

# Meeting the Challenges of Climate Change to Tourism



Meeting the Challenges of Climate Change  
to Tourism:  
Case Studies of Best Practice

Edited by

Louis D'Amore and Patrick Kalifungwa

**CAMBRIDGE  
SCHOLARS**

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P U B L I S H I N G

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Case Studies of Best Practice,  
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This book first published 2013

Cambridge Scholars Publishing

12 Back Chapman Street, Newcastle upon Tyne, NE6 2XX, UK

British Library Cataloguing in Publication Data  
A catalogue record for this book is available from the British Library

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ISBN (10): 1-4438-4893-X, ISBN (13): 978-1-4438-4893-0

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## LIST OF ABBREVIATIONS

AMCEN	African Ministerial Conference on Environment
APTDC	Andhra Pradesh Tourism Development Corporation
CCCCC	Caribbean Community Climate Change Center
CCR	Crete's Culinary Sanctuaries
CHICOP	Chumbe Island Coral Park
CO <sub>2</sub>	Carbon dioxide
COTS	Crown-of-Thorns Starfish
CTO	Caribbean Tourism Organization
DEFRA	Department for Environment, Food and Rural Affairs (UK)
DFID	Department for International Development (UK)
ENT	Estonian Nature Tours
ESMAP	World Bank Energy Sector Management Assistance Program
ETS	Emissions Trading Scheme
EUCC	Coastal and Marine Union
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GSTC	Global Sustainable Tourism Council
GTA	Guyana Tourism Authority
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HCMi	Hotel Carbon Measurement Index
HES	Hotel Energy Solutions
IATA	International Air Transport Association
ICLEI	Local Governments for Sustainable Cities
ICZM	Integrated Coastal Zone Management
IHEI	International Hotel Environment Initiative
IHTEC	International Holistic Tourism Education Center
IIPT	International Institute for Peace through Tourism
IMF	International Monetary Fund
INCN	International Union for Conservation of Nature
IRENA	International Renewable Energy Association
IPCC	Intergovernmental Panel on Climate Change
LCA	Life Cycle Assessment

LDC	Least Developed Countries
LEED	Leadership in Energy, Environment and Design
MDG	Millennium Development Goal
MER NTZ	Misool Eco Resort No-Take Zone
MPA	Marine Protected Area
NGO	Non-Governmental Organization
NIMET	Nigerian Meteorological Agency
NORAD	Norwegian Agency for Development Cooperation
NAS	National Adaption Strategy
NHA	Non-Hotel Accommodation
NTZ	No-Take Zone
OPC	Ordinary Portland Cement
PATA	Pacific Asia Travel Association
PPC	Portland Pozzalana Cement
PPCR	Pilot Program on Climate Resilience
RETOSA	Regional Tourism Organization of Southern Africa
RT	Responsible Tourism
SADC	Southern African Development Community
SDPI	Sustainable Development Policy Institute
SIDA	Swedish International Development Cooperation Agency
SIDS	Small Island Developing State
SME	Small and Medium-Size Enterprise
TICOS	Tourism Industry Carbon Offset Service
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNREDD	United Nations Reduced Emission from Deforestation and Degradation
UNWTO	United Nations World Tourism Organization
US	United States
USAID	United States Agency for International Development
WDDPA	World Database of Protected Areas

WFP	World Food Program
WMA	Wildlife Management Areas
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development
WTTC	World Travel and Tourism Council
WTWHA	Wet Tropics World Heritage Area
WWF	World Wide Fund for Nature



# INTRODUCTION

LOUIS D'AMORE<sup>1</sup>  
AND PATRICK KALIFUNGWA<sup>2</sup>

The scientific evidence is clear – climate change is happening.

- 2010, 2011 and 2012 were three of the warmest years on record.
- Thirteen of the last sixteen years have been the warmest on record.
- On mountains and at the poles, glaciers are thinning and retreating – melting glaciers change the flow of rivers, adding to water stress for millions of people.
- Arctic sea-ice cover in 2012 was the lowest on record, 18% below the previous record set in 2007 and 49% below the 1979–2000 average.
- More than 25,000 square kilometers of ice shelf have been lost on the Antarctic Peninsula since 1947, with the most dramatic changes occurring since 1990. The Antarctic ice sheet contains 91% of Earth's glacier ice.
- Oceans are warming and the increased concentrations of carbon dioxide are causing an increase in ocean acidity, threatening coral reefs and small organisms at the base of the food chain.

