourism Organization as a core indicator of the social impact of tourism, and the map below illustrates that this ratio can be extraordinarily high in some countries, with tourists outnumbering local residents in certain areas. Hotspot countries or areas that stand out are Australia, Botswana, Eastern Caribbean, New Zealand, northern Mediterranean, Malaysia, Mexico, and Uruguay. Furthermore, as Map 5 illustrates, tourism is likely to increase in the next 20 years, including in areas where visitor pressure is already high. It should be noted, however, that this visitor-to-resident ratio is an extremely rough measure of impact. The local distribution of the tourists, the activities they engage in, and the cultural differences between tourists and residents need

Map 9: Arrivals as a Percentage of Population



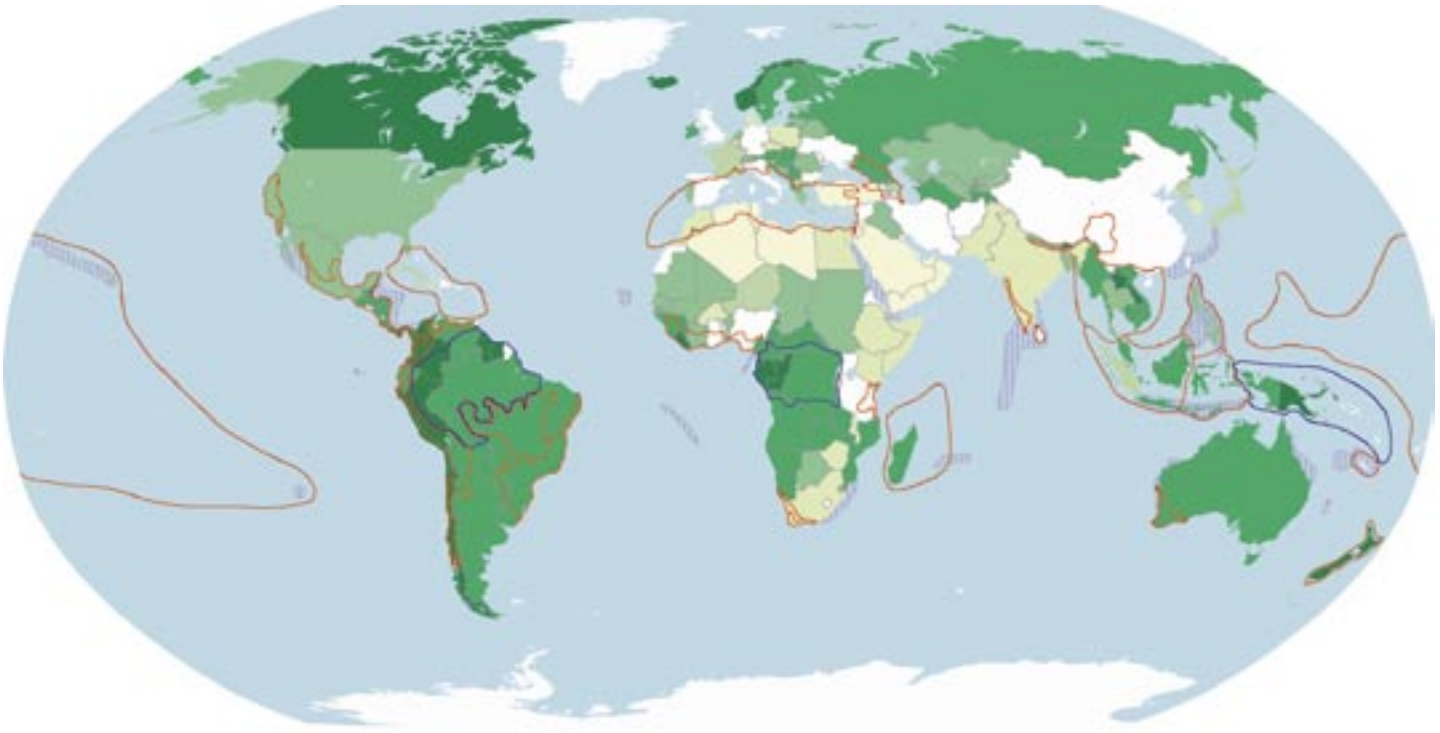
TOURISM ARRIVALS AS A PERCENTAGE OF POPULATION

- Less than 0.3%
- 0.6%
- 1%
- 10%
- 20%
- 40%
- 60%
- 80%
- 100% to about 4500%
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Tourism Organization 2002*
Conservation International 2002
Cartography: M. Denil

*Data gaps where filled by calculation of WTO international arrivals with population data.

Map 10: Freshwater Resources per Capita 2000



FRESHWATER RESOURCES CUBIC METERS PER CAPITA

- Fewer than 1,000
- 1,000–2,000
- 3,000–4,000
- 4,000–10,000
- 10,000–50,000
- More than 50,000
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Bank
Conservation International 2002
Cartography: M. Denil

to be considered as well, before the potential impact can be fully assessed.

The ratio of tourists to local residents can be used in conjunction with other data to highlight potential environmental impacts. Water use, for example, can be a serious issue with respect to tourism development. Map 10 shows that in some countries the availability of freshwater resources is very limited, yet some of these countries have tourism intakes far higher than their total population. Tunisia, for example, is conspicuous as a country within the Mediterranean hotspot with limited per capita freshwater resources and very high tourist-to-resident ratios. The Caribbean, Mexico, and South Africa also stand out as hotspot areas with high levels of visitation (and sustained growth in visitation over the 1990s) and low levels of available fresh water.

Water use is a particular problem associated with hotels, as tourist consumption of water is often many times higher than that of the local people. This can result in water shortages and degradation of water supplies, as well as increased wastewater discharge, all of which can affect wetlands. The problem is particularly acute in hot, dry countries (both in the North and South), where available resources can be in short supply, yet tourist demands on water (for swimming pools, showers, etc.) are high because of the climate. The vast quantities of water required to maintain golf courses (a rapidly increasing form of tourism in the South) is another issue of concern. An average golf course soaks up at least 525,000 gallons of water per day (Tourism Concern, Golf Campaign, 2003), which can severely affect fresh water availability in certain areas.

Aerial view of resorts lining the beach of Cancun Island, Mexico.

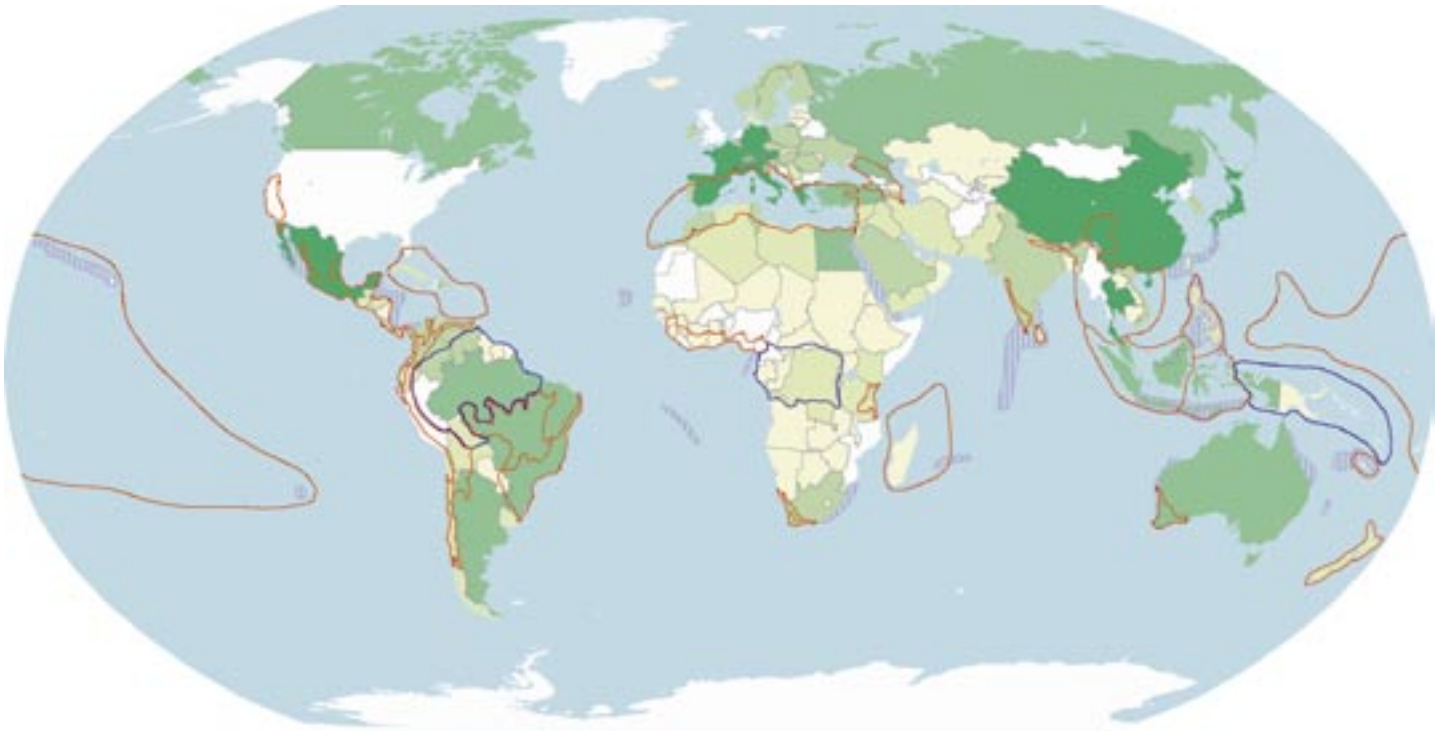
Box 5: Cancun, Mexico: The Impact of Tourism Development

Prior to its development as a tourist resort in the 1970s, only 12 families lived on the barrier island of Cancun. The entire area that now comprises the state of Quintana Roo was made up of relatively untouched rain forests and pristine beaches and was inhabited by an indigenous Maya population of about 45,000.

Today, Cancun has more than 2.6 million visitors a year and has more than 20,000 hotel rooms, with a permanent population of more than 300,000. Environmental and social impacts were given secondary importance in the development plan for Cancun. For instance, no provisions were made to house low-income migrants who now work and live in the area. As a result, a shantytown developed, in which the sewage of 75 percent of the population is untreated. The mangrove and inland forests were cut down, swamps and lagoons were filled, and dunes were removed. Many bird, marine, and other animal species vanished.

(Sweeting et al. 1999)

Map 11: Hotels and Other Facilities—Rooms Circa 2000



HOTELS AND OTHER FACILITIES (THOUSANDS OF ROOMS)

- Fewer than 10
- 10–50
- 50–100
- 100–300
- 300–1,600
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Tourism Organization 2001*
Conservation International 2002
Cartography: M. Denil

