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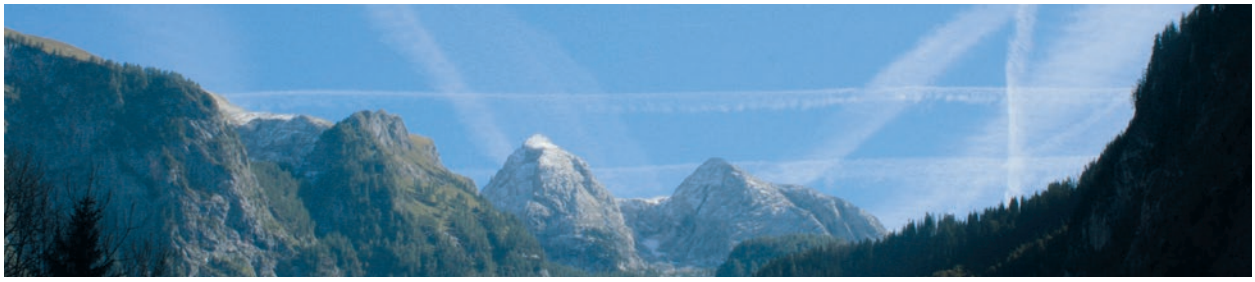

Increasing the Sense of Urgency

Reflections on Tourism and Climate Change

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Berlin, November 2014

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Reflections on Tourism and Climate Change

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Introduction

Today, the climate change debate arrived at a tip, amid new reports that carbon dioxide emissions are at the highest levels, with 2.3 percent growth in emissions. The world is at its hottest since global temperatures have been recorded. The fifth Assessment Report (AR5) by the Intergovernmental Panel on Climate Change (IPCC) has concluded that climate change is unequivocal, and that human activities, particularly emissions of carbon dioxide (CO_2), are very likely to be the dominant cause. If emissions continue to rise at the current rate, impacts by the end of this century are projected to include a global average temperature 2.6 – 4.8 degrees Celsius higher than at present, and sea levels 0.45 – 0.82 metres higher than at present. Along with more frequent and more extreme weather events, the consequences would be disastrous.

The role of the tourism

The tourism industry plays a significant role in climate change. Unregulated and unsustainable mass tourism, supported by liberalized policies together with the serious lack of adequate regulatory measures increased the tourism sector's CO_2 emissions significantly. Calculations of the contribution of tourism to global CO_2 emissions range from 3.9 percent to six percent of human emissions, a major part being emissions from aviation for which radiative forcing also needs to be factored in. As the world becomes more affluent, the tourism sector is expected to grow by an average of four percent annually. The sector's emissions are on course to grow by 130 percent between 2005 and 2035.

The paradox of tourism is that on the one hand, it is contributing significantly to the changes in climate, on the other hand, tourism itself is very climate dependent and vulnerable. This is a particular concern for Least Developed Countries (LDCs) and small island developing states that are affected by climate change and at the same rely on tourism as a development option. Policy makers, negotiators and the tourism industry have not addressed this paradox, but continue with a "business as usual" approach.

Climate change presents a very difficult scenario for the continuity of the current tourism development model. This is compounded by the effects of peak oil, i.e., the progressive difficulty in accessing conventional fossil-based energy sources at the same prices as in the past. And it would appear that new sources of energy cannot solve the problem either. Against this backdrop, the policy of tourism expansion based on public subsidies for aviation fuel will clearly be affected. Climate change and peak oil are forcing us to rethink a concept of tourism that can hardly continue to operate like in the past.

The international climate negotiations have led to the introduction of market-based mechanisms, but have so far failed to set binding emissions reduction targets for the tourism and aviation sector. Meanwhile, the tourism and aviation industry have relied on technological solutions. But the growth of tourism and emissions is far greater than any projected efficiency gains through technological innovation. This demands alarmingly urgent action where the tourism sector acknowledges, accepts and responds to climate change challenges with concrete steps.

The impact of tourism on the climate and the negative impacts of tourism on communities and natural resources are interlinked. So it is essential not to lose sight of the complexities of social, cultural, economic and environmental impacts of tourism in destinations, particularly on affected communities and workers.

UNFCCC: Lima, Paris and beyond

The climate negotiations ahead will be a critical moment to agree on appropriate and ambitious plans and targets for the transition to a safe and low carbon future. There is a real chance for the COP 20 in Lima to successfully prepare for the crucial COP 21 to be held in Paris in December 2015. After the failure of the COP 15 in Copenhagen 2009, the international community will now need to make a major effort to agree on a legally binding and universal agreement on climate change.

For the first time in history, China and the US announced their binding climate targets. China is planning to stop its CO_2 emissions from growing by 2030 or earlier.

The US wants to cut net greenhouse gas emissions to 26 – 28 percent below 2005 levels by 2025. These targets are far too low to keep global warming below two degrees Celsius. Nevertheless, two major emitters of greenhouse gas set a sign. This milestone on the road to limit the risks of climate change will hopefully encourage other nations to do their part.

Further inaction would lead to a betrayal, not only of future generations, but of the poorest communities in the world, especially those who are already confronted with the chaotic changes in climate.

Tackling climate change is a matter of justice which requires urgent and radical action at various levels. These actions should accept and include the dissent voices that have been advocating for a change of the 'mainstream tourism development paradigm'. The present economic and political domination of climate change negotiations should be changed to a more equity-based people-centred approach. The concerns, experiences and needs of local communities must be addressed and included in the negotiation process.

The position of the tourism industry in the UNFCCC process has been characterised by a lack of responsibility. The industry-biased role of the UNWTO in the UNFCCC negotiations is also a serious cause of concern, as it is focussing on the protection of business interests, rather than protecting the human rights of the victims of climate change.

About this publication

This publication was developed in the run-up to the 20th conference of the parties to the UNFCCC in Lima in December 2014. It brings together different perspectives on the current state of the tourism and climate debate and highlights experiences in the fields of mitigation and adaptation to climate change in tourism. It also looks at the institutional framework and the roles of different international organizations working on climate change and its implications for tourism and mobility. Authors from Asia, Africa, Europe, and Latin America share a variety of insights that shed light on the interrelations between tourism and climate change.

Ernest Cañada
Christina Kamp
Sumesh Mangalasseri
Annegret Zimmermann

Part 1: Tourism as a 'Culprit' and a 'Victim'

Bunker Emissions: A Vacuum in Climate Policies

By Annegret Zimmermann

Tourism contributes around nine percent to global greenhouse gas emissions – with a high annual growth rate (UNWTO-UNEP-WMO 2008). Unlike most illustrations, it should be noted that this figure includes the sector's contribution to radiative forcing, a measure considering the warming caused by all greenhouse gases and aviation-induced cirrus clouds. Considering only accommodation, air and sea transport, these add up to around 93 percent of cumulative CO_2 emissions in tourism. Tourism is thus in conflict with international climate policy efforts to curb global climate change through reduction and adaptation strategies. Moreover, neither the emissions generated by tourism nor those caused by international air and maritime transport are in any way subject to emission reduction legislation. There are no legislative instruments obliging the tourism industry to reduce its CO_2 emissions.

The negative impacts of tourism on climate, and hence on humanity, must be reduced, and measures to adapt to climate change – to the extent to which it cannot be prevented – in the tourism industry must be encouraged. This is necessary because tourism not only contributes to global climate change, but also suffers from its negative impacts. Based on the recently published Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), the impacts of climate change on tourism can be summarised (see box and article by Kenneth Odero, p. pp. 11-12).

Air and maritime transport – the biggest emitters of greenhouse gases in tourism

Data on the contribution of aviation to anthropogenic climate change vary considerably. According to IPCC 2007, it accounts for between two and eight percent. More critical scientists, headed by David Lee, even put this at up to 14 percent (Lee et al. 2009).

Since air transport emissions are released at high atmospheric altitudes, their effects are particularly serious (see box on RFI). The global tourism industry (e.g. through the World Travel & Tourism Council – WTTC) and the UNWTO avoid this issue. All their reduction announcements refer to CO_2 emissions alone. Thus, when calculating emissions, airlines and tourism operators do not take into account the additional harmful impacts on the climate either, restricting their calculations to CO_2 emissions. This helps them to downplay the impacts due to air travel considerably.

In a similar way, 1990 is the base year stated by the IPCC for the required reduction targets. However, most tourism and mobility players refer to the year 2005. Consequently, in absolute figures, their reduction obligations are strategically diminished.

Another problem are subsidies for aviation and tourism, as they promote a highly carbon intensive sector and at the same time, through this misallocation of funds, governments lose large amounts of revenues (see box on the German Aviation Tax).

The German Aviation Tax and Competitive Conditions in the Aviation Sector

Since the fuel for aircraft is exempt from energy taxes and since no value added tax is charged on international flights, the German treasury loses about 10.4 billion euros per year (as of 2013). While the aviation sector gets subsidies that damage the environment, the aviation tax introduced in 2011 generates not even one billion euros per year. Therefore, with regard to the equal and fair competition between all modes of transport and in order to strengthen the ecological steering effect, it is advisable to discontinue subsidies which are damaging to the climate. The aviation tax should be kept, as it is the only fiscal steering tool for the most environmentally unfriendly mode of transport, and it should be developed further, taking development aspects into account (Thießen 2013).

Shipping actually is responsible for a billion tonnes of greenhouse gas emissions a year, a little more than Germany emits as a country. In addition, ships release ten percent of global sulphur dioxide emissions and up to one fourth of total nitrous oxide emissions. Cruise tourism, which generates part of maritime transport emissions, has grown considerably. Its share of global emissions fell from 3.2 percent in 2007 to 2.5 percent in 2012, according to the latest figures approved by the International Maritime Organization (IMO). However, these apparently encouraging figures "...had more to do with the financial crisis than environmental regulations..." said Bill Hemmings of Transport & Environment in an interview with Responding to Climate Change (RTCC) in October 2014.

The IMO has taken a few indirect steps to limit emissions, the main one being energy efficiency design standards for new ships (established in 2013) and the requirement that all operating ships need to have energy efficiency management plans. However, a strategy to curb emissions is missing. Shipping emissions are set to rise by 50-250 percent by 2050, depending on the rate of economic growth

Maritime transport, like air transport, is characterised by a strong growth trend. It is also relevant for the tourism industry, not only on account of tourist mobility, such as for example in cruises, but also due to the shipping of innumerable goods required for tourism, such as food, infrastructure elements or equipment. On a global scale, almost 80 percent of all goods are carried by sea.