These changes are affecting people, economies and ecosystems; and unless we act, we will see catastrophic consequences, including rising sea levels, droughts and famine, and the loss of up to a third of the world's plant and animal species. The longer we delay, the greater the risks, and the greater the risks of further impacts such as ocean acidification.

An ice-free Arctic will absorb more heat and accelerate warming, while more rapidly melting ice sheets will lead to higher sea-level rises. The world's most vulnerable people are likely to be affected earlier and more severely than others. Africa, for example, with approximately 14%

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of the world's population, contributes only 2.3% of global greenhouse gases (GHG) yet is particularly vulnerable to its effects.

## **Increase in Extreme Weather Events**

Some of the extreme flooding that has occurred in the past few years has included: Pakistan, where monsoon rains resulted in one fifth of the country being flooded, 1,600 people killed, another 20 million displaced, and damage estimated at US\$ 15 billion; China, where floods led to the evacuation of 15 million people, more than 3,000 persons killed, and damage estimated at US\$ 50 billion; Australia, where massive flooding led to more than 20 deaths, affected more than 200,000 people, and had an estimated cost to the economy of \$30 billion; the United States, where Hurricane Sandy resulted in 285 deaths and more than US\$ 80 billion in damage. And 2012 was the third most active year for North Atlantic tropical cyclones.

Severe flooding was also experienced in Peru, Chile, Bolivia, Brazil, the Philippines, Bangladesh, Rwanda, Nigeria and the United Kingdom – for the latter, 2012 was the wettest year on record. And as we write this, the Maldives is being flooded from a sudden downpour of 252 millimeters (10 inches) of rain in less than two hours, leading to a surge in water levels in the capital city of Port Lewis, with twelve persons reported dead.

While some parts of the world have experienced flooding, others have experienced heat waves, severe drought and forest fires. 2010, 2011 and 2012 are the driest on record since 1950. A heat wave in Russia resulted in tens of thousands of acres of land destroyed by fire and claimed 15,000 lives – 7,000 deaths in Moscow alone. Carbon monoxide levels were two to three times higher than the level considered healthy. Grain output was slashed by 40%. The worst drought in sixty years affected East Africa, causing a severe food crisis across Somalia, Djibouti, Ethiopia and Kenya. In West Africa, Oxfam gave warnings of a “drought catastrophe” and the need for urgent action to prevent a humanitarian disaster in the Sahel Region affecting 13 million people.

2012 was the hottest year on record in the United States, with 62% of continental United States experiencing moderate to severe drought conditions, which in turn have resulted in dust storms and the loss of topsoil in several mid-western states. For farmers, these have been the worst conditions since record-keeping began in 1986. In addition, wildfires destroyed more acreage across the United States than in any other year since records began in the 1960s, and the Great Lakes were at

their lowest level ever. Wildfires were also rampant in Chile and Brazil, while Argentina suffered a heat wave.

At the other end of the temperature spectrum, Europe experienced its worst cold spell in twenty-five years, causing 650 deaths, most of them in Russia, Ukraine and Poland where temperatures reached minus 49 degrees Fahrenheit. 2012 was the snowiest winter in Moscow in 100 years, paralyzing traffic for 3,200 km.

## **Some Consequences of Climate Change**

Clearly, we are endangering all species on earth.

We are endangering the future of the human race.

(Rajendra Pachauri, Chairman, Inter-Governmental Committee on Climate Change)

On average, weather-related disasters each year cause more than 100,000 deaths, more than US\$ 100 billion in economic losses (more than the annual GDP of 133 countries), and leave 20 million persons displaced.

With climate change, some areas will experience less annual rainfall, while others will experience more. Seasonal rains may be unpredictable and arrive in sudden downpours causing severe flooding. Other threats include sea-level rise, which in turn leads to saline intrusion into coastal aquifers and damage to water infrastructure from coastal storms.

Water security is increasingly becoming a serious issue. Three billion people live in areas where water demand is greater than supply, and scientists are forecasting that 5.3 billion people (two-thirds of the world's population) will suffer water shortages by 2025. Water resources are particularly a problem for all of North Africa extending into the Middle East through to the Arabian Peninsula, Turkey, Iraq, Iran, Pakistan and India.

African nations make up thirty-six of the fifty nations most at risk for food security – nine are at extreme risk. It is estimated that US\$ 7 billion a year is required to reduce climate impacts on agriculture in developing countries. To put this figure into perspective, it is less than one and a half days' global military expenditures.