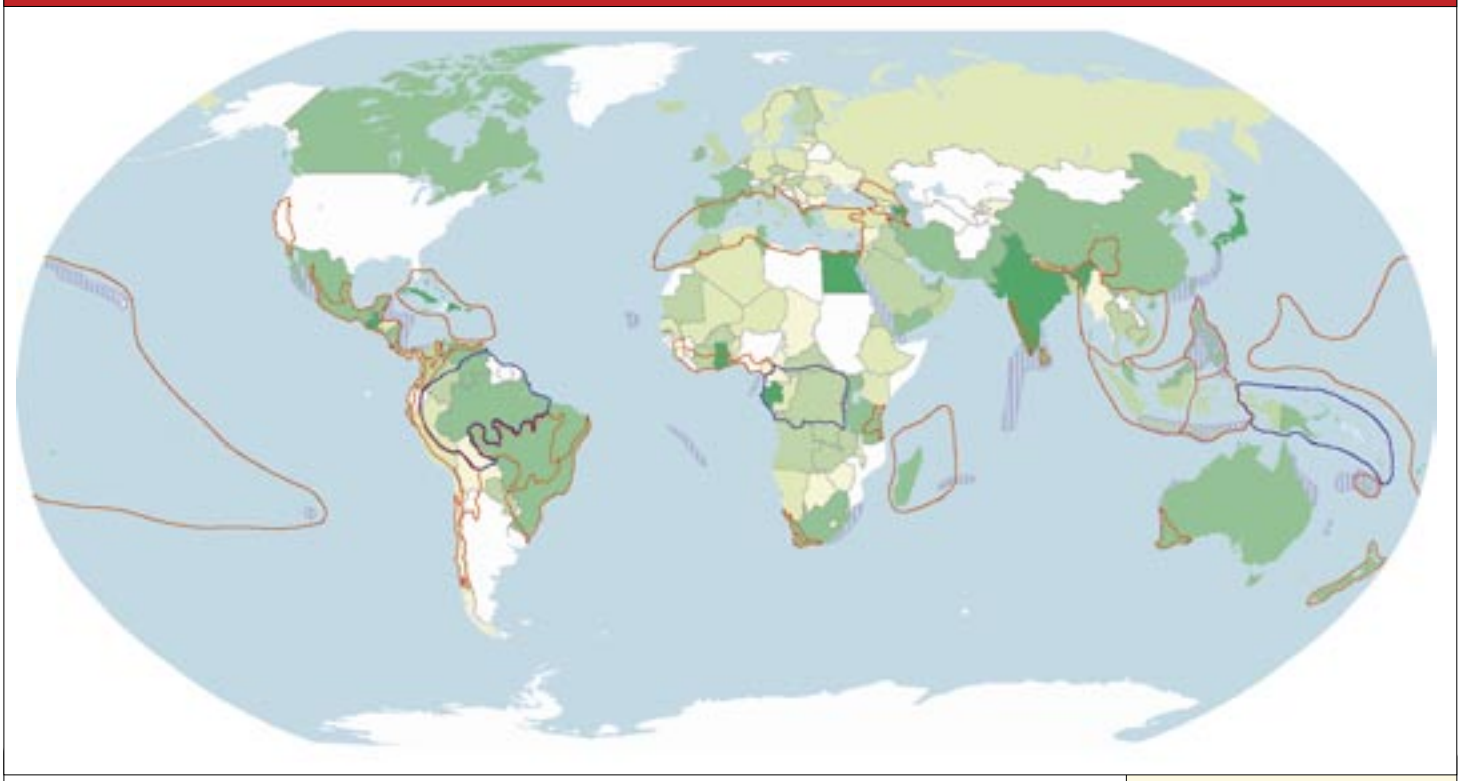
*Data for each country may be for activity from the years 1995 through 2000. Data for the latest date available in this range were selected for display here.

Map 5 forecasts increased tourist arrivals in the arid countries of North Africa and the Middle East, where the tourist-to-resident ratio is already very high, and in the hotspot region of the Mediterranean. The conclusions that can be drawn from these maps are somewhat limited, since some very dry countries have a very small population (e.g., Namibia) and so do not show up as a problem on Map 10. However, they are highly vulnerable to an increase in water use as a result of tourism or any other extractive use and serve to highlight some of the pressures that can be associated with an increase in tourism. Thus, the forecast map emphasizes the need for proper planning if continued growth of tourism is not to impinge even further on water availability and its relationship to biodiversity-rich wetlands and the well-being of local residents.

Maps 11 and 12, depicting the scale of hotel development and levels of occupancy, are also useful indicators of potential impacts—especially in light of the connection between hotel development and water use highlighted above. Some countries appear to have overdeveloped their hotels. Thailand, for example, shows a high level of capacity and low level of occupancy (less than 50 percent). Indonesia also shows a similar low level of occupancy and high-level capacity, although arrivals are projected to grow dramatically through to 2020.

Bearing in mind the environmental impacts associated with building and infrastructure development and the potential consequences for biodiversity conservation, this should be a point of concern in hotspot countries, and it underscores the need for careful planning of any further develop-

Map 12: Hotels and Other Facilities—Occupancy Rates Circa 2000



HOTELS AND OTHER FACILITIES OCCUPANCY RATE

- Less than 30%
- 30%–40%
- 40%–50%
- 50%–65%
- 65%–83%
- Hotspots
- Major Tropical Wilderness Areas
- Coral Reef Hotspot Areas
- Open water
- No data for study year

Scale: 1/190,000,000
Projection: Robinson
Data: World Tourism Organization 2001*
Conservation International 2002
Cartography: M. Denil

*Data for each country may be for activity from the years 1990 through 2000. Data for the latest date available in each range were selected for display here.

ment. The mass tourist resort of Cancun in Mexico is an example of the negative impact that poorly planned large-scale developments can have (see Box 5). On the other hand, it could be argued that, on a wider scale, it is better to concentrate tourism development into a relatively small area (such as Cancun), thus restricting, spatially, its impact. This can work even with large tourism developments if they are designed in an environmentally friendly manner and revenue from them is used to support biodiversity conservation elsewhere. However, maintaining the concentration of large tourism developments in specific destinations and avoiding other tourism-related sprawling developments, especially along coastlines, has proven largely unsuccessful. It is not necessarily the scale of tourism development that is key to its impact (both positive and negative), but rather the way it is planned and managed according to the principles of environmental sustainability.

Map 12 shows high levels of hotel occupancy in the Caribbean. While on the one hand this illustrates that infrastructure has not been developed unnecessarily, unlike some areas, it also emphasizes the high levels of tourist traffic in this region and the potential effect of related social impacts.

Endnotes

[5]Limitations of the data prevent a thorough analysis of the significance of this growth, because an increase from very low levels to only slightly higher levels shows up as significant when presented as a percentage increase.

[6]As noted earlier, it is not the total volume so much as the distribution and activities of tourists, and the location and scale of infrastructure that is developed to support them, that are important in determining their impacts on biodiversity.

[7]The HDI is a composite of three basic components of human development: longevity, knowledge, and standard of living.

[8]See Koziel and McNeill in the IIED Opinion Paper series for a discussion of how biodiversity can contribute to the Millennium Development Goals.

Chapter 3

Key Decisionmakers Regarding Tourism and Biodiversity Conservation

In order to effect changes in the tourism industry toward more conservation-friendly processes in biodiversity hotspots, it is important to identify the key players whose decisions will ultimately affect biodiversity. Furthermore, recommendations to public and private planners and policymakers at various levels of decisionmaking have to take into consideration the limits imposed by their sphere of influence and immediate objectives. Key-player analysis allows policymakers and practitioners to understand the concerns and interests of different parties and the means by which each agent contributes to tourism development and to biodiversity conservation or loss.

The tourism industry can be seen as a network of economic and political agents, processes, and resources. The interactions between these elements will ultimately define whether the impacts on biodiversity will be positive or negative. For this study, we have identified governments, the private sector, development agencies, and local residents as key players, given their central influence regarding the impacts of tourism on biodiversity. Other stakeholders, such as tourists, nongovernmental organizations (NGOs), intergovernmental agencies and experts, academics, and consultants, also have important roles, but their actual contribution depends on their ability to influence the central players. This chapter will identify the roles and interests of various stakeholders related to conservation in the biodiversity hotspots.

Tourism impacts biodiversity hotspots through

- infrastructure-related development, which is primarily financed and managed at the governmental level. This includes methods of access (roads, trails, airports, and transportation); water sourcing and treatment facilities; energy production and distribution; and waste processing. Private investment in infrastructure development, and interpretation and visitor-management structures, often results in landscaping and construction-related impacts on biodiversity;
- construction of facilities directly related to tourism (accommodation and meeting structures, catering, shopping centers, marinas, and administrative facilities);
- indirect developments from tourism, such as urban development for employee housing; secondary real estate, such

Above: Scarlet macaw, Brazil.

Left: Exploring the Inca ruins of Machu Picchu, Peru.

as tourist homes; and urban sprawl; and
- indirect influences on economic and trade policies and strategies related to tourism development (changes in local traditional economic practices due to transition to tourism-oriented activities; changes in management practices due to globalization; changes in conservation-related investments, such as park management, and in environmental management due to financial burdens from tourism-related loans, etc.).

The different phases of tourism development have different impacts on biodiversity conservation. Decisionmaking on siting, design, and planning have different effects than technological decisions on management and operations of tourism, including water and waste pollution, resource consumption, and supply chain management. Similarly, biodiversity is affected by choices made by tourists regarding their activities such as hiking, boating, and sports.

Trends in the tourism marketplace also determine effects on biodiversity. Often, an attractive tourism destination in a biodiversity-rich area may experience a pronounced growth phase in accommodation development, ultimately leading to overdevelopment, with serious negative impacts on biodiversity. Heavy price discounting in tourism resorts, with low-margin, high-volume vacation packages and uncontrolled competition, can lead to loss of economic feasibility. In these cases, environmental management costs are not covered, and environmental degradation ensues, ultimately causing a crisis or even the collapse of a tourism destination, again with serious effects on local biodiversity.

Ideally a timely assessment of this negative trend will lead to a multistakeholder process that ensures proper oversight. Tourism development can be contained and better management systems can be provided for natural resources. In addition, financial mechanisms can be set up to use a small percentage of tourism revenues for environmental management. For instance, the municipalities of Calvia, in Spain, and Rimini in Italy, both located in the Mediterranean hotspot and heavily dependent on tourism, experienced overdevelopment and environmental degradation throughout the 1970 and 1980s. These tourism destinations faced such challenges by implementing several radical measures. In the case of Calvia, a Local Agenda 21[9] process led to the closing and even deliberate destruction of hotels, landscape renovation, the creation of additional protected areas, and the establishment of an environmental levy on hotel room sales, with extensive public awareness and marketing campaigns (UNEP 2003b).

In Rimini, coastal eutrophication of the Adriatic Sea led to algal blooms and heavy fish mortality in 1985, with ensuing odors and pollution causing tourism losses. The tourism industry pressured local authorities to engage agribusinesses and hotel chains to reduce use of fertilizers and improve waste and sewage management. The environmental improvements were accompanied by public awareness and marketing campaigns to improve the city's image, and visitor numbers increased.

3.1 The Decisionmaking Process for Tourism Development

In 2001, UNEP reviewed 12 case studies of tourism resort development in various ecosystems in order to investigate how decisionmaking affects biodiversity (Hawkins et al. 2002). On the basis of this analysis, the process can be simplified as follows:

1. A group of local investors, often owning biodiversity-rich land, team up with potential resort builders and hire professional intermediaries called developers, whose role it is to bring together all resources and players that will determine the feasibility of the resort.
2. The developers look for outside private investors and examine the interest of partners such as tour operators and air and cruise carriers, based on perceived market potentials.
3. The group contacts local and national government, looking for support such as
   - infrastructure (free land, airports, roads, water supply, and sewage/waste management, etc.);
   - flexible land-use regulations (appropriate for clusters of resorts);
   - tax breaks and incentives;

- soft and subsidized loans; and
- attractive public land or parks that could be the base for tour products.

The process can also be initiated by local politicians and/or investors who pressure the government to offer support and then attract outside investors. Trade associations (representing tour operators, hotel chains, and air carriers, etc.) are often partners in lobbying government, whose driving interests are job generation and future tax revenue. In some cases, tourism development is financed by multi- and bilateral development agencies, under subsidized development aid loans. The terms of these loans may or may not be supportive of biodiversity conservation.

4. Once funding is in place the resort is built. This can occur with or without an environmental impact assessment, depending on local regulations. Unfortunately, the UNEP report points out that decisions about siting, design, technology, and product development are often made only from the perspective of corporate efficiency and customer relations; community expectations and conservation of local and regional biodiversity are not usually considered.

The sections below review the roles of the different stakeholders in influencing this process and ensuring that tourism is developed in a manner that supports biodiversity conservation and benefits local people. These descriptions are followed by recommendations for each group of stakeholders.

3.2 Governments

National governments set the framework for tourism development and biodiversity conservation through policy and legislation. Different government departments may be responsible for determining policy and associated instruments for tourism development and biodiversity conservation. Some examples of these include

- laws and regulations defining standards for tourism facilities, access to biodiversity resources, and land-use regulation and zoning;
- design, development, and regulation of supporting infrastructure (water, energy, roads, airports, etc.);
- economic instruments defined in policy, such as incentives for sustainable tourism investment and the creation of private reserves;
- standards for health and safety, quality controls and regulation of business activities; these are aimed at protecting consumers and at meeting the needs of residents—including traditional communities and indigenous people—and protecting their lifestyles;
- establishment and maintenance of protected areas and conservation corridors of interest to tourism. Managers of public protected areas often are the most effective players for conservation benefits from tourism development;
- allocation of tax revenues for the protection of biodiversity-based tourism attractions, such as national parks and reserves.