Efforts to tackle emissions head on, with a carbon tax or market, have been held back by a fundamental conflict between IMO and the UN Framework Convention on Climate Change (UNFCCC). The IMO, mainly concerned with activities outside national boundaries, insists on "no more favourable treatment" for one country over another. The UNFCCC approach is based on the principle of "Common but Differentiated Responsibility" for emissions cuts, acknowledging the different capacities and historical responsibilities of developed and developing countries.

Aside from these institutional discrepancies there are further challenges for maritime transport. A system designed to monitor and report on maritime transport emissions is costly, data on ships are difficult to collect and there are no pilot projects in this area. But although all sectors should contribute their share to greenhouse gas reduction, the IMO is currently incapable of present-

Climate Change: Implications for Tourism

The Fifth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC), released in April 2014, "Mitigation of Climate Change", also contains conclusions of importance for the tourism sector. The Cambridge Institute for Sustainability Leadership (CISL) has distilled its key findings in order to communicate its numerous statements of scientific nature in a more comprehensible manner.

The briefing concludes that the tourism sector is exposed to numerous direct and indirect impacts from climate change: sea-level rise and more acidic oceans, rising temperatures and water shortage. These impacts, separately or in combination, will lead to the destruction of tourism infrastructure and facilities due to changes in coast lines and ecosystems, such as mangroves and coral reefs.

Adaptation options exist, but many are likely to add costs and offer only short-term relief. As an example, the report refers to winter sports destinations, where adaptation measures, such as moving to higher elevations, using snow cannons or marketing destinations as year-round destinations should be taken into consideration, without underestimating the costs of new investments and safety provisions which may increase significantly.

The IPCC shows that the contribution of tourism to greenhouse gas emissions is rising. Currently, the tourism sector is responsible for 3.9 – 6 percent of global CO_2 emissions. The main sectors are air and maritime transport as well as tourism accommodation. In a business as usual scenario, tourism emissions are projected to grow by 130 percent between 2005 and 2035.

There is considerable uncertainty about how tourists will respond to the effects of climate change. Academic research provides many details on likely impacts, and on possible changes in tourism demand. These changes are likely to create opportunities at both the destination and operational levels, but overarching conclusions are hard to draw.

In order to adapt to these new challenges and to develop the necessary resilience, the tourism industry has to confront climate change. Early warning systems and disaster prevention, also in tourism, will become more important in the future.

For more information: Cambridge Institute for Sustainability Leadership (CISL) (2014): Climate Change: Implications for Tourism. May 2014. Cambridge. www.cisl.cam.ac.uk/Resources/Climate-and-Energy/Cli mate-Change-Implications-for-Tourism.aspx

English translation: Sabine Reichert-Rubio

ing a plan worth mentioning for the reduction of emissions. This is unlikely to change in the near future, unless the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) due to be held in Paris in 2015, agrees on ambitious new climate targets that also include aviation and shipping.

Greenhouse gas reductions along the tourism value chain

Isolated local initiatives within the tourism industry in the areas of accommodation, food or local activities, such as energy efficiency enhancements and the use of renewable energies, or fossil fuel-free destinations are positive efforts. But in the long term they can only have a positive impact if they lose their exemplary character of mitigation or adaptation projects and start being implemented at the supraregional level as well. There is an imperious need for action in the implementation of efficient reduction measures in outward and return travel to and from tourism destinations.

Climate-harming impacts due to tourism-related air transport are in the spotlight. Reducing them is the main challenge for the future. Air transport, considering its climate impacts in the higher atmospheric levels, accounts for around 66 percent of the global climate footprint of tourism. Political regulations on responsibility and attributions regarding the climate impact generated by international aviation are costly and time consuming. The attribution of emissions to certain specific countries is an especially complicated process. However, complexity should not be an excuse for inaction. No effective and efficient reduction measures are envisaged in this area. Economic interests focused on growth take precedence over emissions reduction efforts.

It is therefore essential to stress alternative and fair concepts and demand an emissions reduction and energy efficiency policy. Major international bodies such as ICAO, IMO and WTO, as well as the UNFCCC, should jointly assume responsibility for this.

The tourism industry as a driver of growth

The UNWTO estimates that the number of international trips in 2013 totalled close to 1.09 billion. The great challenge lies in the huge growth rates of the aviation industry and in the fact that air travel is considered the main source of growth of climate-harming emissions. The Air Traffic Report published by the Institute of Air Transport and Airport Research at the German Aerospace Center (DLR) in 2013 indicated that over the past three years global passenger traffic grew by 21 percent to 3.1 billion passengers (DRL 2014). In this scenario, the UNWTO and the United Nations Environment Programme (UNEP) assume an expected increase of over 150 percent in tourism-related emissions by 2035 as compared to 2005 (WTO-UNEP-WMO 2008).

It is likely that measures that appear feasible in the next few years to improve the climate footprint of air transport (e.g. measures to promote the efficiency of fuels and engines, technological breakthroughs in aircraft construction) will not be sufficient to make up for the forecast increase in the number of flights, let alone even reduce emissions below the current level. Neither will aviation agrofuels, which have aroused such hopes and praise, succeed in changing this. (See articles by Jordi Gascón, pp. 16-17, Paul Peters, p. 15 and Annegret Zimmermann pp. 18-21).

The RFI Factor

Apart from CO_2, aircraft emit additional substances that cause climate change, such as nitrous oxides, soot particles, and water vapour, which at high altitudes contribute to additional warming of the atmosphere. Water vapour and soot particles form contrails and cirrus clouds, which reflect heat radiation of the Earth's surface, and, as a consequence, increase the greenhouse effect. Today, a considerable part of the cirrus clouds is already attributed to aircraft emissions. That's why the emissions caused by aviation are different from ground-level emissions in terms of their relevance in climate change. The difference is an average factor of about 2.7. The so-called radiative forcing index (RFI) describes the ratio of total warming potential of all emissions to the warming potential of CO_2 emissions alone.

English translation: Sabine Reichert-Rubio

Air transport and climate justice

The global target to prevent climate change is to reduction emissions of greenhouse gas into the atmosphere to such an extent that global warming will be restricted to a maximum of two degrees Celsius, and possibly not exceed 1.5 degrees Celsius. Moreover, responsibility must be jointly assumed for the harmful effects of anthropogenic

warming to be reduced as much as possible, and to be compensated for whenever they occur. Mitigation, adaptation and offsetting should therefore be governed by the principle of "common but differentiated responsibility", differentiating according to the responsibility of those who caused the problems and their abilities to solve them.

Travel is a privilege of people who can afford it. Around the world, it is especially the middle and upper classes that travel. Only two percent of the world population (Peeters et al. 2007) actively participate in air travel – the resulting climate-harming impacts are thus caused by luxury. However, the impacts of climate change primarily affect those who are unable to travel and who often stand little or nothing to gain from tourism. They are the people from developing countries who make a living out of farming and whose food sources are wiped out by extreme weather events such as droughts and storms, or the fishing families on the coasts whose livelihood is changing together with the climate and who are threatened by a rise in sea levels. Vulnerability in tourism not only means a threat to tourism infrastructure and the loss of beaches. It also implies vulnerability of the people working in tourism around the world who actually make tourism possible.

The tourism industry has great responsibility, but it also has great power. Given its economic importance, the tourism industry has demanded greater political attention. However, it is not only a matter of acknowledging its economic importance, but also of taking its social and environmental responsibilities seriously. Political decision-makers must prove their regulatory competencies to achieve a substantial and verifiable reduction in CO_2 emissions and an effective mitigation of the climate-harming impacts caused by tourism.

Annegret Zimmermann works with Bread for the World as a consultant on sustainable tourism.

English translation: Centro Superior de Idiomas de la Universidad de Alicante, S.A.U.

Impacts of Climate Change on Tourism: Examples from Africa

By Kenneth Odero

The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) is the most comprehensive analysis of climate change so far. The level of confidence of climate projections has increased in the last few years compared to the case a decade or two earlier. Its key findings that are most relevant to tourism show that the sector is exposed to numerous direct and indirect impacts from climate change. Adaptation options exist, but many are likely to add costs and offer only short-term relief. The contribution of tourism to greenhouse gas (GHG) emissions is rising, and there is considerable uncertainty about how tourists will respond to the effects of climate change.

Direct and Indirect Impacts of Climate Change

Based on what is currently known, climate change will impact the tourism sector at the destination and operational level. The destination level is particularly relevant from an African perspective since Africa is a net tourist receiving region. Rising sea levels and extreme weather events will threaten coastal tourism infrastructure and erode and submerge beaches. This is especially the case in low-elevation coastal zones (LECZs) in cities such as Mombasa, Kenya, and Cotonou, Benin. Presumably, human settlements and communities in these and other LECZs are equally (if not more) vulnerable and face multiple risks. Therefore, adaptation and risk reduction measures ought to be important considerations from a sustainability and community quality of life perspective.

Ocean acidification and rising sea temperatures will degrade and destroy coral reefs. According to the United Nations Environment Programme (UNEP), current eco-system projections suggest that a +1 degree Celsius global mean temperature change relative to 1980 – 1999 will see increased coral bleaching, at +2 degrees Celsius change most corals will be bleached, and at +3 degrees Celsius and above there would be widespread coral mortality, unless there is thermal adaptation or acclimatisation by corals. Areas most likely to suffer coral bleaching in Africa include the western shores of the Red Sea stretching from Cairo, Egypt, to south of Massawa, Eritrea, the east cost of Tanzania and Mozambique, as well as the western shoreline of Madagascar.

Biodiversity and tourism

Rising temperatures will affect biodiversity and lead to more forest fires. To put this in context, according to the Living Planet Report 2014 published by the World Wildlife Fund (WWF), humanity's current demand for resources is more than 50 percent larger than nature's regenerative capacity. In Africa, where approximately 90 percent of the population depend on rain-fed crop production and pastoralism within the savannah biome to meet basic food supplies, any further loss of biodiversity would have devastating impacts on tourism and livelihoods. The predominant factors controlling the distribution of biomes in savannah ecosystems include fire, soil moisture availability, herbivory, and CO_2 concentration. Given the importance of savannahs to ecosystem services and food production, and the fact that climate projections of this century display pronounced changes to climate across the African continent, the need for scaling up of adaptation measures spearheaded by the tourism sector cannot be overemphasised.