Exposure to weather-related disasters such as heat waves, forest fires, cyclones, flooding, etc. means that virtually everyone is potentially at risk. Diseases transmitted by mosquitoes and ticks might increase in some areas and decrease in others. Forest fires increase the amount of pollutants, which in turn increases respiratory illnesses. Heavy rainfall and floods often lead to contamination of water supplies and unhealthy sanitation

conditions. Drought and disasters reduce food supplies, leading to increased malnutrition and reduced capacity to fight infections. Malnutrition is the underlying cause of death of 30% of children under five.

Climate change is but one additional factor that is stressing our ecosystems. More than 83% of the world's population is currently living in countries where demands on nature exceed what the country's ecosystems can renew. We require the ecological capacity of one and a half planets to meet our current needs. More than 60% of the planet's ecosystems are being degraded or used unsustainably. A further increase in temperature of 1.5 to 2.5 degrees centigrade will result in 30% of all species being at high risk of extinction. We are currently losing one species every twenty minutes – 30,000 a year.

At the same time, world military expenditures in 2011 were US\$ 1.7 trillion – more than the GDP of every nation in the world except nine. This is US\$ 236 for every man, woman and child in the world. Less than one half of the world's military budget for one year would solve the climate change problem. Less than one half the world's current military expenditures would be sufficient to end the primary causes of poverty.

## **The Global Response to Climate Change**

Achim Steiner, Executive Director of UNEP has stated: “We live in some of the most challenging times that perhaps any generation has faced – but also one of the most exciting moments where the possibilities of re-shaping and re-focusing towards a sustainable 21st century have never been more tangible.”

Indeed, governments, industries, academic institutions and non-governmental organizations are responding to the challenge of climate change. There has been a substantial growth in knowledge and technology; increased sharing of information and successes; and the formation of new institutions and local, regional and global networks.

Noteworthy is the formation of the International Renewable Energy Association (IRENA), established in 2009, and now with 159 countries as members in addition to the European Union. IRENA assists countries in their transition to a sustainable energy future, and serves as the principal platform for international cooperation, a center of excellence and a repository of policy, technology, resource and financial knowledge on renewable energy.

Also of particular significance is the United Nations' recent declaration that 2014–2024 shall be the UN Decade of Sustainable Energy for All.

Goals of the decade include: universal access to modern energy by 2030; doubling the rate of energy efficiency improvement in 10 years; and doubling the share of the share of alternative energy by 2030.

In addition to numerous UN agencies and international organizations, there are a growing number of international networks that have formed in response to climate change and to promote green growth. These include, for example, Local Governments for Sustainable Cities ICLEI. Membership includes 12 mega-cities, 100 super-cities, 450 large cities and 45 small/medium-sized cities and towns in 84 countries.

As well as this, an increasing number of countries are developing national plans and strategies, including most recently China, which has developed a five-year plan for renewable energy. Amsterdam provides an interesting model for cities: it aims to be the world's first smart sustainable city. They have a holistic plan that includes waste management, green energy, bio-fuel, organic gardening and brewing, recycling and more.

In turn, these initiatives are supported by a growing knowledge base and open-access platforms to assist them in their efforts. These include: Guidebook to the Green Economy, Green Economy Index, Global Atlas of Renewable Energy Potential, IRENA Renewable Readiness Assessments, World Bank Energy Sector Management Assistance Program (ESMAP), World Wildlife Fund Global Foot Print Network, Climate Analysis Indicators Tool, We Adapt Platform, and Google's Earth Engine.

## **The Significance of Tourism**

On December 13, 2012, the UN World Tourism Organization celebrated the arrival of the symbolic one-billionth international travel arrival in a single year. This was the culmination of more than six decades of steady growth from 25,000 international arrivals in 1950. Domestic tourism accounted for a further 5 billion tourism arrivals.

Travel and tourism is clearly a vital driver of the global economy. According to the World Travel and Tourism Council (WTTC), the direct contribution of travel and tourism to world GDP in 2012 was US\$ 2.1 trillion. Taking into account its direct, indirect and induced impacts, WTTC estimates travel and tourism's total contribution to global GDP as US\$ 6.6 trillion in 2012, contributing an estimated 260 million jobs, US\$ 760 billion in investment, and US\$ 1.2 trillion in exports. These numbers represented 9.3% of global GDP, 1 in 11 jobs, 5% of global investment and 5% of all exports.