In many biodiversity hotspot countries, tourism destinations are under the influence of various governmental agencies, whose mandates include

Balinese children participate in a traditional ceremony in the popular tourist village of Ubud, Bali.

Chalalan community-owned ecolodge in Madidi National Park, Bolivia.

culture, historical heritage, parks, and forestry. Smooth coordination among these departments and coherence between tourism policy and other government policies, including biodiversity conservation, are not always the rule, and therefore different policies may undermine rather than support each other.

Although tourism may be driven by the private sector, government policy instruments, such as requirements for environmental impact assessments (EIAs) and management plans, can be extraordinarily effective in ensuring that development takes place in an appropriate manner. In Cancun, Mexico, for example, the Mexican government was criticized for "overlooking" zoning regulations and other development control mechanisms. Recently, however, with considerable pressure from outside sources, the government halted the construction of a resort complex on land owned by the developer because of its proximity to a sea turtle nesting area (Weiner 2001).

At the destination level, local authorities are often responsible for implementing policies regarding tourism and biodiversity conservation. Local authorities are well placed to negotiate between the various interests of local and outside entrepreneurs, civil society, and national government agencies, and they hold essential regulatory and zoning mandates that allow for the enforcement of guidelines and standards. On the other hand, the capacity of local authorities to manage this complex and fragmented industry effectively and to ensure its positive contribution to local strategies for sustainable development (for example Local Agenda 21 processes) is dependent on whether local policymaking is coherent with national policy instruments and agencies.

Finally, it is noteworthy that in many economies in transitional and developing countries, national and regional governments often play the role of tour operators and hotel managers, either to try to jump-start quality standards or to generate revenue (for example, METS is a government-run tour operator in Suriname, and there are similar state-run operators in China and Vietnam). In many destinations, therefore, effects on biodiversity are crucially related to public policymaking and strategies.

Recommendations for governments:

1. Use a multistakeholder participatory planning process to develop national and local tourism strategies, policies, and master plans that reflect concerns about biodiversity conservation and poverty reduction. Integrate these into broader sustainable development strategies and processes, including trade-related policies, investment promotion, economic incentives for the use of environmentally sound technologies, land-use planning, and taxation.
2. Support private sector voluntary initiatives in conservation and provide opportunities

for the private tourism sector to contribute to sustainable tourism management initiatives (community awareness and training, protected areas, etc.) through direct donations, in-kind services, and the establishment and maintenance of private reserves.

3. Enforce existing laws and regulations to avoid inappropriate development of tourism in core conservation areas, and avoid perverse incentives for tourism development to be environmentally damaging (such as reduced land taxes for cleared land).
4. Control the planning, siting, design, and construction of tourism facilities and infrastructures according to biodiversity conservation principles and guidelines.
5. Improve awareness and exchange of knowledge between those responsible for and affected by tourism and nature conservation at a national, subnational, and local level.
6. Undertake carrying capacity and limits to acceptable change assessments for sensitive areas and implement visitor-management plans based on assessment results.
7. Develop or adopt certification schemes, reflecting national and local priorities that include biodiversity criteria, and provide appropriate incentives for their adoption.
8. Earmark adequate sources of funding for the management of natural areas. These funds should cover activities including protection of vulnerable ecosystems, management of visitor numbers, and support for surrounding communities.
9. Develop management strategies, pilot projects, and mechanisms for sharing revenue from tourist visitation with the management authorities of protected areas, while keeping main management expenses covered by appropriate budgetary allotments.
10. Promote and develop educational programs to enhance awareness about nature conservation and sustainable use of biodiversity.
11. Conduct market-assessment studies to avoid tourism facility construction in sensitive ecosystems that proves to be unfeasible and unnecessary.

3.3 Private Sector

The tourism industry is characterized by a large number of small and medium-sized enterprises (SMEs). At the same time, a significant amount of control within the industry rests in the hands of a very few, increasingly vertically integrated, multinational corporations. In Europe, for example, five companies control over 60 percent of organized outbound travel from the region (International Federation of Tour Operators, in UNEP Industry Report series for WSSD, 2002). Few of these big companies have any long-term investments in particular destinations—even large hotel chain properties are often franchises rather than freehold properties. As such, their influence on tourism in a particular location may be much greater than their long-term commitment to that destination. If environmental conditions worsen beyond a certain degree, these players potentially have the option of moving elsewhere. Furthermore, only a limited number of tourism companies have integrated biodiversity considerations into their day-to-day management practices, and many remain unaware of the potential (and actual) impacts of their activities. However, some major travel companies recognize the importance of managing their businesses to minimize their negative impacts and to find ways to help promote conservation and sustainable development (see Box 6). These companies realize that by helping to maintain the cultural and biological integrity of the places they visit, they can both enhance the quality of the product they are selling and improve their business reputation.

A significant development in the last few years is the establishment of voluntary environmental initiatives by hotel chains, tour operators, and ground handlers, including green certification systems, conservation awards, and ecolabels. While some of these initiatives are supported by governments and NGOs, all voluntary performance standard-setting depends essentially on private sector commitment and consumer awareness. Initiatives such as the World Legacy Awards

by Conservation International and National Geographic Society, British Airways' Tourism for Tomorrow Awards, the Green Globe 21 certification system, Australia's National Ecotourism Accreditation Program, Coopertive Research Center's International Ecotourism Standard, and the International Hotels Environment Initiative's benchmarking tool all provide guidance and added incentives for corporate responsibility toward biodiversity conservation.

3.3.1 Outbound tour operators and ground handlers

Assembling the component parts of holidays and managing significant numbers of tourists, outbound tour operators play a significant role in making a destination successful. Their capacity to manage their supply chains, their ability to ensure steady flows of tourists, and their ability to influence consumer choices make them key players in tourism development and biodiversity conservation. It is often the tour operators working in a specific destination that influence what type of tourism will develop there, what products will be available to the tourist, and even, in some cases, how much tourists will pay for these products. Ground handlers often have a strong commitment to protect their destination because they are permanently based there, but their primary business concern is responding to the demands of the outbound tour operators they service. Therefore, there is a vital role that international tour operators can play in encouraging their suppliers to adopt environmentally and socially responsible management practices. The work of the Tour Operators' Initiative (TOI) for Sustainable Tourism Development noted below is a good example of how tour operators can work together to support biodiversity conservation efforts in the destinations where they operate.

3.3.2 Accommodation providers

Hotels, resorts, and other accommodation facilities are both the tourism industry's main job generators and the main resource users (water, energy, land) affecting biodiversity in hotspot destinations. They also require a significant amount of infrastructure, such as roads and facilities for water supply and treatment, which if improperly developed can cause significant harm to biodiversity. However, hoteliers are increasingly recognizing the importance of maintaining the ecological integrity of the areas in which they operate.

CI estimates that approximately 8 percent of major hotel chain properties are located within the biodiversity hotspots (Reiter 2000). Maps 11 and 12, however, illustrate the actual and potential growth of the hotel industry in hotspot countries. Larger resorts are significant to conservation because they control large land properties and contribute significantly to tourism-related employment. Their decisionmaking is influenced by their complex ownership and management structure, involving asset owners, holding companies, and franchise/management corpo-

Box 6: The Tour Operators' Initiative (TOI) for Sustainable Tourism Development

The TOI is a network of 25 tour operators that have committed to incorporating sustainability principles into their business operations and working together to promote and disseminate practices compatible with sustainable development.

TOI members are taking action in three key areas:

- Supply chain management—to develop a common approach and tools for assessing suppliers.
- Cooperation with destinations—to exert a positive influence and speak with a collective voice on the actions of all partners, tourist boards, customers, suppliers, governments, and developers.
- Sustainability reporting—to develop and test reporting guidelines and performance indicators on sustainable development.

The TOI was developed by UNEP, UNESCO, and WTO, with technical and financial assistance provided by CELB. TOI is coordinated by a secretariat and hosted by UNEP, which ensures the implementation of the program of activities and continuous support to the members.

rations. However, the majority of hotels in hotspot destinations are independently owned, medium-sized enterprises.

Small-, medium-, and large-scale hoteliers, with their assets tied up in a particular site, have a strong stake in the long-term sustainability of the surrounding environment. For this reason, the accommodation sector is often proactive in terms of social and environmental corporate accountability and community outreach. However, the majority of environmental management programs for hotels located in biodiversity hotspots are focused on procedures for internal resource conservation and their related cost-savings, such as washing towels every other day, water saving, recycling, switching off lights, and so on. Broader biodiversity considerations, such as maintaining natural habitats, avoiding land clearance, and setting aside property for species protection or as private nature reserves are yet to be integrated into such programs. In addition, the many different forms of accommodation ownership increases the difficulties of disseminating information and practical tools on how and why to incorporate sustainability practices and principles into their management. The International Hotels Environment Initiative (www.ihei.org) has produced excellent materials for their member hoteliers, and others, which help integrate biodiversity considerations into hotel-management procedures.

3.3.3 Cruise ships

Since 1980, the cruise ship industry has had an annual growth rate of 8.4 percent and has grown nearly twice as fast as world international tourist arrivals over the past decade. Much of this growth is occurring in destinations that are located in the biodiversity hotspots. About 70 percent of cruise destinations are in the hotspots, including the Caribbean, the Mediterranean, Mexico, the Panama Canal Zone, and the South Pacific. Visits by cruise ships generate financial benefits to attractions, restaurants, retail shops, shore excursion operators, and other businesses at ports of call. However, some cruise lines have had a past record of illegal waste discharge at sea. With predictions of further rapid growth over the next few decades, it will be increasingly important to understand and address the environmental impacts of cruising. The cruise industry faces a number of key environmental challenges related to its activities and operations in the world's oceans, particularly in and around priority conservation areas. There is significant potential for wide-ranging negative environmental impacts from such hazzards as mishandled waste and pollutants to poorly planned and implemented management processes. Several major cruise companies have done much to respond to the challenge of preserving the environment on which their business depends and are implementing leadership practices, testing and refining new technologies, and

A cruise ship makes a port of call in the Caribbean.

developing management programs to address environmental impacts. (Sweeting & Wayne 2003).

The Caribbean, one of the most biodiversity-rich marine hotspots, accounts for 47 percent of the global yearly total of 54 million cruise ship bed days. The Mediterranean, another hotspot, is second as a cruise destination, with 12 percent of all cruise ship bed days (CLIA 2001).

Construction of cruise ship ports and related infrastructure has a significant impact on coastal areas, and the building and maintenance costs are often borne by local governments with little means to design conservation-friendly facilities.

The Center for Environmental Leadership in Business (www.celb.org) at CI has launched a Cruise Ship Initiative to work with the cruise industry to reduce their environmental footprint and contribute to conservation in these key biodiversity hotspots.