Rwanda's and Uganda's gorilla tourism is a good example of the relationship between biodiversity and tourism from an African perspective. Mountain gorillas survive in two isolated populations, among the Virunga volcanoes on the borders of Democratic Republic of Congo, Rwanda and Uganda; and the Bwindi Impenetrable National Park in Uganda. Within this region, gorilla tourism has transformed communities like Nkuringo, a mountain town in Uganda and the home of the Clouds Mountain Gorilla Lodge, a community-owned boutique hotel that receives 1,200 guests a year. It directly employs more than 40 people and indirectly benefits more than 30,000 others living in the neighbourhood. For example, local entrepreneurs are involved in the production and marketing of carved wooden gorillas, t-shirts and baskets for tourists visiting the lodge. Restaurants, bars and other accommodation are also opening in the area, adding to the local economic multiplier.

In Rwanda, gorilla tourism is the engine powering a tourism industry worth 200 million US dollars a year in foreign exchange earnings – although tourist numbers are limited to avoid negative impacts on the gorillas, local people and the local environment.

Water disputes

At the operational level, reduced water availability due to climatic change would lead to dispute with local industry and communities. According to the Southern African Water Crisis, demand for water from agriculture, industry and domestic use is expected to come under increased competition as population numbers rise and economies grow. Already, disputes are increasingly reported where

water resources or water systems are a major source of contention in the context of economic and social development. The control of water resources has become an extremely strategic issue where water supplies or access to water is at the root of tensions, such as in the Nile Basin. Further to the south, disputes have already taken place between Botswana and Namibia over abstraction of water from the Etosha or Okavango. In addition, many countries are also concerned about maintaining ecological functions which are not adequately met under current systems of water management and allocation. With increased demands, and limited supply potential within countries, countries and communities are increasingly taking adaptation measures by seeking other sources of supply or controlling consumption through demand side management.

Increasing risk of extreme weather events

Climate change projections also suggest that extreme weather events will increase operational uncertainty. What this means is that decision making with regard to safety and security, staff management, hospitality and services operations in the tourism sector will increasingly need to be informed by better understanding of climate processes, variability and change in Africa, and a systematic examination of key uncertainties. The challenge is that there is less observational climate data over Africa than in other parts of the world and the existing data have not fully been exploited.

At the same time, a significant amount of projected climate change output from climate models is yet to be analysed, whilst models also fail to capture the drivers behind decadal variability in the region. Measures to safeguard tourism investments against medium term climate risks seem to be a sound adaptation pathway towards resilience. Other adaptation options might include introduction of water policy reforms focusing on water conservation, flood management and construction of dams, improvement of early warning systems, protection of tourism infrastructure, strengthening of environmental legislation, and promotion of conservation.

The tourism sector also faces impacts of more general nature, like more expensive insurances, reduced food security and greater conflict affecting some communities in which it operates. Tourism will be affected by policy changes and efforts to reduce greenhouse gas emissions causing global warming, especially in the context of dynamic growth in its emissions. Emissions from transport and accommodation with its touristic infrastructure account for more than 90 percent of tourism's global emissions. Reductions within those two sectors will therefore have a high mitigation potential in Africa and in the rest of the world.

Dr. Kenneth Odero works with Climate XL Africa, an international NGO focussing on climate change.

Different Standards for the "Environmental Dinosaurs": Interview with Dietmar Oeliger (NABU)

By Christina Kamp

With their huge emission volumes, cruise liners pollute the air, especially at their ports of call, but also far from the coast, in the high seas (cf. article by Annegret Zimmermann, pp. 7-10). The ranking survey of cruise ships conducted by the German Nature and Biodiversity Conservation Union (NABU) shows that so far this sector has failed to fulfill its environmental responsibility. Some cruise operators are preparing to shortly take steps to meet stricter regulations, but these will not be applied everywhere. Bread for the World asked Dietmar Oeliger, head of transport policy at NABU, about the dangers of polluting bunker emissions from cruise ships and the future prospects of improving the ecological footprint of these "dinosaurs":

Why are the bunker emissions of cruise ships so dangerous?

Oeliger: Cruise ships release huge amounts of the typical pollutants into the atmosphere, such as sulphur dioxide, nitric oxide and soot particles. On the one hand, they are so dangerous because of the fuel that is used: a highly toxic heavy fuel oil containing up to 3,500 times more sulphur parts than the fuel used in road transport. On the other hand, almost all cruise ships lack an effective system for exhaust emissions. Soot particle filters or catalytic converters for nitric oxides have long been a standard feature in cars and lorries, and they can almost completely prevent air pollution. This technique, together with cleaner fuels, must be used as soon as possible in ships as well.

Soot particles are the cause of cardiovascular and lung diseases and, according to the World Health Organisation (WHO), they are as carcinogenic as asbestos. They are also increasingly associated with dementia. Soot particles have another disadvantage: they contribute enormously to speeding up climate change. After CO_2, they are the greatest contributors to global climate change, especially in Arctic areas. The wind blows soot particles from Europe, North America or Asia to the Arctic, where they land on the ice. These ice surfaces, thus stained and darkened, warm up faster, thereby speeding

Without an effective strategy to curb emissions, shipping is on track for a very large increase in emissions.

up the melting process. Another reason why cruise ships emit such large amounts of pollutants is that their engines are kept running uninterruptedly during port calls in order to assure power supply for the onboard accommodation and catering service.

From 2015, the regulations on emissions allowed for cruise ships will be tightened for the North and Baltic Seas. But what is the situation in other parts of the world, especially in developing countries?
Oeliger: In 2015, the sulphur oxide emission limits will be tightened in the North and Baltic Seas, but they will still be 100 times less stringent than the emission limits for lorries. Also, within a fringe along the North American coast there are certain "marine environmental zones". These are subject to certain constraints regarding emissions. But, for purely profit-seeking reasons, cruise operators on their routes from the US to the Caribbean or from Europe to African waters immediately switch back to cheaper heavy fuel oil. In all those areas where international regulations do not prohibit the use of toxic heavy bunker fuel, this is what is used by cruise operators. In other words: the environment and people's health in developing countries are valued less by cruise operators than people's health in our regions. Macabre as this may seem, it is the sad truth. Also, the workers below deck on most cruise ships are people from developing countries, such as the Philippines. Studies confirm that these workers suffer higher cancer rates, caused by constant exposure to the fumes of heavy bunker fuel. This is a shocking reality unknown to most passengers on board.

What is the International Maritime Organisation (IMO) doing to bring cruise ship emissions down to levels acceptable for the environment and human health, and what else should be done?
Oeliger: The IMO has decided to cut emission limits for certain atmospheric contaminants by 2010. But it should be noted that these limits will continue to be far less stringent than those applying to the mainland. A factory releasing such high amounts of emissions on the mainland would have been closed down long ago. Unfortunately, the process under the IMO advances at a snail's pace. This is due to the fact that the countries taking part in the decisions also include countries which, though operating large shipping fleets, give little importance to high environmental standards. Thus, Liberia, Panama and also Greece have time and again over the past years boycotted good initiatives for the reduction of environmental damage in the high seas. Nevertheless, the process must still be continued under the IMO. But we cannot rely only on this. Europe must forge ahead in European waters and, for instance, also declare the Mediterranean a "marine environmental zone". Finally, port cities can also take action. By applying port charges on a sliding fee scale they would be able to penalise dirty ships and create an incentive for cleaner vessels.

For further information: "This stinks! – Clean up cruise ships! NABU's campaign for a cleaner cruise industry www.nabu.de/en/themen/verkehr/schifffahrt/mirstinkts/

This interview was first published in Bread for the World (2014c): TourismWatch No. 76. (http://tourismwatch.de/content/unterschiedliche-standards-fuer-die-umwelt-dinosaurier)

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Part 2: Climate Change and Mitigation

Biofuels for the Aviation Sector: Solution or Perpetual Challenge?

By Paul Peeters and Eke Eijgelaar

Carbon dioxide emissions of aviation are increasing at two to three percent per year, contrasting international sustainability goals to reduce global emissions by 80 percent during the 21st century. The Air Transport Action Group (ATAG) proposes "climate neutral growth" through energy efficiency improvements, carbon trading, and large scale shifts to biofuels. In 2050, ATAG envisages 60 to 70 percent of emission reductions to be delivered by biofuels, assuming an 80 percent lower carbon footprint of biofuels compared to fossil oil-based jet fuel.

Biofuels are all fuels made from geologically recent carbon fixation (as opposed to fossil fuels) in all sorts of biomass. Such biomass, or feedstock, may be agricultural products like grains or palm oil seeds, or biological waste (like waste fats, waste from the food industry or forestry by-products). The term 'agrofuels' is also used frequently. These are biofuels made from crop or tree feedstocks (as product or by-product). Most biofuels are thus also agrofuels.

But can they be produced sustainably at such a large scale? First generation feedstocks, like sugar or oil seeds, have low spatial efficiency and would require large amounts of agricultural lands, thus competing with food production and creating all the environmental problems that agriculture also causes, including pesticide runoff, water and air pollution, deforestation, and soil degradation. Biofuels are vulnerable to hypes. For instance jatropha, a 'wonder bean' advocated in the 2000s, did not live up to expectations at all. The life-cycle carbon reduction was only 50 to 55 percent, as calculated by Robert Bailis in 2010. Socially, Nick Wadhams found in 2009 that jatropha has caused very negative effects, for example in India and Kenya, depriving local populations of lands for their own food production and not delivering any economic benefits. A 2010 study by Pere Ariza-Montobbio even showed jatropha causing poverty. The failure of jatropha was already predicted by Katharine Sanderson in 2009, while the industry kept trumpeting its opportunities in 2011 and still continues to do so in their websites (e.g. www.atag.org/facts-and-figures.html).