WTTC is projecting a further 3.2% growth in 2013, faster than the 2.4% predicted for global economic growth. Longer-term prospects are

even more positive, with annual growth forecast to be 4.4% per year over the ten years to 2022. The UN World Tourism Organization has forecasted that by 2030 there will be 1.8 billion tourism arrivals – nearly doubling the 1 billion arrivals in 2012. While it took more than sixty years to reach the 1 billion, the additional 800 million will be achieved in fewer than twenty years.

Of particular significance among these trends has been the growth of tourism to developing and emerging economies. In 1950, Western Europe and North America accounted for all but 3% of international arrivals. By 1990, the market share of tourism to developing and emerging countries had increased to 29%, and today it is nearly 50%. UNWTO has forecasted that travel to developing and emerging economies will grow at double the pace of advanced economies over the next twenty years, so that by 2030, developing and emerging economies will see more than 1 billion international arrivals.

Tourism is one of the few economic sectors through which the world's fifty least developed countries have managed to increase their participation in the world economy. It accounts for 45% of developing country exports and is a priority sector for their further integration into the global economy.

## **The Tourism Industry Response to Climate Change**

This rapid growth in travel and tourism raises the issue of sustainability. Travel and tourism is highly dependent on non-renewable energy and is responsible for 5% of global greenhouse gas (GHG) emissions. As with the global response to climate change briefly outlined above, significant progress is being made towards sustainable tourism as well.

Over the past two decades, the industry has made significant steps towards minimizing environmental impacts, and in some cases enhancing the environment. One of the first of these initiatives was the development of Codes of Ethics and Guidelines for Sustainable Tourism developed by the International Institute for Peace through Tourism (IIPT) for the travel industry in Canada in 1993. This was followed by the PATA GreenLeaf Program, the introduction of Green Globe by the World Travel and Tourism Council (WTTC), and the International Hotel Environment Initiative (IHEDI), now the International Tourism Partnership.

A number of initiatives have evolved since the early 1990s, and more have emerged in the last decade. Particularly significant has been the formation of the Global Sustainable Tourism Council (GSTC). Established in 2010, the GSTC serves as the international body for fostering increased

knowledge and understanding of sustainable tourism practices, promoting the adoption of universal sustainable tourism principles and building demand for sustainable travel. At the core of these efforts are Global Sustainable Tourism Criteria, and Criteria for Destinations.

Specifically in the accommodation sector, the UNWTO has been helping hotels go green through their Hotel Energy Solutions (HES) project, and the WTTC, together with the International Tourism Partnership and a working group of industry members, has launched the Hotel Carbon Measurement Index (HCMI).

As well as these efforts, a growing number of online tools and resources specifically for tourism are available to help organizations develop plans and strategies related to climate change. These include: the GSTC criteria for destinations describing the minimum standards that a destination must reach in order to move toward social, cultural and environmental sustainability; Totem Tourism, which has a sustainable destination guide, sustainable tourism marketing guide, a briefing for Ministers of Tourism, and a 2012 report with hundreds of real-life examples of green successes, lists of green organizations, funding sources and articles on various subjects; and Climate Prepared, a tool kit designed to help a tourism business prepare for the effects of weather and climate variability.

The chapters that follow will provide further guidance and models of best practice in preparation for climate change. The chapters are based on the *Fifth IIPT African Conference: Meeting the Challenges of Climate Change to Tourism in Africa and the Developing World*. The conference was organized by the International Institute for Peace through Tourism, in partnership with the UNWTO.

We would like to express our appreciation to our hosts, the Zambia Ministry of Tourism, Environment and Natural Resources, the UN World Tourism Organization, our sponsors, including the UN Development Program and the Zambia Tourism Board, and particularly the speakers and participants at the conference.





**PART I**

**GLOBAL PERSPECTIVES**

# CHAPTER ONE

## MEETING THE CHALLENGES OF CLIMATE CHANGE TO TOURISM IN AFRICA AND THE DEVELOPING WORLD<sup>1</sup>

ZOLTÁN SOMOGYI<sup>2</sup>

Your Excellency Mr. Rupiah Banda, President of Zambia, Your Excellency Mrs. Catherine Namugala, Minister of Tourism, Environment and Natural Resources, distinguished guests, ladies and gentlemen,

On behalf of the World Tourism Organization (UNWTO) representing the tourism interests of 154 countries, I have great pleasure in welcoming you all to the 5th IIPT African Conference: “Meeting the Challenges of Climate Change to Tourism in Africa and the Developing World” in the beautiful and rapidly developing city of Lusaka.