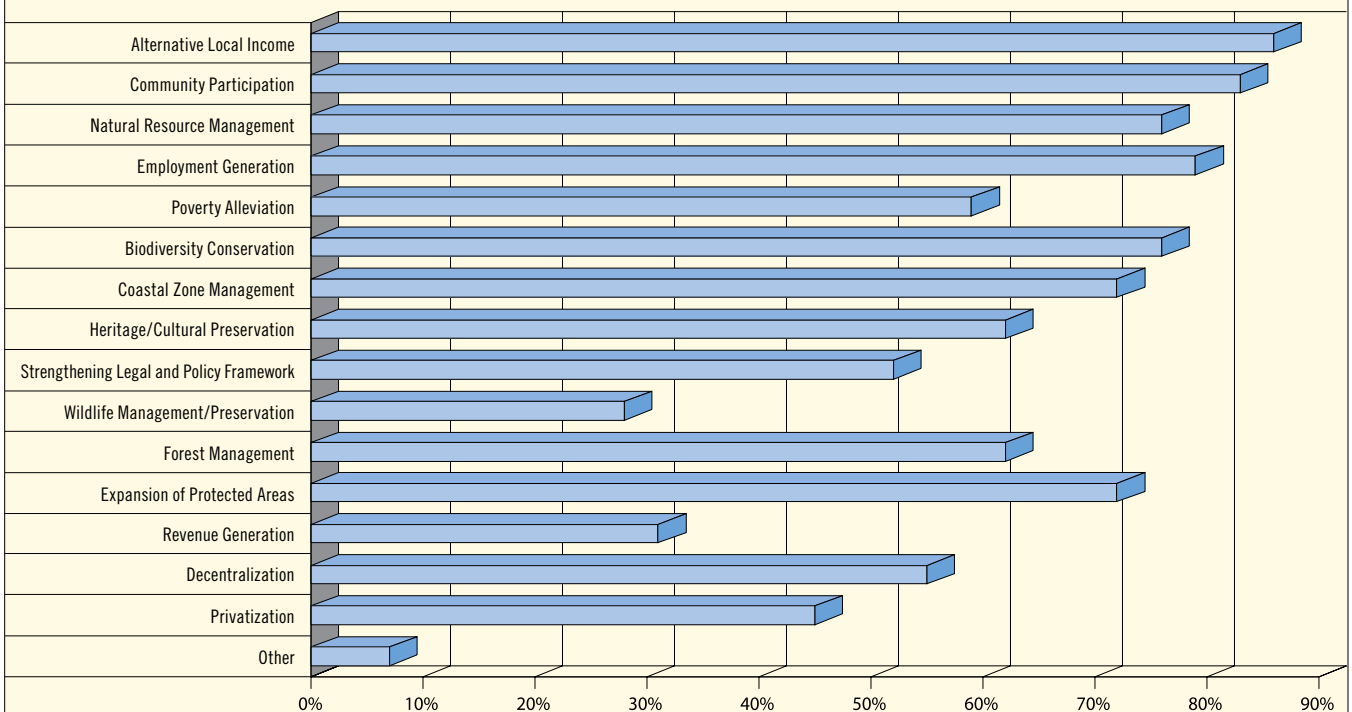
3.3.4 Air travel

Air carriers and related industry sectors affect biodiversity through their influence on airport siting and design and on destination-development decisionmaking (major tourism destinations are clearly dependent on the availability of an airport). Arguably, though, the biggest threat is their contribution to climate change: around 5 percent of global carbon emissions are attributed to air travel, according to the UN Intergovernmental Panel on Climate Change (GRID ARENDAL, IPCC, 2003). Climate change, in turn, through its impact on biodiversity—for example, recent coral reef bleaching episodes have been linked to changing weather patterns (UNEP Atlas on Coral Reefs 2002)—indirectly affects biodiversity-based tourism. Some impacts are more direct, such as the potential loss of prime coastal sites and small islands associated with sea-level rise.

3.3.5 Trade associations

Much of the private sector is organized into professional associations—at the global level, for example, the World Travel and Tourism Council (WTTC), the International Federation of Tour Operators (IFTO), the International Hotel and Restaurant Association

Figure 1: Strategic Initiatives Where Tourism Has Been Used as a Development Tool



Source: Hawkins, et al. 2002

(IHRA), and the International Council of Cruise Lines (ICCL), with scores of others at regional and national levels. These associations have a significant ability to influence biodiversity impacts, and changes here are likely to result in a steep change across the industry. Several associations, including those mentioned above, have already launched sustainability initiatives, some of which include limited support to biodiversity conservation. At the regional level, the Pacific Area Travel Association (PATA), the Caribbean Tourism Organization (CTO), and the Caribbean Hotel Association (CHA) have demonstrated a proactive attitude toward sustainability and conservation of natural resources.

Recommendations for the private sector:

1. Incorporate biodiversity conservation practices and principles into the design, planning, development, and management of tourism products and services and into supply chain management.
2. Commit to industry-led, voluntary initiatives that include criteria for biodiversity conservation and socioeconomic benefits.
3. Innovate processes and applications through new technologies and partnerships to minimize impacts on sensitive ecosystems and to contribute effectively to the conservation of biodiversity.
4. Make a commitment to educate staff and customers about the impacts of tourism on biodiversity and on local, traditional, and indigenous people.
5. Cooperate with governmental and nongovernmental organizations in charge of protected natural areas and the conservation of biodiversity. Ensure that tourism operations are practiced according to the management plan and other regulations prevailing in those areas, so as to minimize negative impacts while enhancing the quality of the tourism experience and contributing financially to the conservation of biodiversity.
6. Support destination-management efforts that seek to minimize the environmental footprint of the tourism industry and contribute to ongoing conservation initiatives.

Table 3: Tourism-Related Donor Projects—Active or in Planning (2002)

Type of Project	Latin Amer. & Caribbean	Europe & Eurasia	Africa	Asia & Near East	Total
Tourism in Title	24	1	5	1	31
Accommodation	3		6	1	10
Environmental Protection	25	5	25	28	83
Urban Development	4	1	1	10	16
Water Supply & Sanitation	2	1		1	4
Agriculture	2	1	2		5
Multisector		1	2		3
Social Protection	1	4		2	7
Education	2				2
Transportation	2	1			3
Microenterprises	3				3
Health	1				1
Science & Technology	1				1
Utilities				1	1
Private Sector	1	2	3	1	7
Industry			1		1
TOTAL	**71**	**17**	**45**	**45**	**178**

3.4 Development Agencies

Governments set the rules or frameworks under which tourism is developed. The private sector drives the development process itself. The missing link between the two is the financing of tourism planning and development. Financing can come from private sources, from governments, or from multilateral and bilateral donor agencies and development banks (sometimes directly, sometimes channeled through governments).

3.4.1 The role of development agencies

A survey of 55 development agencies conducted in 2002 for UNEP found that although private investments are driven by economic incentives, donor interventions in tourism are motivated by longer-term development objectives, including alternative local income, natural resource management, community participation, employment generation, and coastal zone management (see Figure 1).

The George Washington University, CI, and UNEP have developed a database including details of over 320 tourism-related projects to determine the amount of donor funds that have been channeled into tourism development at a regional level and the types of projects being funded. Investment of those projects totaled over US$7 billion over 5 years. Table 3 examines 178 projects, either active in 2002 or at various stages of implementation after initial approval on this date (in pipeline). It shows that of projects with significant tourism components, those related to environmental protection are most prevalent. It is noteworthy that only 17 percent of the projects surveyed actually include tourism in their title,[10] although all have important tourism components. This seems to indicate either that development agencies do not fully recognize the importance of tourism as a sustainable development tool or that they are concerned about criticism resulting from the poor environmental and social track record of tourism development projects in the 1970s and 1980s. This lack of definition makes it more difficult to study the scope and volume of tourism-related environmental conservation projects.

Two additional responses to the same survey bolster the conclusion that development agencies do not view themselves as important in setting the stage for sustainable tourism development:

1. A selected group of 35 key experts in sustainable tourism were asked to say which types of organizations were most likely to fund projects dealing with sustainable tourism in the future. Figure 2, next page, indicates the experts' opinion that bilateral and multilateral aid agencies and government entities will most likely take the lead on this subject.
2. However, the survey also asked the experts, as well as officers from development agencies, about the relative importance of key decisionmakers (Table 4). The results show that although both experts and development agency officers thought that the private sector was the most important, the experts thought development agencies were much more important than the officers themselves did.

These results suggest that although others may recognize their importance, development agencies may themselves be unaware of their role in influencing actors on the ground during the critical phase of siting, land-use planning, design, and choice of technologies and materials. The strength of this influence is evident in an example from Brazil (Box 7), where experience is now shaping future projects of the Inter-American Development Bank (IDB).

Table 4: Importance of Stakeholders as Drivers of Sustainable Tourism (percentage of evaluations as "extremely important")

	Private Sector	Government	Dev. Agency	Investors	Local Pop.	NGOs	Tourists
Experts	80	71	44	58	58	21	53
Dev. Agency Officers	100	65	27	72	83	28	53

Recommendations for development agencies:

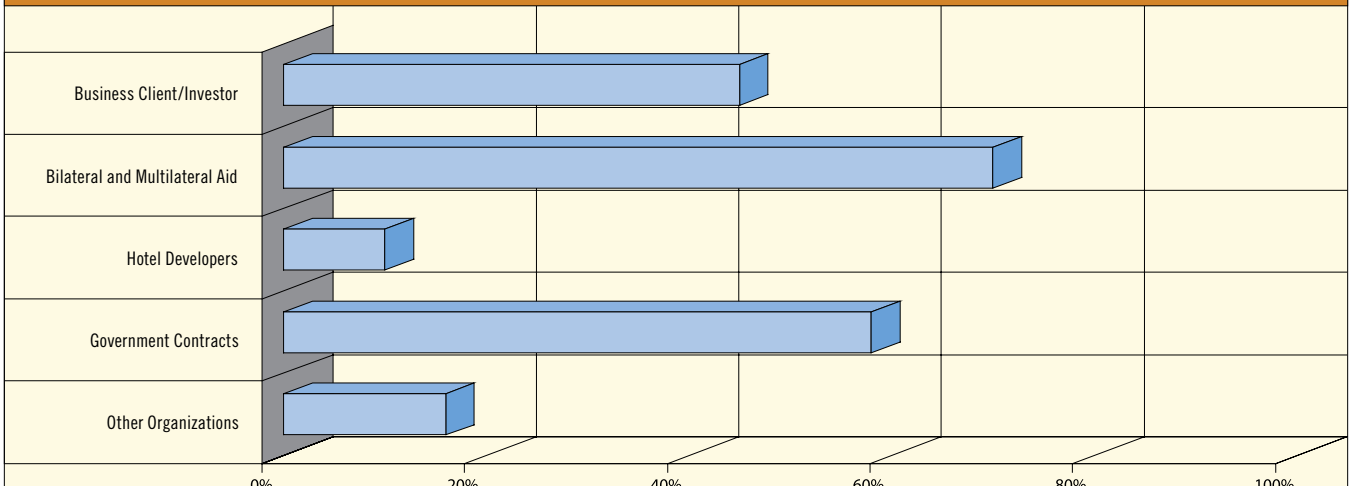
1. Redesign project portfolio on tourism as a carefully planned tool for biodiversity conservation and poverty reduction, and incorporate monitoring, evaluation, and reporting procedures based on relevant indicators for biodiversity conservation results from tourism development.
2. Support long-term public education and awareness-raising about the impacts of tourism on biological diversity; collect and disseminate lessons learned and best practices from existing project portfolio.
3. Develop, adopt, adapt, or apply, as appropriate, conservation guidelines when preparing, approving, and funding tourism development projects having potential implications for biological diversity.
4. Invest in training and capacity-building to enable local people to benefit from tourism development.

3.5 Local Residents in Tourism Destinations

The negative environmental, cultural, and social impacts of unsustainable tourism development have affected local people most acutely. Traditional communities and indigenous people can play a major role in conserving biodiversity, but this has been acknowledged only recently, and important issues relating to participation, land and resource use, and democracy still need to be addressed in the context of tourism development. Local authorities have an essential role as moderators and facilitators of empowerment for local communities. Experience with top-down approaches to protected area management has demonstrated that, if they are excluded, local people can undermine biodiversity conservation efforts (for example, the Maasai spearing of wildlife in Kenya's Amboseli National Park to protest removal of their grazing and watering rights within the park). Likewise, approaches to tourism development that do not take local people's priorities into account can be undermined by civil unrest and insecurity. On the other hand, some of the successful examples of sustainable tourism development arresting or reversing biodiversity losses come from destinations where local authorities led feasible, multistakeholder governance systems (Calvia in Spain, Puerto Princesa in Philippines, Bonito in Brazil).

Local people often make up a large part of the workforce in the tourism industry, and labor organizations in the tourism sector have contributed to the debate on sustainable uses of biodiversity. The International Confederation of Free Trade Unions and the International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco, and Allied Workers' Association (IUF) address sustainable agriculture in rural areas and biotechnology. Overall, the role of tourism employees in biodiversity conservation is very important and should

Figure 2: Projected Funding Sources for Sustainable Tourism Development



Source: Hawkins, et al. 2002

A village member of the Responsible Ecological Social Tours (REST) project in Koh Yao Noi, Thailand.

be considered in any global action plan.

Finally, local landowners play a crucial role in conservation, especially in buffer zones of core protected areas and in conservation corridors. The long-term survival of key ecosystems and species in a hotspot destination is often dependent on the land-use patterns around relatively pristine forests and coral reefs. Many biodiversity hotspot countries, such as Brazil, Costa Rica, and South Africa, have already established regulations, fiscal and economic incentives, and other policy tools to encourage landowners to declare private reserves for direct or indirect use. Costa Rica's association of private reserve owners facilitates information exchange, promotes economies of scale, and lobbies government for additional support.