Algae as a new hype

The current hype is algae, with high yield claims and the ability to be grown on wastelands in water tanks, thus not competing with food production or natural ecosystems. A European study by Johannes Skarka published in 2012 showed algae potential in the EU to be limited, because most wastelands are located on too steep terrain. The potential could be 1,000 petajoule of energy, which might cover about 50 percent of current EU aviation energy use, disrespecting the needs of other sectors. Research by Leslie Coplin published in 2012 shows major concerns with algae production, like high water use, low life-cycle emissions efficiency, high nutrients requirements, land use and a range of environmental problems including ecosystem disturbance, air pollution, and toxic substances releases.

No biofuel feedstock has shown competing cost with oil based jet fuel so far. Even the industry, for example the International Air Transport Association (IATA), expects aviation biofuels to become price competitive only in the medium term. Until this moment, aviation emissions growth can only be slowed to a marginal extent, by means of additional efficiency gains (above the normal commercially driven efficiency improvements) and operational measures. Thus, the built-up of total aviation emissions heading towards 2050 is immense.

Waste as an option?

A recent Qantas Airlines report concludes that natural fats and oils waste as feedstock has sustainability problems, while general (agricultural) waste still has major technological problems.

Overall, we conclude that the prospects for large scale biofuel use in aviation to sustainably reduce aviation's carbon emissions by up to 80 percent around 2050 are very low. Biofuels will certainly not allow for combined emission reductions and unrestrained air transport growth. The latter is the crux of the future sustainability of aviation: unlimited air transport growth is beyond sustainable development.

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Reducing Responsibility: Strategies of the Aviation Sector

By Jordi Gascón

Until the end of the millennium, the aviation industry was smart enough to conceal its real environmental impact. For example, in 1997 it was excluded from the United Nations Kyoto Protocol mitigation mechanism. However, in recent years it has been necessary to include aviation on the agenda, following reports by the Intergovernmental Panel on Climate Change (IPCC) which clearly stated the role of air transport in climate change, in addition to complaints from social movements and the results of numerous academic studies.

The aviation industry, represented by the International Civil Aviation Organisation (ICAO), has responded by confirming that the role of air transport in climate change can be reduced without affecting growth in the sector. This growth has been exponential in recent years. According to the organisation, several strategies would permit this policy of "reduction and growth". These strategies have been approved by the International Air Transport Association (IATA).

Changing the energy matrix

One of IATA's strategies is to change the energy matrix in favour of biofuels. For the tourism industry, development of biodiesel for air travel has two positive effects. On the one hand, it reduces dependency on fossil fuels in a scenario threatened with imminent peak oil. And in addition, it allegedly compensates for the environmental impact, as, according to IATA, biofuel combustion reduces greenhouse gas emissions.

Numerous academic studies (e.g. Brunnengräber 2009, Scott/Peeters/Gössling 2009, Weaver 2011) have questioned the effectiveness of this measure. However, aside from efficacy, the consequences of its effects on other economic and social sectors have not been taken into account. One of these is small scale farming, and one case in particular serves as a case in point.

Lufthansa is one of the most prominent airlines in terms of putting into practice proposals for combating climate change. In 2011 it became the first airline to es-

The jatropha seed is considered to be one of the most suitable plant species for biofuel production, but far from fulfilling the high expectations.

tablish regular flight trials using a mixture of conventional kerosene and biodiesel. The biodiesel used was produced from the jatropha seed, a shrub from the spurge family, Euphorbiaceae, which is claimed to be one of the most suitable plant species for biofuel production. The Finnish company Neste Oil specialises in the production of biofuels and was responsible for producing the aviation biofuel for Lufthansa. Although the venture won several awards, the experience was not a success. When the test period was completed, Lufthansa suspended its biofuel-powered flights. The reason given was that the biofuel supply could not be guaranteed. The company confirmed that it would not be using the product again until the production of jatropha increased to provide sufficient quantities for regular flight operations. However, the company stated that the experiment had been positive in environmental terms as, according to its calculations, it had saved 1,500 tonnes of CO_2 in the 1,187 domestic flights in which it was used.

Ecologist movements were not quite so flattering in their opinions of the trial. In fact, a campaign was organised to contest Lufthansa's biofuel policy. Citing European Union studies leaked through Reuters, the German organisation Rettet den Regenwald claimed that agrofuels failed to comply with the climate objectives of the European Union, as their production was leading to the destruction of valuable ecosystems.

Land conflicts in Indonesia

In addition, the experiment had had a significant impact on the peasant farming community in the Indonesian district of Grobogan on the island of Java, where the jatropha used had been grown. A group of Dutch companies invested in jatropha production in Grobogan. It was a joint venture with the Indonesian state. Indonesia provided nationally owned land which had once been Dutch colonial property. This land accounted for 35 percent of the total cultivable land in the area. Through Jatenergy, a subsidiary based in Australia, the Dutch investors sold 200 tonnes of jatropha oil produced in Grobogan to Lufthansa. The oil was subsequently refined by Neste Oil.

The project was carried out in the midst of a dispute over the land. Many landless peasants had invaded the former Dutch farms and were living on the land. Now the conflict intensified as the Indonesian government began to expel the peasant farmers from the land in order to grow jatropha. Many of the peasants were taken on as agricultural workers in the new operations, work which was far less profitable for these people. Others did not have that option. The peasants also lost access to their pasture lands and are now employed to grow jatropha. Finally, replacing agricultural food products which were formerly sold in local markets with energy crops for export had an extremely negative impact on the food security and food sovereignty of the demographically dense island of Java.

Growth and reduction don't go together

Although regular flights using biodiesel have ceased, Lufthansa maintains its position of continuing once there is sufficient stock of this fuel in the market. In fact, it maintains its goal of ensuring that its entire fleet will eventually fly with a biodiesel based compound in the future.

This case is not exceptional. There is a general interest within the industry in participating in biofuel production. The foreseeable rise in the price of fossil fuels to the point where it reaches peak oil is an incentive for this. And at no time has the airline industry considered reducing the number of flights. Furthermore, it has never considered reducing its annual growth in any way.

Most academics do not consider the policy of "growth and reduction" proposed by the sector to be feasible. However, aside from its impossibility, it is a proposal which adopts the dangerous pattern of "problem-solution-problem", i.e. planning solutions which not only fail to resolve the problems they aim to redress, but they become the vectors of further problems. In particular, this applies to global processes which negatively affect peasant economies and communities, such as land grabbing or confiscation of agricultural resources.

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English translation: Centro Superior de Idiomas de la Universidad de Alicante, S.A.U.

Limited Potentials of Agrofuel Production

By Annegret Zimmermann

The climate mitigation targets for the aviation sector defined by the International Civil Aviation Organisation (ICAO) and the International Air Transport Association (IATA) are: fuel efficiency to improve by two percent per year until 2020, CO_2-neutral growth of aviation by 2020 and a 50 percent reduction of net CO_2 emissions by 2050, compared to the base year 2005. To achieve this, the aviation sector also hopes for the development of alternative fuels for aircraft. The contribution of agrofuels to climate mitigation and the expected benefits have been and remain highly contested. In addition, there are currently unresolved technological challenges as well as problematic consequences in terms of ecological and development impacts. In many cases, the yields are still rather poor.

The major part of the alternative fuels currently used is from crop plants. In aviation, mainly oil plants, especially oil palms, jatropha and camelina (a rapeseed variety) are of importance. Another alternative is the use of agrofuels from residual materials such as straw, wood, or effluent sludge. Crop biomass, including different types of grass or fast-growing varieties of trees, can also be used to produce fuels. Recently, the aviation sector has also built up hopes for the production of kerosene from microalgae.

Climate impact and ecological footprint

In the combustion of agrokerosene, the same amount of CO_2 is being emitted as from fossil kerosene. The decisive difference is that energy plants absorb CO_2 from the atmosphere while they grow. However, the CO_2 balance is not at all neutral. Throughout the life cycle, CO_2 is being emitted, for example in production, processing, and transport.

Indirect land use changes (ILUC) also cause considerable negative impacts, for example, when primeval forest and other ecosystems worth protecting are converted into agricultural areas, while former agricultural land is now used for the production of energy plants.

Human rights and social impact

Various case studies from Asia, Africa, and Latin America prove that in the production of agrofuel crops, land-use conflicts frequently occur, even leading to the displacement of local people, water shortages, water pollution, loss of biodiversity, and competition with food production.

Other negative impacts include the displacement of local and indigenous people from their land and the consequences, such as hunger and poverty, which are not acceptable in terms of human rights and social impacts. Unclear land ownership, poor governance in many agrofuels producing countries, but also the promotion policies for agro-diesel by the European Union fuel these conflicts.

The working conditions of local people are another important aspect. In many cases, they are neither in accordance with international standards nor subject to national legislation. Various reports by people affected indicate, for example, adverse effects on health from pesticides and fertiliser. Due to the increase in agrofuels production, food prices have risen in many regions, which is not acceptable given the fact that 842 million people worldwide suffer from hunger. Small bottlenecks in food supply due to rising prices may have enormous impacts on people in regions with a tight food situation. Demand forecasts indicate a drastic increase in future land requirements, stirring conflicts over fertile land.

Increasing yields – at what price?

The agrofuels which are currently available must be produced in a sustainable manner and without negative impacts on food security. To achieve this, increasing yields and using degraded or marginal land is discussed. However, there are already major conflicts over land as a valuable and scarce resource. Land is needed for the production of food and fodder, for grazing livestock, and for the cultivation of energy crops. According to estimates by the Food and Agriculture Organization of the United Nations (FAO), today's agricultural production must be doubled by 2050 in order to feed a growing world population that is going to be increasingly affluent (IFEU 2014b). This corresponds to a growth in production of 2.4 percent per hectare and year. Against this backdrop, it must be examined very carefully whether increasing yields of agrofuels for aviation is possible without competing with the food industry for land.

Degraded soil – an option?