Zambia boasts an enormous tourism potential, based on its unique natural resources, wildlife sanctuaries, its rich traditions and the well-known hospitality of its people. A large number of tourists from all over the world visit Zambia annually to witness the magnificent beauty of the Victoria Falls, one of the most celebrated tourist sites in the world. The country is the home to exotic wilderness that incarnates nearly the whole continent of Africa and fascinates travelers and tourists. That is why in order to guarantee the long-standing success of this destination, it is so important to keep untouched its natural wealth and to develop tourism on a sustainable and green basis.

First of all, let me praise the Government of Zambia for choosing such a timely and appropriate theme as the challenges of climate change. A conference on this subject is vivid proof of the fact that Zambia is developing tourism in line with the global trends, enhancing its sustainable development aimed at conserving the natural and cultural heritage. We at

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<sup>1</sup> Welcome Address, 5th IIPT African Conference, Lusaka, Zambia, 15–20 May 2011.

<sup>2</sup> UNWTO (World Tourism Organization) Executive Director for Member Relations and Services.

the UNWTO are extremely pleased that our friends in Zambia, side by side with the world tourism community, attach particular attention to the issues of climate change and sustainable tourism development.

Before passing directly to the subject of the conference, let me begin by looking at what we know about the tourism industry of today:

- 25 million international arrivals in 1950
- 165 million in 1970
- 687 million in 2000
- 935 million by 2010
- 1.6 billion forecasted for 2020

Tourism's growth, even if it seems to be slowing down somewhat, is not approaching any asymptote; there is no evidence of saturation of demand, at least on a global level. International tourism receipts almost doubled in the same period – from US\$482 billion in 2000 to almost US\$900 billion a year.

At the same time, like those gases that physics tells us tend to fill all the space available to them when the conditions are right, tourism is spreading far and wide; in other words, it is becoming globalized. In 1950, the top fifteen destinations in the world accounted for 87% of foreign visitor arrivals, in 1970 for no more than 75% and in 2009 for only 56%. When there is too much pressure on a region, tourists travel to another one; it is what could be called "Mariotte's law of tourism." I am referring to the law formulated by the seventeenth-century French physicist and not to the American hotelier Marriott! Tourism growth today goes hand in hand with globalization.

Few places on this planet escape the curiosity of its inhabitants. Even the Antarctic is now visited. The complete exploration of Earth has not sated men's appetite for research and adventure or their desire to discover the customs of those who are like them – or unlike them.

Besides man's insatiable curiosity about the world in which he lives, three developments caused international tourism to explode: the increase in purchasing power, and in discretionary income in particular, of middle- and working-class households in the developed world; access to private motor cars and cheap air transport; and the expansion of free time, regulated and developed in many countries by social legislation in favor of employees. Benjamin Disraeli was to write in the nineteenth century: "Increased means and increased leisure are the two civilizers of man."

In the past fifty years, tourism and leisure have been a potent factor of economic development in the countries of Europe and North America with a long industrial tradition. The developing countries of Asia, the Middle East, Latin America and a few African ones have, in their turn, reaped the benefits; they have discovered that wherever tourism advances, poverty retreats.

An important contributor to the balance of payments (the contribution of tourism to economic activity worldwide is estimated at some 5%), tourism has proved to be a prodigious creator of added value, wealth and jobs. Especially in the countries of the South, it has opened up new prospects for entrepreneurship and individual fulfillment. Its function as a factor of both social and cultural integration has also been remarkable. At once the manifestation and instrument of increasingly widely shared cultural attitudes and consumer habits, tourism has fostered the growing unity of society and helped to integrate within it those who could otherwise have been excluded. Since it promotes encounters and dialogue between visitors and hosts, it has furthered their knowledge of each other and the mutual recognition of individuals and groups.

“Growth,” “globalization” and “integration,” then, are three words that we can without any hesitation associate with tourism. And three more can be added to the list – “multidisciplinary,” “vulnerability” and “resilience.”

Tourism is, by its very nature, multidisciplinary. We can think of it as a chain whose links are infrastructure, hospitality, freedom of movement across borders, and product quality – where the latter includes the quality of food and health, as well as the quality of the environment, staff training, transport, businesses’ ability to respond, the efficiency of public services, the security of visitors, etc. The failure of any one of its links affects the tourism product as a whole.