Recommendations for local residents in tourism destinations:

1. Establish representative governance systems that allow local people to be accountable and assume responsibilities in tourism and conservation partnership, and take action to fulfill them within the duration of the partnership.
2. Identify, prioritize, and manage critical conservation area networks with direct and indirect tourism use at the local level, using tools such as impact assessment, market studies, zoning, and sustainable use plans.
3. Be actively involved in and benefit from community capacity-building efforts relating to local sustainable tourism and ecotourism initiatives, in accordance with the principles of prior informed consent.
4. Support local tourism contributions, such as traditional building techniques and materials; modes of transport; traditional foods, medicines, and handicrafts; and respect access to cultural sites.
5. Collaborate with visitor-awareness campaigns on biodiversity conservation, educating tourists on the significance of natural resources for the local culture and the economy.

3.6 Other Major Players

3.6.1 Consumers/tourists

Tourism businesses, like all other businesses, are dependent on consumers wanting to buy their products. A 1997 survey by the German association Studienkreis fuer Tourismus and Entwicklung found that 40 percent of German holidaymakers would spend an additional dollar to help save the environment in their destination—an estimated potential US$750 million. In 2000, Tearfund, a U.K.-based NGO, commissioned market research into consumer attitudes toward responsible tourism. The results showed that the U.K. tourist wants to relax on holiday, but not at the expense of local people or their environment. In practice, however, consumers have brought little pressure to bear on tourism companies.

Travel guides, magazines, and newspapers can make huge

contributions to raising consumer awareness about critical issues facing the tourism industry and help to stimulate a demand for change. For example, *National Geographic Traveler* magazine routinely highlights issues of sustainable tourism and often profiles tourism businesses that are leading the way in implementing responsible travel practices. In 2000, the International Ecotourism Society (TIES) launched a travel media/tourist campaign, "Your Travel Choice Makes a Difference," which calls upon travel consumers to support tourism businesses that adhere to ecotourism principles and practices. At the same time, *Audubon* magazine developed a "Tread Lightly" code of conduct for travel in natural areas.

Recommendations for consumers/ tourists:

1. Respect local codes of conduct and visitor-management plans in sensitive areas.
2. Ask tourism companies about their environmental and social standards and ensure they understand that your choice is determined by those standards.
3. Actively support tourism businesses and NGOs that are biodiversity friendly and seek to benefit local people.
4. Recognize the cultural and natural diversity associated with many natural areas, particularly regarding local and indigenous communities.

3.6.2 Nongovernmental organizations

Tourism has attracted considerable attention from international and local NGOs. Both conservation and development organizations have intervened in tourism with different, although often overlapping, objectives. At the international level, development organizations such as Tearfund and the International Institute for Environment and Development (IIED) see the potential for tourism to contribute to sustainable development and poverty reduction. Conservation organizations, including CI, the World Wildlife Fund (WWF), The Nature Conservancy (TNC), and the World Conservation Union (IUCN) are interested in tourism as a mechanism for biodiversity conservation, particularly using priority-setting criteria such as hotspots and ecoregions. These objectives are not mutually exclusive: Biodiversity conservation is part of sustainable development, and sustainable local livelihoods are critical to the success of biodiversity conservation. In other cases, NGOs such as Tourism Concern in the United Kingdom, Equations in India, and the Instituto de Hospitalidade in Brazil have been developed solely to focus on tourism and to promote a more responsible approach by the industry.

Local NGOs are at work throughout the developing world assisting communities to diversify their income through sustainable tourism and to protect the natural resource base. They play an essen-

Box 7: Inter-American Development Bank Lessons on Tourism Development With Conservation

The Brazilian state of Bahia harbors one of the most threatened conservation hotspots, the Atlantic rain forest. The US$400-million PRODETUR I project, funded by the IDB from 1994 to 2001, improved and expanded eight international airports, built and improved over 800 kilometers of highways and access roads, provided water and sewage infrastructure, and attracted over US$4 billion in private tourism investment.

Its negative impacts on the environment, though, became clear to the bank officers: uncontrolled settlement of people looking for jobs, private building in environmentally sensitive areas, encroachment on rain forests and mangroves, and impacts on coastal reefs and other coastal ecosystems. Intense pressure from local and international NGOs and community groups, supported by bank officials, ultimately overcame the initial resistance from investor groups and development-oriented government officers to allocate funds for conservation. The result was the conservation of 22 historical heritage sites and the beginning of efforts to conserve over 70,000 hectares of coastal ecosystems and protected areas, including the creation of the new Serra do Conduru State Park. These lessons are being applied to new IDB projects in the region.

An Austrailian tourist learns to weave baskets with village women in Kenya.

tial role in pressuring governments and donors, raising awareness, mediating negotiations, building local capacity to deal with impacts of tourism, and implementing sustainable tourism projects on the ground. During the International Year of Ecotourism, UNEP identified 35 NGOs in the South that had been active in the field of tourism and biodiversity for at least 3 years. Some expressed concerns about tourism and its role in economic development—specifically about the expansion of nature and adventure travel into new (previously untouched) areas and the risk of damaging natural resources and the livelihood of indigenous communities as a result of poorly planned tourism growth. They say that for tourism to significantly contribute to sustainable development there must be proper management and monitoring of such activities.

Recommendations for nongovernmental organizations:

1. Facilitate and mediate innovative, conservation-friendly tourism partnerships.
2. Play a role in the capacity building, technology transfer, and training of local communities to participate in and benefit from sustainable tourism development.
3. Monitor impacts of tourism developments related to all stakeholders, and report independently and openly on results.
4. Work with governments to integrate sustainable tourism as a biodiversity conservation strategy in national biodiversity agendas.
5. Work with the private sector to transform practices to more directly contribute to biodiversity conservation and benefit local and indigenous communities.
6. Raise awareness among tourists as to the potential impacts—positive and negative—of tourism activities.
7. Encourage informed decision-making among all stakeholders regarding tourism development in or near local and indigenous communities.
8. Fill research gaps on the dynamics of the relationship between tourism development and biodiversity conservation at both local and regional levels, and share best practices.

3.6.3 Intergovernmental organizations

Through their influence on national governments, donors and lenders, and the secretariats of multilateral agreements related to tourism and environment, intergovernmental organizations such as UNEP, WTO, and UNCTAD play an important role in shaping tourism development by providing technical assistance and information, guidelines, facilitating negotiations, mediating agreements, and providing financial and logistical resources. Regional bodies such as the Organization of American States (OAS), the Caribbean Tourism Organization (CTO), and the Association of South East Asian Nations (ASEAN) have also developed guidelines, codes of ethics, and sets of principles.

Recommendations for intergovernmental organizations:

1. Assess and monitor biodiversity impacts of tourism development (and their social and economic determinants)—from supply through production to consumption; this assessment should assist in identifying effective intervention areas.
2. Develop pilot projects (and research existing ones) to establish guidelines to support development and implementation of conservation-friendly tourism policies by governments and local authorities. These policies should address how to balance conflicting economic, social, and environmental priorities.
3. Encourage transparent reporting of conservation issues by tourism corporations, support the development of certification and accreditation programs that consider conservation, and establish sector-specific sustainability reporting guidelines and performance indicators for biodiversity conservation.
4. Work with key players and intermediaries to develop and implement customer awareness campaigns addressing conservation of biodiversity.
5. Raise awareness of intermediaries on their key role in catalyzing change in the tourism supply chain, and build their capacity to improve conservation of biodiversity through networks and management tools (for example, screening indicators or environmentally sound technologies).

3.6.4 Experts (academics, consulting firms)

Caught between the development agencies and the private sector, experts and consulting firms (including the international accountancy and auditing companies) often serve as the implementing bodies for tourism development projects in developing countries—for example, in master planning and other national tourism development projects. In this sense, they often affect how and when tourism is implemented. Most strategies aimed at the private sector still overlook the potential role this sector can play in helping the industry become more biodiversity-friendly.

Recommendations for experts:

1. Incorporate biodiversity and socioeconomic considerations into tourism master plans and other development strategies.
2. Ensure widespread participation in tourism planning exercises, including biodiversity-focused stakeholders such as protected-area managers, NGOs, and traditional communities.

Endnotes

[9]A Local Agenda 21 is a planning approach based on the international Agenda 21 crafted in Rio in 1992 at the Earth Summit. A local authority initiates and provides leadership to define a sustainable development strategy and an action program to implement it. Success hinges on close cooperation between the population, NGOs, and economic and social players. The International Council of Local Environmental Initiatives estimates that over 8,500 local communities worldwide, many of which are major tourism destinations, are now implementing a Local Agenda 21 (UNEP 2003b).

[10]Tourism in the Title" refers to stand-alone tourism projects—the others being projects that include tourism as a component rather than the primary focus.

A group of tourists push their vehicle out of the mud on a jungle road in Belize.

Conclusion

Tourism Development, Biodiversity Conservation, and Local Livelihoods—The Overlap

Over the past 3 decades, major losses of virtually every kind of natural habitat have occurred, and the decline and extinction of species has emerged as a leading environmental issue. Many of the ecosystems in decline are the very basis for tourism development—coastal and marine areas, coral reefs, mountains, and rain forests—and support a wide range of tourism activities, including beach tourism, skiing, trekking, and wildlife viewing. The maps created in this study help to show the overlap between tourism development and areas of high biodiversity and threat—the "hotspots." Biodiversity is essential for the continued development of the tourism industry, yet this study indicates an apparent lack of awareness of the links—positive and negative—between tourism development and biodiversity conservation.

Tourism will require careful planning in the future to avoid having further negative impacts on biodiversity. Many of the factors associated with biodiversity loss—land conversion, climate change, pollution—are also linked to tourism development. As the maps have shown, resources that are important for conserving biodiversity and supporting the livelihoods of local people, such as fresh water, are also affected by tourism development, and recognizing these links is important to managing tourism development into the future. At the same time, an increasing number of examples have shown that tourism development guided by the principles associated with ecotourism—environmental sustainability, protection of nature, and supporting the well-being of local peoples—can have a positive impact on biodiversity conservation. By creating private reserves, providing justification for existing and new national parks and protected areas, and building a local conservation constituency among the people who live closest to important biodiversity areas, tourism can have and has had a positive impact on biodiversity conservation. Properly managed, tourism does have the potential to contribute to biodiversity conservation and to support poverty reduction.

However, the proximity of tourism development to high-biodiversity areas means that if it is not carefully managed, tourism could exacerbate the already rapid decline of biodiversity. It is increasingly clear that, where tourism develop-

Above: Shopping for village handicrafts in Botswana.

Left: Fishing boats crowd the waterfront of Elmina, Ghana, a popular tourist site.

Sailing in the Virgin Islands National Park, St. John, USVI.

ment is not guided by principles that promote conservation of nature and contribute to the well-being of local peoples, both human welfare and biodiversity can seriously suffer as a consequence. Chapter 2 identifies 38 hotspot countries that already experience more than 1 million annual tourism arrivals and lists 22 hotspot countries where tourist arrivals have more than doubled in the last decade. In these, as well as in other biodiversity rich countries, incorporating biodiversity considerations into tourism development policies and strategies should be a priority. Although biodiversity was one of the five major issues under discussion at the 2002 WSSD in Johannesburg, tourism was not a specific agenda item. Nevertheless, reference to tourism is made in the WSSD Plan of Action, including the need to continue ongoing work under the Convention on Biological Diversity on tourism as a sustainable use of biodiversity. The emphasis is on the need to increase the benefits from tourism for host communities, while enhancing the protection of natural heritage and ecologically sensitive areas.

Proper management of tourism to ensure both social and environmental benefits requires collaboration among the "sustainable development triad" of public agencies, the private sector, and local communities. Yet this study shows that the tourism industry and public authorities still appear to be largely unaware of the mutually supportive nature of the relationship between biodiversity conservation and tourism development and of the potential to use nature tourism as a way to contribute to biodiversity conservation efforts and poverty reduction. The recommendations developed through this study for the key players (government, private sector, development agencies, local authorities, residents, and tourists themselves) can apply to both tourism destination countries and to the main tourist originating countries. Acting on these recommendations will help to promote more responsible tourism activities and development that can positively affect both biodiversity and local economies.