Apart from the intensification of agriculture, the utilisation of degraded land is also discussed as a possibility to increase yields. It is an attempt to avoid controversial indirect land use change (ILUC), by converting supposedly old, abandoned soil into agricultural areas instead of primeval forests and valuable ecosystems. According to Bai, as much as 18 percent of agricultural land is already considered degraded. That means, in line with the definition by the International Soil Reference and Information Centre (ISRIC), this land's ecosystem functions are lost

Along with CO_2 and other emissions, aircraft often leave contrails that have additional global warming effects.

for a long time (Bai 2009). However, the available data involve uncertainties. On the one hand, the definition of degraded land is incomplete. It does not explicitly distinguish between degraded, unused, and abandoned (agricultural) land. On the other hand, it is often difficult to identify the owners of degraded land, to find out how it is being used and who is using it. Most of the data are estimates and are based on the evaluation of satellite images, however, without detailed on-site assessments (IFEU 2014b). In many cases, people who have been using the land are being displaced. Their legitimate, often undocumented land use rights are not respected.

There is no problem with a long term rehabilitation and renaturation of soil that is really degraded and eroded. However, it can be assumed that the aviation sector will not adopt this complex and costly strategy. The Low Indirect Impact Biofuels (LIIB) method is currently the only attempt to find a practical approach to identify unused areas for the production of energy plants. The LIIB method is still being tested in a pilot phase. Reliable results are not available yet. The Roundtable for Sustainable Biofuels is the only certification system for agrofuels that has included this approach in its existing certification structure.

Agrofuels and European legislation

The European Union wants to achieve its mitigation target most importantly by increasing bio energy production. The Renewables Directive (RED) obliges states to ensure a share of at least ten percent by 2020 for all modes of transport. The EU furthermore stipulates that the CO_2 emissions caused by agrodiesel must be 35 percent below those of fossil fuels, and from 2017 onwards 50 percent below.

The RED formulates sustainability standards for agrofuels which will be credited towards the EU targets. It differentiates between binding requirements, for example, greenhouse gas footprints, and those which only require reporting. More demanding criteria and standards would have to take into account human rights, socio-eco-

nomic and additional ecological aspects and be embedded in laws and processes. According to the RED, however, this is not yet a binding requirement and only covered by reporting requirements. Only a legally binding requirement could ensure that feedstock for alternative fuels can be made available without causing conflicts.

In response to the objections by various environment and development organisations, the European Commission presented a draft amendment for the RED which is meant to limit the share of fuels that use food crops as feedstock to five percent of the overall target. The EU also proposed to include a compulsory ILUC factor into greenhouse gas footprints from 2020. A ten percent blend of alternative aviation fuels by 2025, as it is demanded, for example, by the „Aviation Initiative for Renewable Energy in Germany" (aireg), is highly questionable, both ecologically and socially.

Potentials of agrofuel production

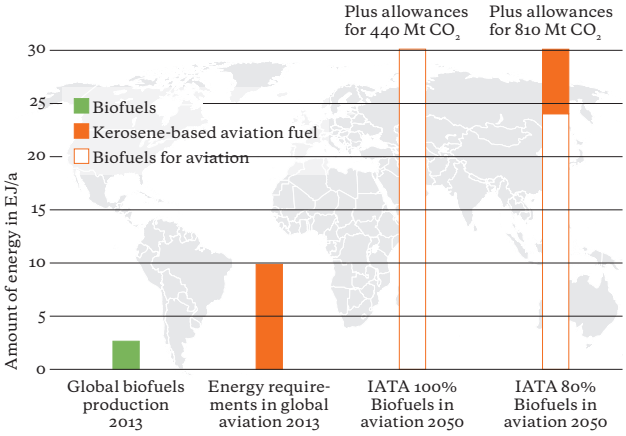
The biomass potential from agriculture and forestry, residues and waste is limited. Statements about its availability involve many uncertainties, as the underlying assumptions in the studies used vary considerably, e.g. concerning the availability of land, diminishing forest areas, and population growth. Some analyses on biomass potential also show different results, depending on whether their focus is on what is socially and ecologically acceptable, or on what is technically feasible. Studies indicate that research mainly aimed at identifying biomass for bio-energy purposes tends to be more optimistic with regard to increasing yields and efficiency than research focusing on food security (IFEU 2014b). Ensuring food security should generally have priority over material utilisation and production of energy crops.

Achieving the objectives of decarbonisation strategies in aviation

In the light of the global reduction targets, there is an urgent need to reduce greenhouse gas missions in aviation by half by 2050, as compared to 2005, as defined by the global umbrella association for airlines, IATA. Due to its rapid growth, the aviation sector erodes all CO_2 saving potential. The growth trends show that the current strategies and a focus on reducing CO_2 by using agrofuels are not sufficient.

According to calculations by the German research centre on biomass DBFZ, IATA's target of a 50 percent reduction cannot be achieved with the technologies and agrofuel potentials foreseeable today, even in case of a complete substitution of aviation fuels (DBFZ 2014). Using CO_2 allowances makes sense only if such allowances meet high quality standards and if the trade in emissions is supported by credible reduction targets and a clear limitation in the number of allowances.

Global Energy Requirements in Aviation and Biofuels Production



Adapted presentation, based on ICAO 2010

The forecast of the total energy requirement in aviation by 2050 is 30 exajoule (EJ). This is eleven times the amount of all alternative fuels produced worldwide in 2013, which were primarily used in road transport.

Looking at the feedstock used for agrofuels for aviation on the first successful test flights, we know that the agrofuels used were mainly from energy plants grown in newly industrialised and developing countries (DBFZ 2014). It can therefore be assumed that using only domestically produced agrofuels is highly unrealistic. The high costs of production are an aspect in disfavour of domestic crops and the consequences of a major expansion of the area under cultivation are yet to be discussed. It is thus to be expected that in the future the feedstock for aviation fuels will continue to be imported.

Not at the cost of food security

Growth rates in aviation must decline. This may reduce competition for agricultural products. There is a danger that agrofuels for aviation – the big hope – may not be feasible. At the moment, the agrofuels available as an alternative that may serve to reduce emissions are mainly from

oil-rich energy plants. It is therefore essential to produce them in a sustainable manner, i.e. without negative environmental and social impacts and in accordance with human rights. Sophisticated certification systems like the International Sustainability & Carbon Certification (ISCC) or the Roundtable on Sustainable Biomaterials (RSB) can be helpful in this regard. Approaches to intensify agriculture will be gaining importance, and so will methods to identify unused and degraded land in a reliable manner.

The challenge lies in making use of additional yield potential without endangering the productivity of natural ecosystems and without further increasing the land use pressure on existing agricultural land which is already high. Increasing yields must not happen at the cost of food security and a growing world population. The aviation sector does not have priority in using the land. Furthermore, it is essential to encourage social processes to bring about change with regard to established consumption and mobility patterns.

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English translation: Christina Kamp

A Global Market Based Mechanism for Aviation

By Anja Kollmuss

Aviation contributes to about two percent of global CO_2 emissions and if other warming effects are included, total greenhouse gas (GHG) effects of aviation are double or more. The sector is growing rapidly by three percent per year.

In 1997, the International Civil Aviation Organization (ICAO – see box) got the mandate under the Kyoto Protocol to find ways to reduce the greenhouse gas emissions of aviation. But in the past 17 years, little has happened and tangible measures are yet to follow. ICAO agreed on two climate-related targets. The first one is to improve global average fuel efficiency by two percent annually between 2010 and 2020, and as an aspirational goal to achieve average improvements of two percent annually up to 2050. The second one envisages carbon neutral growth from 2021 onwards, keeping CO_2 emissions from international aviation at 2020 levels.

This goal of carbon neutrality will not be met through improved energy efficiency. The rate of growth in the aviation sector outstrips the improvements in efficiency. In 2013, ICAO therefore agreed to consider developing market-based measures (MBM). The gap between energy efficiency upgrades and other in-sector measures and the carbon neutral growth target would be met by requiring airlines to purchase carbon offsets from mechanisms in other sectors, such as for example, offsets from the Clean Development Mechanism (CDM). In 2016, at the next ICAO assembly, countries will decide if such global MBM will be established. They would not become operational until after 2020. Technical and political ICAO bodies are currently working on determining the design elements of global MBM.

Carbon markets

Carbon markets aim to keep the overall costs of reducing emissions as low as possible. There are two main types of carbon markets: cap-and-trade systems and offsetting mechanisms.

In a cap-and-trade system, an overall emissions cap is set, for example 20 percent below 1990 emissions. Countries or companies are given emission allowances in line with that emissions cap. Each allowance permits them to emit one tonne of CO_2. Covered entities must meet their targets by reducing their own emissions, by buying emissions allowances from others that have a surplus of allowances, or by purchasing offset credits.

Offsetting mechanisms do not set a cap. For each offset project that reduces emissions, offset credits are issued. These can then be sold to entities that are covered under a cap-and-trade system. The Kyoto Protocol established two offsetting mechanisms, so-called 'Flexible Mechanisms': the Clean Development Mechanism (CDM) and Joint Implementation (JI).

The global MBM would be a type of offsetting mechanism. Airline companies would purchase offsets from other offsetting programmes such as the CDM or JI. For each tonne of CO_2 they emit above the 2020 emission level, they would have to purchase an offset.

Two types of offsets

There are many different offset programmes under which projects can be implemented that then receive offsets which they can sell. The main types of offset programmes are compliance programmes and voluntary programmes.

Compliance programmes are established by governments or the United Nations. Offsets from those programmes are used to fulfil mandatory emissions reduction targets. For example, CDM credits can be used by EU power companies to meet their greenhouse gas reduction targets under the European Union's Emissions Trading Scheme (EU ETS). Compliance programmes include the CDM and JI but also others, such as the Chinese or the Californian offset programmes which generate offsets for their domestic cap-and-trade schemes.

Voluntary programmes are established by private companies or non-profit organisations. The offsets generated under these programmes are used by voluntary buyers, such as tourists who want to compensate for the emissions they cause by flying to their destination. Examples of such voluntary standards include the Gold Standard and the Verified Carbon Standard (VCS).

Offset projects can be implemented in many different sectors. For example, projects that build renewable energy plants, implement energy efficiency measures, destroy industrial gases with high global warming potential, plant or protect forests.

Which offsets are of high quality?