The character of being multidisciplinary, along with the resulting fragility, constitutes the vulnerability of tourism – vulnerability to external shocks, to wars, to terrorism, to the disruption of transport infrastructure, to social movements or to environmental accidents.

As we all know, the global economic recession, the closure of air traffic in Europe due to the Icelandic volcanic eruption, such terrible disasters as the earthquake in Japan and the catastrophic nuclear accident in Fukushima, as well as the current situation in the Middle East, have caused a lot of harm to tourism flows and confirmed once again its vulnerability. International tourist arrivals declined by 4.2% in 2009 to 880 million. International tourism receipts reached US\$852 billion (611 billion Euros) in 2009, corresponding to a decrease in real terms of 5.7% on 2008.

Though vulnerable, the paradox is that tourism is, at the same time, profoundly resilient. The past year clearly illustrated this dual nature. In 2010, world tourism recovered even more strongly than expected from the shock it suffered in 2008 and 2009 due to the global financial crisis and economic recession. The vast majority of destinations worldwide reported positive and often double-digit increases, sufficient to offset recent losses or bring them close to their target.

Worldwide, international tourism rebounded strongly, with international tourist arrivals up 6.7% throughout 2009 to 935 million. As a reflection of the economic conditions, recovery was particularly strong in emerging countries, where arrivals grew faster (+8%) than in advanced ones (+5%). Africa's 6% growth is an increase on the positive results of 2009. Supported by worldwide exposure created by the FIFA World Football Cup, hosted by South Africa, the region maintained momentum in 2010, achieving a total of 49 million arrivals.

This, then, is what tourism looks like today, summarized by a few key concepts:

- Growth
- Globalization
- Integration
- Multidisciplinary
- Vulnerability
- Resilience

To the above key concepts we can add the emergence of new destinations. The world has opened up. New destinations have emerged. Within the past ten years, we have witnessed the rise of emerging countries – and tourism has followed the same trend. In 2000, emerging economies held a 38% share of international tourist arrivals; by 2010 this had increased to 47%.

We also need to mention technology. Technology has transformed our sector. Tourists can now search for and book holidays on the Internet. When they arrive at their destination, they can check the weather, buy tickets for tourism attractions or download a city guide. E-visas, air and ground traffic handling, border systems, waste reduction and energy efficiency technologies: all these areas have developed rapidly throughout the past ten years and revolutionized the way we travel, creating a myriad of new opportunities.

Our tourism sector has faced major challenges in the past years, but we all know that the biggest challenges provide the biggest opportunities. Today world leaders are working together in ways that would have been unimaginable at any time in the past, to coordinate and collaborate with regards to their economies, their climate response and their development agenda.

We meet here against a backdrop of a recovering economy and significant geopolitical shifts.

Unbalanced economic recovery across the globe, faster in emerging economies but still subdued in many advanced ones, continues to pose risks for world economic stability and the desired sustained growth.

Global unemployment is at a record high for the third straight year since the start of the economic crisis. And at the current pace, it is estimated it will take up to five years to see employment back at pre-crisis levels.

Oil and food prices could rise even more sharply than currently predicted.

Interest rates in major advanced economies might start to rise again after having been maintained at unprecedented low levels for close to two years.

And, finally, we cannot forget our environmental challenge – this being the topic that has gathered us together today and that is most characteristic of the global society that we are living in. As the world works to leave the economic crisis behind, the energy/climate crisis continues to advance. Greenhouse gases have reached record levels and our natural capital is running dangerously low.

Despite all this, 2011 is set to be a year to consolidate the growth recovered in 2010. UNWTO forecasts international tourism to grow between 4 and 5%, this is above the long-term average of 4%.

Now – with recovery underway – it is time to look forward and ask what the next ten years hold for the sector. Should we expect the indefinite advance, clearly beneficial but unbridled, of world tourism? As things stand at present, this is undoubtedly the most likely scenario, given that the democratization of transport is so attractive and in view of people's strong inclinations towards leisure activities and their appetite for discovery, whetted by the enticements of modern means of communication.

But such a form of exponential growth would surely be unacceptable to many. International air transport, transformed by global alliances between airlines, is already seriously disrupted by crowded skies and airport facilities – a consequence not only of the vertiginous increase in traffic, but also of poorly controlled deregulation. The physical environment