During the past 10 years, and with the advent of ecotourism principles and sustainable tourism guidelines, significant progress has been made among the key players, both in terms of strategies for tourism development and in terms of collaboration to form more effective partnerships that consider environmental and human factors in designing tourism development plans and polices. But as tourism continues to grow and expand into new natural areas, more concrete action needs to be put into place to safeguard the Earth's biodiversity, while promoting tangible economic benefits to local communities. It is our hope that the information contained in this study, by providing evidence of the overlaps and links between tourism, biodiversity, and local populations and the future implications of those overlaps, can contribute significantly to that effort.

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Links

BCIS (Biodiversity Conservation Information System)—www.biodiversity.org/simplify/ev.php: a consortium of 10 international conservation organizations and programs of IUCN (The World Conservation Union), BCIS members collectively represent the single greatest source of information on biodiversity conservation information. BCIS is a framework within which the members work together toward a common goal: to support environmentally sound decisionmaking and action by facilitating access to information on biodiversity.

Biodiversity and WORLDMAP—www.nhm.ac.uk/science/projects/worldmap: a map showing the distribution of some of the most highly valued terrestrial biodiversity worldwide (mammals, reptiles, amphibians, and seed plants), using family-level data for equal-area grid cells, with red for high biodiversity and blue for low biodiversity.

CI (Conservation International)—www.conservation.org: focuses on trying to preserve and promote awareness about the world's most endangered biodiversity through scientific programs, local awareness campaigns, and economic initiatives. CI also works with multinational institutions, provides economic analyses for national leaders, and promotes "best practices" that allow for sustainable development.

Convention on Biological Biodiversity—www.biodiv.org: the first global, comprehensive agreement to address all aspects of biological diversity.

Council of Europe—www.coe.int/portalT.asp: an international organization that promotes various environmental directives.

ECOTRANS (European Network for Sustainable Tourism Development)—www.eco-tip.org: a European network of experts and organizations concerned with tourism, environment, and regional development, with a focus on practical approaches and initiatives for sustainable tourism.

ICLEI (International Council for Local Environmental Initiatives)—www.iclei.org: an association of local governments dedicated to the prevention of and solution to local, regional, and global environmental problems through local action.

IUCN (World Conservation Union)—www.iucn.org: a union of governments, government agencies, and nongovernmental organizations working at field and policy level, together with scientists and experts, to protect nature.

RARE Center for Tropical Conservation—www.rarecenter.org: protecting wildlands of globally significant biological diversity by empowering local people to benefit from their preservation, working in partnership with local communities, nongovernmental organizations, and other stakeholders to develop and replicate locally managed conservation strategies.

TIES (The International Ecotourism Society)—www.ecotourism.org: the oldest and largest association of ecotourism players and practitioners with members and publications from all over the world.

Tourism Concern—www.tourismconcern.org.uk: raises awareness of tourism's impact with the general public, with government decisionmakers and within the tourist industry itself.

WRI (World Resources Institute)—www.wri.org/wri/biodiv: biodiversity and protected areas.

WTO (World Tourism Organization)—www.world-tourism.org: the leading intergovernmental organization, now part of the UN system.

WWF (World Wide Fund for Nature)—www.panda.org: one of the world's largest independent conservation organizations, with a global network of 27 national organizations, 5 associates, and 21 program offices.

Data Sets

Country	Hotspots & Wilderness Areas	Int'l Tourist Arrivals by Region—1995 (in millions) [1]	Int'l Tourist Arrivals by Region—Projections for 2020 (in millions) [1]	Average Annual Growth of Tourism—1990 to 2000 (%) [1]	Int'l Tourist Arrivals circa 2000 (in thousands) [1]	Arrivals as precentage of Population 2000 [1]	Int'l Tourism Receipts circa 2000 (in millions of $US) [1]	Tourism and Travel Economy GDP as Percentage of Total GDP 1999 [2]	Human Development Index* 2000 [3]	Fresh Water Resources per Capita 2000 (m_) [3]	Hotel and Other Facilities—Rooms circa 2000 (actual) [1]	Hotel and Other Facilities—Occupancy Rate circa 2000 (%) [1]
Afghanistan		4.20	18.80	-50.00	4.00	0.000	-	-	-	2448.0000	-	-
Albania		93.70	177.00	30.00	39.00	0.900	211.00	-	0.733	12489.0000	2,954	32.40
Algeria	Mediterranean Basin	7.30	19.10	-24.00	866.00	3.600	-	2.2	0.697	470.0000	31,805	33.34
American Samoa	Polynesia & Micronesia	2.90	14.10	-19.00	21.00	27.500	-	-	-	-	-	-
Andorra		93.70	177.00	-	-	2206.500	-	-	-	-	-	-
Angola	Congo	0.30	0.60	-24.00	51.00	0.700	18.00	1.2	0.403	14009.0000	6,157	46.00
Anguilla	Caribbean	14.10	40.00	42.00	44.00	372.300	55.00	27.6	-	-	1,067	-
Antarctica		-	-	-	-	-	-	-	-	-	-	-
Antigua and Barbuda	Caribbean	14.10	40.00	5.00	207.00	342.500	291.00	25.2	0.800	1471.0000	3,317	-
Argentina	Atlantic Forest, Central Chile, Tropical Andes	11.80	42.80	55.00	2991.00	6.900	2903.00	3.1	0.844	26545.0000	166,087	-
Armenia	Caucasus	78.90	223.30	150.00	30.00	0.700	45.00	-	0.754	2787.0000	-	-
Aruba	Caribbean	14.10	40.00	67.00	721.00	843.200	782.00	19.1	-	-	7,783	74.00
Australia	Southwest Australia	5.10	22.90	123.00	4946.00	19.400	8442.00	5.7	0.939	18177.1474	194,926	58.00
Austria		116.70	185.20	-5.00	17982.00	233.700	11440.00	5.4	0.926	10357.0000	304,928	34.00
Azerbaijan	Caucasus	78.90	223.30	632.00	681.00	4.400	81.00	-	0.741	3615.0000	2,000	80.00
Bahamas	Caribbean	14.10	40.00	1.00	1577.00	574.100	1503.00	17.2	0.826	-	14,701	67.00
Bahrain		12.40	68.50	45.00	1991.00	328.300	408.00	7.9	0.831	-	6,766	55.00
Bangladesh	Indo-Burma	4.20	18.80	74.00	200.00	0.100	59.00	1.4	0.478	8980.8571	4,550	49.00
Barbados	Caribbean	14.10	40.00	29.00	556.00	181.500	745.00	12.9	0.871	375.0000	6,456	56.00
Belarus		78.90	223.30	120.00	355.00	3.550	17.00	-	0.788	5797.0000	-	-
Belgium		116.70	185.20	25.00	6457.00	57.300	7039.00	3.5	0.939	1561.0000	61,890	23.00
Belize	Mesoamerica	2.60	7.50	106.00	181.00	62.400	112.00	10.7	0.784	66667.0000	4,106	41.00
Benin	Guinean Forests of West Africa	1.90	4.60	38.00	152.00	1.200	-	2.4	0.420	4114.0000	-	32.42
Bermuda		14.10	40.00	-25.00	328.00	636.600	431.00	9.0	-	-	-	58.30
Bhutan	Indo-Burma	4.20	18.80	250.00	7.00	0.300	9.00	-	0.494	118012.0000	1,215	50.00
Bolivia	Brazilian Cerrado, Tropical Andes; Amazon	11.80	42.80	35.00	342.00	3.800	160.00	3.2	0.653	38806.0000	15,795	23.00
Bosnia and Herzegovina		93.70	177.00	197.00	110.00	2.821	17.00	-	-	9429.0000	1,086	
Botswana		5.90	36.00	55.00	843.00	52.400	234.00	3.1	-	9176.0000	1,746	21.80
Brazil	Brazilian Cerrado, Atlantic Forest; Amazon	11.80	42.80	387.00	5313.00	1.900	4228.00	3.5	0.572	42945.0000	139,550	60.00
Brunei	Sundaland	29.20	135.80	156.00	964.00	219.300	-	1.7	0.856	25148.0000	2,412	62.00
Bulgaria		78.90	223.30	76.00	2785.00	26.800	1074.00	3.8	0.779	2228.0000	-	28.00
Burkina Faso		1.90	4.60	195.00	218.00	0.400	-	2.1	0.325	1730.0000	-	48.85
Burundi		4.70	17.00	-72.00	30.00	1.300	1.00	2.2	0.313	529.0000	551	36.08
Cambodia	Indo-Burma	29.20	135.80	2641.00	466.00	2.000	228.00	3.2	0.543	39613.0000	4,508	45.00
Cameroon	Guinean Forests of West Africa; Congo	0.30	0.60	52.00	135.00	0.400	-	1.5	0.512	18016.0000	-	16.67
Canada		80.50	192.00	34.00	20423.00	58.800	10768.00	4.4	0.940	90432.4183	279,636	61.10
Cape Verde		1.90	4.60	496.00	143.00	13.800	23.00	5.7	0.715	680.0000	2,391	52.00
Cayman Islands	Caribbean	14.10	40.00	61.00	407.00	994.900	439.00	14.0	-	-	3,579	67.90
Central African Republic	Congo	0.30	0.60	67.00	10.00	0.100	-	2.0	0.375	37934.0000	227	43.00
Chad		0.30	0.60	389.00	44.00	0.400	-	1.5	0.365	5589.0000	677	19.50
Chile	Central Chile, Tropical Andes	11.80	42.80	85.00	1742.00	9.300	827.00	3.3	0.831	60596.0411	47,204	30.00