Offsetting leads to a shift to where emissions reductions occur. But because the buyer of the offset credits can increase emissions equivalent to the number of offsets purchased, offsetting is a zero sum game. The total emission reductions achieved stay at the same level as if the aviation sector met its 2020 carbon neutral growth target fully with in-sector reductions. But this holds true only if the offsets come from projects that would not have happened

The International Civil Aviation Organization (ICAO)

The International Civil Aviation Organization (ICAO) is a UN organisation. The ICAO Assembly is comprised of 191 Member States. They meet every three years. The next meeting is in 2016 where they may decide to establish global market-based measures (MBM).

The ICAO Council is a permanent body of the Organization responsible to the Assembly. It is composed of 36 Member States elected by the Assembly for a three-year term.

The Environmental Advisory Group (EAG) is a political body made up of Council members. The EAG looks at the overall political picture related to a global MBM architecture. EAG reports to the ICAO Council.

The Committee on Aviation Environmental Protection (CAEP) is a technical committee of the ICAO Council established in 1983. The Global Market Task Force (GMTF) was set up by CAEP to elaborate on the technical details of global market-based measures. It has two sub-groups: Monitoring, reporting and verification group (GMTF-MRV) is to develop monitoring, reporting and verification recommendations for global MBM. Eligibility for emissions reduction units group (GMTF-EUR) is to develop recommendations for environmental integrity standards for offsets and allowances eligible for compliance under global MBM.

anyway – if they are "additional" and if the offsets are accurately calculated so that each truly represents one tonne of CO_2 reduced. Especially questionable are offsets that come from projects that are reversible, e.g. forestry projects, projects that have other revenue streams which make it impossible to argue that they are additional, e.g. electricity projects and projects that lead to perverse incentives to maximize offset issuance, e.g. industrial gas projects.

Such projects should be excluded, because without environmental integrity of offsets, global emissions may actually increase. If global MBM are established, any units used for offsetting emissions in the aviation sector will need to have high environmental and social integrity.

The International Coalition for Sustainable Aviation (ICSA) is a network of environmental NGOs working on aviation issues. ICSA is a member of the technical committee of ICAO that develops recommendations on the rules that would govern such a global MBM and the eligibility of carbon credits. ICSA participates in all the technical meetings and helps to design the eligibility criteria of offsets to ensure environmental and social integrity of all the units that may be used under a global MBM.

We will only know in 2016 if countries will agree to this first important step to establish global MBM. But we must remember, even if such global MBM are implemented, simply stabilizing emissions of international flights at 2020 levels will not be enough. It is not enough as the aviation sector's part in ensuring that the world can stay below two degrees of warming. Therefore, ICAO's climate target will have to be significantly strengthened over time and global MBM would need to be complemented by measures that reduce emissions from domestic flights, which would not be covered by the global MBM.

Anja Kollmuss is a senior policy researcher with Carbon Market Watch (www.carbonmarketwatch.org).

Lack of Climate Transparency in the German Tourism Industry

By Teresa Bauriedel

In 2012, Germans made more than 69 million trips. The mode of transport selected for 37 percent of these journeys was air travel. Tour operators can actively contribute to climate change mitigation by not offering those means of transport that are harmful to the climate, and by replacing them by less harmful ones.

For short trips, flights could be completely eliminated. For medium distances, the outward/return trip could be designed to include touristic stops along the way, thus making railway or bus travel more attractive. The potential is enormous, given that 93 percent of all air travel by Germans involves short and medium-haul flights. If travelling by air cannot be avoided, travellers or tour operators should compensate for the harmful effects to the atmosphere by reducing CO_2 emissions through recognised and voluntary carbon offset schemes.

Tour operators and airlines, as well as many travellers, are aware of the link between travelling and climate change, but this does not translate into action. Travellers who are informed about or confronted with climate change issues when making a reservation or selecting a trip represent a small minority, even though the booking process is precisely the time when there is a high likelihood of successfully raising customer awareness. According to data provided by offset provider "atmosfair", German travellers offset only one percent of their carbon emissions. This stunningly low figure could probably be increased considerably if tour operators and airlines featured this possibility as an option on their booking websites.

Climate transparency among German tour operators

In a study carried out by the author during an internship with Bread for the World, 20 German tour operators, five airlines and 20 online booking websites were surveyed. The findings were disappointing: only 17 of the 45 tourism and airline industry companies offer their customers the possibility of offsetting their trips. Management and quality differ widely among them. Often, compensation offers are hard to find and do not conform to the serious standards established by offset providers such as atmosfair or Klimakollekte (the carbon offset fund run by Christian churches in Germany). On the online flight and travel booking websites, carbon offsetting was nowhere to be found as an option available to customers, despite the especially high potential offered by online reservations for the design of user friendly carbon offset options. The study shows that there is still considerable room for improvement.

Demands to policymakers and businesses

Tour operators can improve the climate balance of their travel products through suitable product design and mode of transport selection. When flying is the only option, carbon offsetting should be used as a last resort. But this should be visibly featured as an option for customers, with a carefully designed, high-quality presentation.

There is also a challenge for policymakers: aviation subsidies, which are so harmful to the climate, must be reduced in order to bring about an environmental approach in the selection of the mode of transport – towards forms of mobility that are less harmful for the climate. It is precisely in the short- and medium-haul segments that the competitiveness of modes of transport with a smaller environmental impact must be strengthened. Policymakers should also work towards the introduction of binding requirements to provide information on the climate effects of the various modes of transport as a means of enhancing customer awareness.

Lastly, travellers themselves can also make an active contribution to mitigation. Unnecessary flights should be avoided, and inevitable flights should be offset. Making it a general rule to fly less and stay longer reduces one's personal climate footprint.

Teresa Bauriedel is a student of geography at Phillipps Universität Marburg. In 2013, she carried out an internship at Bread for the World/Tourism Watch, during which she conducted the study "Climate Transparency in the German Tourism Industry" (Download: http://tourism-watch.de/files/klimatransparenz_studie.pdf)

English translation: Centro Superior de Idiomas de la Universidad de Alicante, S.A.U.

Addressing Climate Change in India: A Business Proposition for the Tourism Sector

By Srinivas Krishnaswamy

In the words of India's former Minister for Environment and Forests, Mr. Jairam Ramesh, „No country in the world is as vulnerable on so many dimensions to climate change as India". This is absolutely true, given India's diverse topography, ranging from a long coastline of 7,000 km, bulk of which is prone to sea level rise, a large part of India being in the Himalayan belt with its vast and receding glaciers, and large parts being in areas which are known to be arid with perennial droughts.

In the Working Group II component of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) in 2007, most of India's peninsular regions are considered to be highly vulnerable to climate change. Given that virtually every district in India is vulnerable to climate change to a greater or lesser extent, it affects every sector of the economy, including the tourism sector.

The impact of disasters on tourism

A quick look at the natural disasters in India in the last couple of years and their impact on tourism indicates that in a number of regions, natural disasters also affected tourism inflow. The most recent case is the floods in Kashmir in September 2014. Some iconic tourism spots in the city of Srinagar, the capital of Kashmir, which was the worst affected city by the floods, now look like a swamp. The damage caused to the hotels, houseboats and restaurants is tremendous.

Earlier in August 2014, heavy floods in the state of Uttarakhand, yet another tourism rich state, resulted in landslides affecting tourists and causing immense damage to hotels and resorts.

In 2004, when the southern coast of India was hit by the tsunami, one of the areas worst hit were the Car Nicobar Islands. Many islands were just being washed away. This has completed disrupted tourism and today there is nothing in these areas. Even after a decade, the remaining islands are still looking to salvage whatever is possible and there is no scope for the tourism industry any time in the near future.

Policies and programmes to address climate change

The Government in India has in recent times started to recognize the huge impacts of climate change on the economy and has started to put in place policies and a policy framework to address natural disasters. The new Government, on assuming charge in May 2014, announced the creation of an adaptation fund with an initial budgetary allocation of INR 100 million (EUR 1.3 million).

With a view to ensure greater financial flow to the National Clean Energy Fund, the Government doubled the cess of coal from INR 50 (EUR 0.65) per tonne of coal to INR 100 (EUR 1.30) per tonne of coal. The National Clean Energy fund was established in 2010-11 to provide low-cost finance to renewable energy projects and the Green Corridors transmission project. According to media reports, the fund was no way near being utilised. With the new government planning to spend as much as INR one billion (EUR 13 million) for projects earmarked for this financial year (ending March 2015), things could change rapidly.

Saving electricity at historical sites

India is rich in culture, tradition and heritage buildings, temples, forts and palaces. Famous Indian monuments, such as the churches in Old Goa, the Charminar in Hyderabad, the Taj Mahal in Agra, the Qutab Minar, the Red Fort, the Jantar Mantar, and the India Gate in Delhi, the Mysore Palace in Mysore, and the Gateway of India in Mumbai, are a few examples of the many historic and heritage sites in India which attract large numbers of tourists from both India and abroad. Most of these heritage sites are regularly illuminated with bright lights and till recently, most of the light fixtures in these sites were incandescent lamps.

However, in recent times, a number of initiatives have been taken, by the respective tourism departments of states, in partnership with the Archaeology Department and private companies to give a complete light makeover in these heritage sites by converting the light fixtures to LED fixtures. This has resulted in ensuring a more lasting life to the iconic sites, which were getting affected by the harsh light and heat of the incandescent bulbs. It also resulted in a huge saving on electricity bills and contributed to a huge reduction in greenhouse gas emissions, due to lower electricity consumption.

One example for such makeover is the Gateway of India in Mumbai. The new lighting system is 60 percent more energy efficient than the older lighting system. The lifecycle of this LED lighting is about 15 years, which means that the authorities in charge of maintaining the light infrastructure in the Gateway of India also save on yearly replacement costs of the light bulbs. Besides bringing down the annual maintenance, LED lights are eco-friendly.

While the above may seem as initiatives mainly aimed at conserving electricity and savings from electric-

Illumination at Mysore Palace and other monuments in India consumes a huge amount of electricity in a country with high energy deficits.

ity bills, it does play a role in reducing greenhouse gas emissions from not just those buildings, but this also serves as a show case for lighting efficient products. A report released by Frost and Sullivan in July at the 4th Annual Executive Congress meeting on LED lighting estimated the growth of LED markets to over one billion US dollars in the next four years. The report further went on to say that the market will witness a growth rate of more than 40 percent till 2016.

The carbon footprint of India's aviation sector

One other segment within the tourism sector that also contributes very heavily to emissions is the aviation sector in India. While the sector is yet to see any mandatory carbon emission measures imposed, the Government has put in place a mapping of the carbon footprint of the aviation sector.

The first such mapping exercise was released in 2011 and an updated version was released in 2013. According to the carbon footprint study released by the Directorate General of Civil Aviation in India, the total carbon footprint of Indian scheduled airlines to/from domestic destinations was 6,755,000 tonnes of CO_2 in 2012 and for to/from international destinations 12,704,000 tonnes of CO_2.

The report also released the carbon footprint of foreign airlines serving international destinations from Indian airports, based on aviation turbine fuel uplift from India. The total emissions estimated for 2012 were 3,623,000 tonnes of CO_2. The carbon footprint mapping also estimated the total emissions from airport operations for the year 2012 and pegged it at 700,000 tonnes of CO_2.

While this sector is still not brought under formal carbon emission regulation, a number of initiatives have been taken by both airlines as well as airports to reduce their emissions, largely from the aspect of savings from the rising cost of operations, particularly on energy costs and rising aviation fuel charges. These include better planning of timings to avoid congestion at airports, reduced fringe benefits given to passengers such as hot meals, which means no requirement for microwave systems, and opting for "shark fin" tipped wings. However, there is a huge potential for further emission reduction in this sector.

The process of developing the carbon footprint for the aviation sector has also provided a good understanding of the sources of emission from the sector. This helps in identifying areas where efficiency measures can be implemented at varying time horizons.

Is India on the right policy pathway to address climate change?

While all of the above are indeed right moves taken in India to address emission reductions, it would also help to reduce the intensities of vulnerability to natural disasters in India. However, these activities need to be further strengthened with appropriate policy frameworks which would ensure faster implementation, with higher degrees of penetration and replication, cutting across the entire country.

Some of the new initiatives by the new government, which include promoting high speed train corridors, can help to address fast transportation and contribute to reducing aviation emissions and thereby bring down a reduction in the increase of greenhouse gas emissions. As more and more people in India are economically in a position to afford air travel, this sector is bound to grow. However, the rate of emission growth can be at a reduced trajectory.

While technologies can definitely play a role in bringing down emissions, it is also high time that the Government embarked on a pathway that promotes overall sustainable development in the country.

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Part 3: Vulnerability, Resilience and Adaptation

Equivocal Rationality of Climate Change Policies: The Contribution of Indigenous Peoples

By Rodrigo Ruiz Rubio

For over three decades, climate change has been acknowledged as a global threat. The coming into force of the United Nations Framework Convention on Climate Change (UNFCCC) in 1994 endorsed the acknowledgement of the grave threats humanity stands to face due to this phenomenon, leading to the first Conference of the Parties (COP) on climate change in 1995, which set the stage for the start of climate negotiations between UN member countries.

These negotiations have since revolved around two main axes. First, the acknowledgment that climate change is anthropogenic, global and produced by greenhouse gas (GHG) emissions. Second, that any action taken to address it should promote the right to the sustainable development and economic growth of the Parties. According to UNFCCC principle 4, "economic development is essential for adopting measures to address climate change". To this end they proposed "cooperation to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties." According to principle 5, "Measures taken ... should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade". (UNFCCC 1994)

Since its first reports in 1995, the Intergovernmental Panel on Climate Change (IPCC) has pointed to the devastating effects that would result. More importantly, it has also acknowledged that the only solution to this serious problem lies in the reduction of greenhouse gas (GHG) emissions. In 1997, the Kyoto Protocol was adopted to address this need. It came into force in 2005.

However, emissions have not fallen to the levels proposed by the Kyoto Protocol, and are even farther from those set by the IPCC to avoid heading towards a global emergency that could threaten the very survival of a major part of humanity and other living beings on the planet.

Based on the premise that fighting climate change should involve the promotion of economic growth and that no barriers should be imposed on international trade, the proposals and measures adopted have focused on two lines of action. First, financially-based mitigation mechanisms such as the Clean Development Mechanisms (CDM) and Reducing Emissions from Deforestation and Forest Degradation (REDD); and second, betting on technologies capable of reducing GHG emissions without compromising, and even enhancing, the growing profitability of production processes.

The rationality of mitigation mechanisms, REDDs and adaptation

UNFCCC principles 4 and 5 determined the progress made so far in the climate negotiations. Arguing that economic growth is essential to addressing climate change and that no restrictions whatsoever to international trade should be considered imposes a fundamental restriction on the implementation of the necessary changes.

The proposals determining future policies for action to address climate change do not differ from those already mentioned, as opposed to the well-reasoned criticisms from the 1970s against capitalist development and its devastating effects on the environment, which led to the conceptual and discursive efforts found in reports such as "Our Common Future" (UNCED 1987), which introduced the concept of sustainable development on the world stage, and "Our Own Agenda" (IDB-UNDP 1990) which underlines the subordinate geopolitical role in environmental security that developing countries are forced to play as opposed to developed countries.

These two reports essentially suggest that the solution to the problems of environmental degradation, consolidation of poverty and growing inequality caused by capitalist economic development lies in further economic growth. "In the 1970s it was held that development was the cause of the major environmental degradation problems. But in the 1980s we realised that stagnation has even worse effects" (IDB-UNDP 1990). Illogical as it may seem, the solution they propose consists in further pursuing the same rationality and economic processes that lie at the root of the problem "The recovery of growth and development is a requisite condition to address social and environmental problems". The evidence shows that the adoption of this perspective has had a disastrous effect on the earth's ecosystem, as reflected by the Living Planet Index developed by the World Wildlife Fund (WWF), which points to a 52 percent reduction in vertebrate species and the disappearance of 76 percent of freshwater species since 1970.

The impact of climate change on Peru's High Andean Region

South America's High Andean region is among the ecosystems currently suffering severe impacts from climate change. For example, Peru has 71.1 percent of the world's tropical glaciers. Their area has decreased by 40 percent since 1970. A significant part of the water resources used for farming, human consumption and power generation are related to these glaciers, which also regulate and form an important part of Andean ecosystems. Smallholder farming, the main economic activity in such ecosystems, is suffering the impact of the following phenomena: longer drought or summer periods; abnormally heavy or seasonally irregular rain; decrease in irrigation water flows; rise in thermal variations, with more intense hot or cold spells; increase in and appearance of pests in higher-altitude areas; and out-of season frost affecting crops, pastures and livestock (Ruiz, 2011). All these factors are the cause of lost production in more than 15,000 hectares every farming season, primarily affecting potatoes, according to Peru's Agriculture Ministry.

Climate change has a strong impact on indigenous communities due to their vulnerability and situation, though not necessarily as yet due to the violence or intensity of weather events. It is within this context that we must consider the circumstances in which the indigenous communities face the effects of climate change (Ruiz, 2010).

Technology and incorporating the ancient wisdom of indigenous peoples as proposed solutions

From a hegemonic perspective, it is also contended that the solution lies in improving processes and developing alternative technologies or consumables, which in turn lead to a reduction in GHG emissions and more efficient use of resources, thus increasing productivity and contributing to growth.

In many cases technological innovations enhance the efficiency of production processes and reduce the resources used per unit product. However, increased productivity and a lower environmental impact per unit product have led to a rise in production and consumption. This is clearly evident in most production processes and lies at the root of the negative impact of technological efficiency on the environment.

The bet on technological innovation to address the problem of climate change seeks to perpetuate the unsustainable patterns of production and consumption based on the constant reproduction and accumulation of capital rather than the sustainability of biodiversity and human societies.

Against this backdrop, a different discourse opens the door to the ancient wisdom of the indigenous communities. A number of alternative or indigenous movements advocate the inclusion of centuries-old native techniques developed through interaction with natural climate variability as the best tools to address anthropogenic climate change.

This inclusive approach favouring the contribution of knowledge and techniques by historically subordinated groups can be seen as an acknowledgment of the viability of their practices, formerly the object of widespread disdain. It is proposed that a combination of current technological advances and ancient knowledge is required to address climate change and ecosystem degradation. However, even this proposal calls for the adoption of new techniques rather than the modification of the production and consumption dynamics that have given rise to the current environmental disorder.

The ancient technologies of the indigenous peoples have proved considerably effective in addressing natural climate variability. The accumulation, over thousands of years, of knowledge on their environment led to more balanced production strategies and efficient ways of organising work to meet the cultural and livelihood needs of their societies, together with a special approach to understanding and relating to nature and to other human beings.

A research study carried out over 15 years, mainly involving the analysis of soil layers, pollen, coal and seeds in Cusco, Peru (Chepstow-Lusty 2009), concluded that the rise of the Incas was supported by a natural climate warming process. The study concludes that there was a gradual temperature rise between 1100 and 1500, which allowed the Incas to inhabit, cultivate and afforest the mountains. Afforestation fixed the soil and prevented erosion on the mountain slopes. To do this the Incas perfected an ingenious terrace irrigation system, using the glacier water that was melting due to the rising temperatures. This assured a plentiful supply of food and, hence, an increase in population.

Such a process of creative interaction with the environment was based on a cosmological vision in which the elements of nature were considered living beings, with different hierarchies, and many were ascribed sacred status.

Regarding the above, two key considerations should be made. First, it is important to note that these indigenous practices and technological tools stemmed from a

rationality that was clearly distinct from and even antagonistic to the prevailing economic rationality governing modern social dynamics. Second, the environmental and social context has suffered major changes. The historical exploitation of indigenous lands over the past centuries to fulfil the needs of national and global economies has substantially altered the productivity and equilibrium of those ecosystems. Therefore, traditional climate prediction and the attendant practices have lost their effectiveness.

Closing thoughts

Research carried out by thousands of scientists throughout the world and endorsed by the IPCC concludes that the only way to reverse this process is by reducing GHG emissions, which are directly linked to the capitalist dynamics of extraction and exploitation of natural resources followed by production and consumption.

Scientific evidence alerts us to the breathtaking pace of biodiversity loss, which was taking place even as the world's states and international bodies were putting forth policies and a discourse of sustainable development to alleviate these problems. Although we have known for decades how to address climate change, unfortunately global actions are proceeding in the opposite direction, persisting in pursuing the capitalist rationality that caused the problem in the first place.