China	Mountains of S. West China, Indo-Burma	44.10	224.40	198.00	31229.00	1.700	16231.00	2.7	0.726	2184.9722	948,185	55.00
Colombia	Choco-Darien-Western Ecuador, Tropical Andes, Mesoamerica; Amazon	11.80	42.80	-35.00	530.00	1.900	1028.00	3.0	0.772	50426.0000	53,970	41.00
Comoros	Madagascar & Indian Ocean Islands	4.70	17.00	200.00	24.00	3.000	19.00	7.2	0.511	1792.0000	389	27.00
Congo	Congo	0.30	0.60	389.00	44.00	1.517	11.00	2.3	0.512	275646.0000	2,522	40.00
Congo, Democratic Republic	Congo	0.30	0.60	-4.00	53.00	0.107	-	1.4	0.431	24496.0000	21,864	50.00
Cook Islands	Polynesia & Micronesia	2.90	14.10	115.00	73.00	272.100	36.00	-	-	-	783	76.00
Costa Rica	Mesoamerica	2.60	7.50	154.00	1106.00	21.800	1102.00	5.1	0.820	29494.0000	29,497	59.00
Côte d'Ivoire	Guinean Forests of West Africa	1.90	4.60	54.00	301.00	0.800	-	1.5	0.428	4790.0000	5,101	40.30
Croatia		93.70	177.00	-17.00	5831.00	146.300	2758.00	-	0.809	16301.0000	81,272	24.00
Cuba	Caribbean	14.10	40.00	420.00	1700.00	9.400	1756.00	4.1	0.795	3397.0000	38,072	74.00
Cyprus	Mediterranean Basin	11.40	34.80	72.00	2686.00	291.600	1894.00	14.5	0.883	1057.0000	43,363	58.60
Czech Republic		78.90	223.30	-22.00	5700.00	58.000	2869.00	2.3	0.849	1557.0000	96,399	46.00
Denmark		37.60	96.60	14.00	2088.00	37.400	4025.00	3.4	0.926	1124.0000	39,459	37.00
Djibouti		4.70	17.00	-36.00	21.00	4.500	-	-	0.445	3639.0000	330	34.80
Dominica	Caribbean	14.10	40.00	64.00	74.00	79.200	49.00	8.6	0.779	-	890	-
Dominican Republic	Caribbean	14.10	40.00	128.00	2977.00	26.800	2918.00	7.4	0.727	2508.0000	52,192	70.00
Ecuador	Choco-Darien-Western Ecuador, Tropical Andes; Amazon	11.80	42.80	70.00	615.00	4.100	402.00	3.6	0.732	34952.0000	36,726	-
Egypt		12.40	68.50	112.00	5116.00	5.900	4345.00	5.3	0.642	1071.0000	113,611	73.00
El Salvador	Mesoamerica	2.60	7.50	310.00	795.00	8.400	254.00	3.0	0.706	2920.0000	4,899	61.00
Equatorial Guinea	Congo	0.30	0.60	-	-	-	-	-	0.679	65646.0000	-	-
Eritrea		4.70	17.00	-78.00	70.00	0.800	36.00	-	0.421	2148.0000	4,497	45.00
Estonia		78.90	223.30	108.00	1100.00	43.300	505.00	-	0.826	9350.0000	7,599	48.00
Ethiopia		4.70	17.00	58.00	125.00	0.200	24.00	3.1	0.327	1711.0000	6,499	40.00
Falkland Is.		11.80	42.80	-	-	-	-	-	-	-	-	-
Faroe Islands		37.60	96.60	-	-	-	-	-	-	-	-	-
Fiji	Polynesia & Micronesia	2.90	14.10	5.00	294.00	36.600	171.00	11.3	0.758	-	5,283	53.80
Finland		37.60	96.60	72.00	2700.00	42.000	1401.00	3.5	0.930	21248.0000	54,855	49.00
France	Mediterranean Basin	116.70	185.20	-13.00	45500.00	110.000	29900.00	4.5	0.928	3243.0000	589,174	59.00
French Guiana	Amazon	11.80	42.80	-	-	-	50.00	-	-	-	-	-
French Polynesia	Polynesia & Micronesia	2.90	14.10	91.00	252.00	83.300	394.00	-	-	-	3,357	60.00
Gabon	Congo	2.17	12.40	42.00	155.00	11.500	7.00	2.3	0.637	133333.0000	2,450	70.00
Gambia		1.90	4.60	-4.00	96.00	5.200	-	6.1	0.405	6140.0000	-	43.60
Georgia	Caucasus	78.90	223.30	353.00	385.00	3.900	400.00	-	0.748	13236.0000	-	34.00
Germany		116.70	185.20	11.00	18983.00	22.200	17812.00	2.8	0.925	2167.0000	877,070	35.00
Ghana	Guinean Forests of West Africa	1.90	4.60	155.00	372.00	1.500	304.00	2.9	0.548	2756.0000	8,518	70.00
Gibraltar	Mediterranean Basin	-	-	-	-	-	-	-	-	-	-	40.80
Greece	Mediterranean Basin	93.70	177.00	41.00	12500.00	105.400	9221.00	5.5	0.885	6534.0000	311,841	56.62
Greenland		-	-	-	-	-	-	-	-	-	-	-
Grenada	Caribbean	14.10	40.00	70.00	129.00	113.400	63.00	8.1	0.747	-	1,822	71.00
Guadeloupe	Caribbean	14.10	40.00	88.00	623.00	116.900	418.00	9.1	-	-	8,136	56.00
Guam	Polynesia & Micronesia	2.90	14.10	65.00	1288.00	707.000	1908.00	-	-	-	10,110	63.00
Guatemala	Mesoamerica	2.60	7.50	62.00	823.00	5.900	518.00	3.9	0.631	11805.0000	12,033	71.40
Guinea	Guinean Forests of West Africa	1.90	4.60	-	-	0.200	12.00	1.8	0.414	30479.0000	3,594	-
Guinea-Bissau		1.90	4.60	-	-	-	-	-	0.349	22519.0000	-	-
Guyana	Amazon	11.80	42.80	17.00	75.00	11.800	59.00	5.1	0.708	174178.5000	730	-
Haiti	Caribbean	14.10	40.00	-1.00	143.00	2.200	55.00	1.6	0.471	1520.0000	1,758	-
Honduras	Mesoamerica	2.60	7.50	41.00	408.00	6.800	240.00	3.9	0.638	14976.0000	13,943	40.00
Hungary		78.90	223.30	-24.00	15571.00	252.400	3424.00	5.9	0.835	11974.0000	57,870	46.00
Iceland		37.60	96.60	113.00	303.00	82.700	227.00	8.5	0.936	604982.0000	6,045	45.00
India	Indo-Burma, Western Ghats & Sri Lanka, Sundaland, Mountains of S. West China	4.20	18.80	55.00	2641.00	0.200	3296.00	2.2	0.577	1878.0000	57,386	73.70
Indonesia	Sundaland, Wallacea; New Guinea	29.20	135.80	133.00	5064.00	1.700	5749.00	4.0	0.684	13448.0895	252,984	43.00
Iran	Caucasus	4.20	18.80	1004.00	1700.00	1.200	850.00	5.4	0.721	2018.0000	21,218	53.00

Country	Hotspots & Wilderness Areas	Int'l Tourist Arrivals by Region—1995 (in millions) [1]	Int'l Tourist Arrivals by Region—Projections for 2020 (in millions) [1]	Average Annual Growth of Tourism—1990 to 2000 (%) [1]	Int'l Tourist Arrivals circa 2000 (in thousands) [1]	Arrivals as precentage of Population 2000 [1]	Int'l Tourism Receipts circa 2000 (in millions of $US) [1]	Tourism and Travel Economy GDP as Percentage of Total GDP 1999 [2]	Human Development Index* 2000 [3]	Fresh Water Resources per Capita 2000 (m_) [3]	Hotel and Other Facilities—Rooms circa 2000 (actual) [1]	Hotel and Other Facilities—Occupancy Rate circa 2000 (%) [1]
Iraq		12.40	68.50	-90.00	78.00	2.200	-	-	-	4776.0000	26,691	47.00
Ireland		37.60	96.60	84.00	6728.00	141.100	3571.00	3.0	0.925	13706.0000	60,000	65.00
Israel	Mediterranean Basin	11.40	34.80	126.00	2400.00	32.500	3100.00	3.2	0.896	449.0000	45,594	60.00
Italy	Mediterranean Basin	93.70	177.00	54.00	41182.00	59.200	27439.00	4.4	0.913	2784.2273	966,138	42.00
Jamaica	Caribbean	14.10	40.00	34.00	1323.00	45.000	1333.00	9.9	0.742	3570.0000	19,908	58.00
Japan		44.10	224.40	47.00	4757.00	3.200	3374.00	3.0	0.933	3389.0000	1,540,053	69.00
Jordan		12.40	68.50	149.00	1427.00	23.000	722.00	9.4	0.717	143.0000	17,485	39.00
Kazakhstan		78.90	223.30	-	-	4.400	363.00	-	0.750	7371.0000	9,124	-
Kenya	Eastern Arc Mountains & Coastal Forests	4.70	17.00	16.00	943.00	3.200	304.00	4.2	0.513	1004.0000	18,000	39.00
Kiribati	Polynesia & Micronesia	2.90	14.10	-67.00	1.00	2.600	2.00	7.5	-	-	404	-
Korea, Democratic		44.10	224.40	13.00	130.00	0.300		-	-	3462.0000	-	-
Korea, Republic of		44.10	224.40	80.00	5322.00	9.100	6609.00	2.0	0.882	1476.0000	51,189	65.00
Kuwait		12.40	68.50	413.00	77.00	2.400	243.00	1.8	0.813	-	1,988	-
Kyrgyzstan		78.90	223.30	92.00	69.00	1.438	-	-	0.712	9461.0000	2,648	25.40
Laos	Indo-Burma	29.20	135.80	2043.00	300.00	1.900	114.00	5.0	0.485	63175.0000	7,333	-
Latvia		78.90	223.30	-6.00	490.00	10.600	131.00	-	0.800	14924.0000	6,431	32.00
Lebanon	Mediterranean Basin	12.40	68.50	65.00	742.00	10.400	742.00	-	0.755	1109.0000	14,500	28.00
Lesotho		5.90	36.00	9.00	186.00	4.900	19.00	2.0	0.535	2555.0000	1,041	21.80
Liberia	Guinean Forests of West Africa	1.90	4.60	-	-	-	-	-	-	74121.0000	-	-
Libya	Mediterranean Basin	12.40	68.50	-58.00	40.00	2.900	28.00	3.3	0.773	151.0000	11,815	-
Liechtenstein		116.70	185.20	-22.00	61.00	231.700	-	-	-	-	-	30.00
Lithuania		78.90	223.30	89.00	1226.00	15.000	391.00	-	0.808	6739.0000	6,632	28.00
Luxembourg		116.70	185.20	-2.00	807.00	199.600	-	3.0	0.925	3650.0000	7,708	37.90
Macau	Indo-Burma	44.10	224.40	166.00	6682.00	940.400	3083.00	21.4	-	-	9,201	59.00
Macedonia		93.70	177.00	-60.00	224.00	11.200	37.00	-	0.772	3447.0000	-	-
Madagascar	Madagascar & Indian Ocean Islands	4.70	17.00	202.00	160.00	0.700	116.00	3.5	0.469	21710.0000	6,700	63.00
Malawi		4.70	17.00	75.00	228.00	1.800	27.00	1.1	0.400	1804.0000	4,150	39.00
Malaysia	Indo-Burma, Sundaland	29.20	135.80	37.00	10222.00	44.700	4563.00	4.4	0.782	24925.0000	124,503	57.00
Maldives		4.20	18.80	139.00	467.00	122.500	344.00	47.0	0.743	-	8,329	68.00
Mali		1.90	4.60	107.00	91.00	0.700	50.00	2.7	0.386	9225.0000	2,748	39.98
Malta	Mediterranean Basin	93.70	177.00	39.00	1216.00	276.600	650.00	17.4	0.875	256.0000	-	46.00
Marshall Islands	Polynesia & Micronesia	2.90	14.10	0.00	5.00	9.100	4.00	-	-	-	305	25.00
Martinique	Caribbean	14.10	40.00	87.00	526.00	101.200	302.00	3.3	-	-	6,766	52.00
Mauritania		1.90	4.60	-	-	0.600	28.00	-	0.438	4278.0000		49.00
Mauritius	Madagascar & Indian Ocean Islands	4.70	17.00	-	-	41.400	585.00	11.2	0.772	1855.0000	8,657	70.00
Mayotte	Madagascar & Indian Ocean Islands	-	-	-	-	-	-	-	-	-	-	-
Mexico	Mesoamerica, California Floristic Province	80.50	192.00	20.00	20643.00	20.500	8295.00	2.6	0.796	4675.0000	421,850	54.00
Micronesia (Federation of)	Polynesia & Micronesia	2.90	14.10	313.00	33.00	12.400	-	-	-	-	-	-
Moldova		78.90	223.30	-47.00	17.00	0.200	4.00	-	0.701	2732.0000	2,954	19.00
Monaco	Mediterranean Basin	116.70	185.20	22.00	300.00	882.000	-	-	-	-	2,240	71.00
Mongolia		44.10	224.40	7.00	158.00	6.300	28.00	-	0.655	14512.0000	-	-
Montserrat	Caribbean	14.10	40.00	-23.00	10.00	138.600	3.00	-	-	-	710	-
Morocco	Mediterranean Basin	7.30	19.10	2.00	4113.00	15.000	2040.00	6.3	0.602	1045.0000	66,823	47.00
Mozambique		4.70	17.00	-	-	-	-	-	0.322	11927.0000	-	-
Myanmar	Mountains of S. West China	29.20	135.80	890.00	208.00	0.442	35.00	2.6	0.552	21432.8837	-	26.00
Namibia	Succulent Karoo	5.90	36.00	54.00	614.00	36.118	-	5.7	0.610	25896.0000	2,686	39.70
Nauru	Polynesia & Micronesia	-	-	-	-	-	-	-	-	-		-
Nepal	Indo-Burma	4.20	18.80	77.00	451.00	1.600	168.00	3.5	0.490	9122.0000	18,203	49.00
Netherlands		116.70	185.20	76.00	10200.00	50.900	6951.00	3.5	0.935	5716.0000	-	48.00

Netherlands Antilles	Caribbean	-	-	-	-	-	-	-	-	-	-	-
New Caledonia	New Caledonia	2.90	14.10	26.00	110.00	53.100	-	-	-	-	2,401	51.00
New Zealand	New Zealand	5.10	22.90	83.00	1787.00	37.900	2068.00	6.8	0.917	85361.0000	25,911	52.00
Nicaragua	Mesoamerica	2.60	7.50	358.00	486.00	6.500	116.00	3.7	0.635	37507.0000	3,320	57.60
Niger		1.90	4.60	138.00	50.00	0.400	24.00	1.4	0.275	3000.0000	1,519	37.00
Nigeria	Guinean Forests of West Africa	1.90	4.60	328.00	813.00	0.400	-	0.5	0.462	2206.0000	-	-
Niue	Polynesia & Micronesia	2.90	14.10	100.00	2.00	-	-	-	-	-	-	40.00
Norfolk Island		-	-	-	-	-	-	-	-	-	-	-
Northern Mariana Islands	Polynesia & Micronesia	2.90	14.10	23.00	524.00	843.200	-	-	-	-	4,551	61.00
Norway		37.60	96.60	129.00	4481.00	71.600	2229.00	2.7	0.942	87508.0000	65,200	37.00
Oman		12.40	68.50	237.00	502.00	15.500	104.00	1.4	0.751	418.0000	5,312	42.00
Pakistan		4.20	18.80	7.00	453.00	0.400	86.00	2.3	0.499	1847.0000	35,524	53.63
Palau	Polynesia & Micronesia	2.90	14.10	67.00	55.00	263.000	-	-	-	-	699	-
Panama	Mesoamerica, Choco-Darien-Western Ecuador	2.60	7.50	124.00	479.00	13.100	576.00	5.6	0.787	51611.0000	13,663	40.00
Papua New Guinea	New Guinea	2.90	14.10	41.00	58.00	1.100	76.00	4.2	0.535	156140.0000	2,640	54.00
Paraguay	Atlantic Forest, Brazilian Cerrado	11.80	42.80	-21.00	221.00	6.200	66.00	2.8	0.740	17103.0000	4,894	45.00
Peru	Tropical Andes, Choco-Darien-Western Ecuador; Amazon	11.80	42.80	224.00	1027.00	2.600	1001.00	4.2	0.747	73653.0000	-	34.73
Philippines	Philippines	29.20	135.80	112.00	2171.00	2.000	2534.00	3.4	0.754	6267.4118	29,841	58.00
Poland		78.90	223.30	412.00	17400.00	27.000	6100.00	2.1	0.833	1630.0000	60,853	39.00
Portugal	Mediterranean Basin	93.70	177.00	50.00	12037.00	100.600	5206.00	5.6	0.880	7194.0000	97,709	42.00
Puerto Rico	Caribbean	14.10	40.00	31.00	3341.00	78.900	2541.00	1.7	-	-	11,928	70.00
Qatar		12.40	68.50	-	-	14.100	-	-	0.803	171.0000	1,922	57.30
Reunion	Madagascar & Indian Ocean Islands	4.70	17.00	97.00	394.00	46.600	270.00	1.7	-	-	2,719	64.00
Romania		78.90	223.30	9.00	3274.00	13.900	364.00	1.1	0.775	9762.0000	95,404	35.00
Russian Federation	Caucasus	78.90	223.30	106.00	21169.00	7.200	7510.00	-	0.781	30780.3822	214,067	38.00
Rwanda		4.70	17.00	-88.00	2.00	0.100	17.00	1.5	0.403	740.0000	-	43.00
St. Kitts and Nevis	Caribbean	14.10	40.00	15.00	84.00	177.000	70.00	9.7	0.814	-	1,563	-
St. Lucia	Caribbean	14.10	40.00	84.00	259.00	136.900	311.00	20.6	0.772	-	4,428	67.00
St. Vincent and the Grenadines	Caribbean	14.10	40.00	35.00	73.00	57.000	77.00	10.3	0.733	-	1,747	-
Samoa		2.90	14.10	83.00	88.00	38.600	40.00	-	0.715	-	763	70.00
San Marino		93.70	177.00	-9.00	532.00	1239.900	-	-	-	-	631	38.00
Sao Tome and Principe		0.30	0.60	25.00	5.00	1.700	-	3.3	0.632	14865.0000	227	-
Saudi Arabia		12.40	68.50	67.00	3700.00	21.300	-	2.1	0.759	116.0000	55,893	42.00
Senegal		1.90	4.60	50.00	369.00	3.600	166.00	3.1	0.431	4134.0000	9,835	35.00
Seychelles	Madagascar & Indian Ocean Islands	4.70	17.00	25.00	130.00	152.700	110.00	24.4	0.811	-	2,479	52.00
Sierra Leone	Guinean Forests of West Africa	1.90	4.60	-90.00	10.00	1.300	12.00	2.1	0.275	31803.0000	1,025	14.14
Singapore	Sundaland	29.20	135.80	29.00	6258.00	163.600	6370.00	3.7	0.885	-	35,625	83.00
Slovakia		78.90	223.30	28.00	1053.00	17.500	432.00	1.4	0.835	15365.0000	26,387	29.00
Slovenia		93.70	177.00	68.00	1090.00	45.400	957.00	2.4	0.879	9306.0000	16,265	39.00
Solomon Islands	New Guinea	2.90	14.10	133.00	21.00	1.300	6.00	1.8	0.622	-	-	-
Somalia		4.70	17.00	-78.00	10.00	0.300	-	-	-	1789.0000	-	-
South Africa	Cape Floristic Region, Succulent Karoo	5.90	36.00	483.00	6001.00	8.300	2526.00	2.9	0.695	1168.0000	51,913	57.12
Spain	Mediterranean Basin	93.70	177.00	41.00	48201.00	103.200	31000.00	7.8	0.913	2840.0000	676,672	58.00
Sri Lanka	Western Ghats & Sri Lanka	4.20	18.80	34.00	400.00	1.900	253.00	3.1	0.741	2583.0000	15,860	52.00
St. Helena		7.30	19.10	-	-	-	-	-	-	-	-	-
St. Pierre and Miquelon		-	-	-	-	-	-	-	-	-	-	-
Sudan		7.30	19.10	52.00	50.00	0.100	2.00	1.0	0.499	4953.0000	3,404	-
Suriname	Amazon	11.80	42.80	24.00	57.00	12.500	53.00	4.7	0.756	479616.0000	1,276	-
Swaziland		5.90	36.00	21.00	319.00	28.400	35.00	2.9	0.577	4306.0000	1,162	46.00
Sweden		37.60	96.60	45.00	2746.00	26.600	4107.00	2.5	0.941	21445.0000	96,109	35.00
Switzerland		116.70	185.20	-14.00	11400.00	172.200	7303.00	5.4	0.928	7382.0000	141,422	-
Syria	Mediterranean Basin	12.40	68.50	63.00	916.00	6.600	474.00	2.3	0.691	2761.0000	15,461	23.00
Taiwan		44.10	224.40	36.00	2624.00	11.927	3571.00	-	-	-	19,928	63.00
Tajikistan		78.90	223.30	-	-	0.000	-	-	0.667	12901.0000	-	-
Tanzania	Eastern Arc Mountains & Coastal Forests	4.70	17.00	200.00	459.00	0.900	739.00	5.0	0.440	2641.0000	10,025	54.00
Thailand	Indo-Burma, Sundaland	29.20	135.80	79.00	9509.00	12.600	7119.00	6.3	0.762	6750.0000	318,812	50.00

Country	Hotspots & Wilderness Areas	Int'l Tourist Arrivals by Region—1995 (in millions) [1]	Int'l Tourist Arrivals by Region—Projections for 2020 (in millions) [1]	Average Annual Growth of Tourism—1990 to 2000 (%) [1]	Int'l Tourist Arrivals circa 2000 (in thousands) [1]	Arrivals as precentage of Population 2000 [1]	Int'l Tourism Receipts circa 2000 (in millions of $US) [1]	Tourism and Travel Economy GDP as Percentage of Total GDP 1999 [2]	Human Development Index* 2000 [3]	Fresh Water Resources per Capita 2000 (m_) [3]	Hotel and Other Facilities—Rooms circa 2000 (actual) [1]	Hotel and Other Facilities—Occupancy Rate circa 2000 (%) [1]
Togo	Guinean Forests of West Africa	1.90	4.60	-42.00	60.00	2.000	6.00	0.7	0.493	2651.0000	2,358	19.00
Tokelau	Polynesia & Micronesia	2.90	14.10	-	-	-	-	-	-	-	-	-
Tonga	Polynesia & Micronesia	2.90	14.10	67.00	35.00	28.500	9.00	3.8	-	-	640	-
Trinidad and Tobago		14.10	40.00	72.00	336.00	25.100	210.00	3.0	0.805	-	4,532	47.18
Tunisia		7.30	19.10	58.00	5057.00	45.900	1496.00	8.0	0.722	408.0000	80,749	55.00
Turkey	Mediterranean Basin, Caucasus	11.40	34.80	98.00	9487.00	11.600	7636.00	4.4	0.742	408.0000	155,441	36.00
Turkmenistan		78.90	223.30	38.00	300.00	6.000	-	-	0.741	11714.0000	2,372	-
Turks and Caicos Islands	Caribbean	14.10	40.00	218.00	156.00	647.000	329.00	-	-	-	2,023	76.00
Tuvalu	Polynesia & Micronesia	2.90	14.10	0.00	1.00	10.100	-	-	-	-	-	-
Uganda		4.70	17.00	119.00	151.00	0.600	149.00	3.2	0.444	2972.0000	3,673	56.00
Ukraine		78.90	223.30	14.00	4232.00	4.500	2124.00	-	0.748	2820.0000	76,348	29.00
United Arab Emirates		12.40	68.50	-	-	98.700	-	-	0.812	69.0000	30,241	62.00
United Kingdom		37.60	96.60	40.00	25191.00	36.800	19544.00	4.2	0.928	2461.0000		44.00
United States	California Floristic Region, Caribbean, Polynesia & Micronesia	80.50	192.00	29.00	50891.00	17.100	85153.00	4.5	0.939	8768.6694	-	-
Uruguay	Atlantic Forest	11.80	42.80	55.00	1968.00	49.900	652.00	4.2	0.831	39856.0000	13,090	-
Uzbekistan		78.90	223.30	196.00	272.00	1.115	-	-	0.727	4622.0000	-	-
Vanuatu		2.90	14.10	63.00	57.00	26.700	58.00	14.9	0.542	-	1,060	52.00
Venezuela	Tropical Andes, Caribbean; Amazon	11.80	42.80	-11.00	469.00	2.400	656.00	2.5	0.770	35002.0000	76,016	64.10
Viet Nam	Indo-Burma	29.20	135.80	756.00	2140.00	1.100	-	2.0	0.688	11350.0000	66,700	50.00
Virgin Islands (British)	Caribbean	14.10	40.00	79.00	286.00	-	300.00	31.9	-	-	1,637	57.70
Virgin Islands (US)	Caribbean	14.10	40.00	22.00	565.00	513.636	965.00	12.7	-	-	4,997	58.00
Wake Island		-	-	-	-	-	-	-	-	-	-	-
Western Sahara		-	-	-	-	-	-	-	-	-	-	-
Western Samoa	Polynesia & Micronesia	-	-	-	-	-	-	-	-	-	-	-
Yemen		12.40	68.50	40.00	73.00	0.400	76.00	0.6	0.479	234.0000	10,440	60.00
Yugoslavia		93.70	177.00	-87.00	152.00	1.434	17.00	-	-	17674.0000	37,371	21.00
Zambia		4.70	17.00	307.00	574.00	3.300	91.00	3.2	0.433	11498.0000	2,553	47.00
Zimbabwe		4.70	17.00	209.00	1868.00	11.200	202.00	2.6	0.551	1117.0000	5,206	29.00

(*) The HDI index is calculated using data on adult literacy, life expectancy, enrollment in education, and GDP per capita. Not all UN members are included due to lack of data.
HDI index: 0.8 to 1.0 classified as high human development; 0.5 to 0.8 = medium human development; under 0.5 = low human development.
(1) Source: World Tourism Organization
(2) Source: World Travel & Tourism Council 2001
(3) Source: World Bank Human Development Report 2001

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In the past 50 years, the growth in international tourism has been phenomenal. Nature and adventure travel have emerged as two of the fastest growing sectors in the tourism industry. What does this mean for the world's biodiversity? As "Tourism and Biodiversity: Mapping Tourism's Global Footprint" reveals, tourism can be both an opportunity for conserving nature and a threat if it is done improperly. This report examines the relationship between tourism, biodiversity, and local livelihoods and maps tourism's expanding footprint across our planet's richest and most endangered ecosystems.

Conservation International believes that the Earth's natural heritage must be maintained if future generations are to thrive spiritually, culturally, and economically. Its mission is to conserve the Earth's living heritage, and our global biodiversity, and to demonstrate that human societies are able to live harmoniously with nature. For more information, please contact **www.conservation.org.**

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