Clearly a coherent response to the grave problems brought about by climate change calls for rethinking the socio-economic rationality that gave rise to the problem. It is in this context that Andean indigenous peoples can make a contribution to the world. Their historical experience has shown that the logic that governed their interaction with their environment was more in harmony with the ecosystem's reproduction dynamics. Such a perspective calls for a process of profound reflection and civilisational change, leading to a redefinition of the rationality underpinning production and consumption and a shift in our outlook and creativity towards forms of socialisation that ensure the survival of biodiversity and a balanced human coexistence for present and future generations.

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African Responses to Climate Change

By Kenneth Odero

The last decade has witnessed a significant range of climate change adaptation and mitigation initiatives in African countries' tourism sector. Tourism is highly branded and brand-dependent. Both private and public interests play a major role in shaping policy and action in this economically, environmentally, and socio-culturally sensitive sector. Expectedly, a number of African countries and firms are already on notable climate response trajectories.

Kenya's National Climate Change Action Plan

The Government of Kenya, for example, has initiated several high-level responses, including the development of the National Climate Change Action Plan 2013-2017 (NCCAP). Given the important role that tourism plays in the national economy, the NCCAP advocates for the completion of the National Wildlife Adaptation Strategy, and undertaking research to determine the vulnerabilities of wildlife populations and habitats as one of the adaptation options the country should pursue. While acknowledging Kenya's relatively low greenhouse gas emissions in the tourism sector, the NCCAP still advocates for low carbon measures such as solar water heating, the use of energy efficient lighting and appliances, and more efficient passenger vehicles.

Ethiopia's Climate Resilient Green Economy Strategy and Panel on Climate Change

According to the respected Climate and Development Knowledge Network, Ethiopia has placed green growth and climate resilience at the centre of its economic transformation. The Climate Resilient Green Economy Strategy (CRGE) aims to ensure that Ethiopia reaches its goal of achieving middle-income status by 2025 whilst remaining carbon neutral. Implementation of the CRGE strategy required access to reliable research from all over the country. This led to the formation of the Ethiopian Panel on Climate Change (EPCC), arguably making Ethiopia the first country in the world to create a national knowledge network for climate research.

Rwanda's National Strategy for Climate Change and Low Carbon Development

Rwanda's „Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development" of 2011 identifies adaptation and mitigation "big-wins" and "quick-wins". The low carbon big wins in mitigation include geothermal power generation, integrated soil management, and high-density walkable cities. The big win climate resilient measures are irrigation infrastructure, a robust road network, a centre for climate knowledge and development, and agroforestry. While the big wins were defined as large scale economy-wide multi-year programmes, Rwanda's national climate change and low carbon development strategy identified a number of immediate measures such as using the Integrated Development Programme to facilitate implementation of climate resilient, low carbon development in rural areas, operationalising the National Fund for Climate and Environment, implementing regular measuring and reporting of energy use across sectors to develop a greenhouse gas emissions profile and future energy requirements, and reviewing and expanding Technical and Vocational Education and Training to develop skills needed to implement the strategy, among other measures capable of giving quick results.

Missing the forest for the trees

It is clear from these examples that the kinds of adaptation and mitigation measures countries pursue have a lot to do with the nature of the problem. That is, climate change is already weighing heavily on Africa's economies and communities. With specific reference to tourism, the majority of countries view tourism using the "foreign exchange earning" lens. In some cases, a double economic and environment lens is used. Climate change is brought into this equation as a spoiler of the economic benefits of tourism to the national economic coffers where climate change (defined as an environmental problem), is seen as disrupting the flow of foreign exchange through impacts on infrastructure, biodiversity, etc.

This neo-liberal economic (market) utilitarian interpretation of tourism in the context of a variable and changing climate is not confined to Africa. It is fundamentally a global(isation) ideology. Very few people, including the staunchest proponents of this perspective, would argue with any conviction against the preposition that it is this utilitarian view of natural resources that has largely influenced the global warming crisis that humanity faces; that anthropogenic climate change is effectively a result of naked pursuit of energy and profit. Tourism is not divorced from this neo-liberal perspective. Therefore, most attempts to conceptualise the impact of the climate change crisis on (global) tourism most often than not end up 'missing the forest for the trees'.

Dr. Kenneth Odero works with Climate XL Africa, an international NGO focussing on climate change.

The Complexities of Local Livelihood Options in Kerala, India

By Sumesh Mangalasseri and Subini S. Nair

"Agriculture in Wayanad is always climate dependent. The continuous changes in climate put us farmers and our crops into deep trouble, as we were unable to invest again in the same crops. Climate change favours the growth of pests and our crops became more disease prone. We incurred major losses", says Palliyara Raman (80), an indigenous farmer from Wayanad in the South Indian state of Kerala. He has a joint family-owned land of 70 acres where he cultivates paddy, coffee, and pepper.

In India, where a majority of livelihoods are directly dependent on weather patterns and are highly vulnerable to climate variability, there is an increasing pressure on farmers to produce high and reap low. Climate change has profound direct and indirect impacts.

Agriculture in times of climate change

Wayanad is a high-altitude district in the Western Ghats in the north-east of Kerala. It is a region rich in biodiversity, with a unique climate. Its economy and lifestyles are basically agrarian, with plantation economy playing a major role. 1,142 km² of the total area is used for agriculture, which forms 54 percent of the total land area of the district. Tea, coffee, cardamom, rice, cocoa, and black pepper are the major crops grown. All these crops are climate sensitive in nature, as they respond quickly to variations in ambient air temperature.

Major climate trends observed in Wayanad include a weakening in the early phase of the south-west monsoon precipitation and more frequent heavy rainfall days that hastened maturation of a variety of crops. Ratnakaran (55), a coffee farmer from here, is worried about the temperature variations in this region over these years. He says: "The highest temperature I ever experienced in Wayanad was on 9th March 2010 and it touched 39 degree Celsius. The scorching effects of climate variability have also made the crops more disease prone and reduced yields. Agriculture in this place is today seen as non-viable. Farmers are debt-ridden and suicide-prone, due to the distress conditions created through adverse public policies that are pitted against farmers' interests.

Tourism as an alternative?

The current crisis in agriculture, the sudden boom of the Indian middle class especially during mid 2000s, and the effect of globalised policies facilitated an uneven tourism development in this region. The industry and government portrayed tourism as a solution to the crisis. This trend has made the region develop its infrastructure to cater to the consumption needs of the domestic tourist boom over these very few years. It was taken as an advantage for the few elites who made use of the quick opportunity in tourism, with least participation from the locals, especially the farmers. This kind of development does not benefit the farmers in any way.

The sudden rise as a tourist destination together with tourist needs and consumption has created many changes in the region, especially in land use patterns. In combination with the agrarian crisis, it facilitated a real estate boom which caused tourism induced displacement. It has led to pollution and deforestation in this eco-sensitive zone, with direct implications for the local climate, including local temperature rise. This development can also cause long term impacts which can adversely affect the local population, such as landslides etc. This is evident in other places where tourism developed in a similar fashion.

The crisis in the tourism sector

The changes in climate also affect tourism in this region. For instance, rising temperatures in the summer make this place less attractive to the tourists. As an adaptation strategy, industry responded with technological solutions such as air conditioners and generators to facilitate continuous and uninterrupted services, which aggravates the energy consumption and carbon emissions. There is a huge gap between energy supply and demand in Kerala.

The global economic downturn adversely affected tourism arrivals in Wayanad. "The tourism industry in the district relied mainly on the information technology (IT) hubs in Chennai and Bangalore for domestic tourists. The crisis had affected resorts catering exclusively for professionals in the IT sector", said Mr. Vancheesawaran, Secretary of Wayanad Tourism Organisation, an association of resort and hotel owners in the district.

This has special significance in the context of the aviation related discussions where domestic tourism, as compared to international tourism, is promoted as a low-carbon strategy. Domestic tourism is also a vulnerable economic activity and prone to external factors.

The need for a careful approach

On the one hand, tourism actively contributes to climate change and on the other hand, the sector is affected by climate change. Tourism is not a solution, but rather increases the vulnerability of communities, especially those who are poor. However, under certain conditions, tourism

can provide an additional income and a diversification strategy for local farmers. It needs careful intervention of the people involved, and careful monitoring in order to avoid dependency and many of the negative impacts.

Community tourism in Thrikkaippetta, Wayanad

Mary Eldho (45) is a housewife and part of a community tourism programme in the village of Thrikkaippetta in Wayanad. She took an important decision of buying a solar water heater instead of an electric heater to cater to the service needs of her guests. She says "Though my initial investment was very high, I am looking at it on a long term basis where I can reduce my energy consumption and be more environmentally friendly." Mary gives a very positive example of increased awareness through the community tourism programme that she is part of. The village takes tourism as an additional income and reduces the risks by diversifying income opportunities through tourism and other village entrepreneurship programmes, such as food processing, organic farming, etc.

The income from tourism adds to the economic confidence of the farmers and supports their shift to organic cultivation practices, which otherwise is a longer and expensive process.

Daniel (50), a farmer and homestay provider from the same village, says "I am more comfortable today in meeting my household expenses after starting the homestay with the community tourism programme. Five years ago it was a struggle to make ends meet, especially when despite our best efforts the crops failed because of diseases. Today, the income I get from tourism helps me cover my children's educational expenses while agriculture brings self-sufficiency in terms of food to my home. I feel the value addition from me being a farmer when I am able to use the food I cultivate to serve my guests."

The farmers in Thrikkaippetta are also producing vermicompost with their kitchen waste. This helps them make their kitchen gardens more organic in nature. They set up vermicomposting facilities and organic vegetable gardens as a mandatory standard for every homestay.

Eliyamma (47), a housewife and a homestay provider from the village, has installed a small biogas plant as an alternative source of energy in her home. She is getting electricity for lighting and also cooking gas from the biomass. This is avoiding fossil fuel intensive cooking and has increased the energy efficiency.

The holistic approach of integrating tourism as an additional income along with agriculture and other income generation activities has improved the community's resilience to a certain extent. Environmental conservation and enhancement of natural resources occurs as an added advantage.

Why homestay?

The farmers' investment needed for welcoming a tourist is almost nil or very minimal. They are using their existing homes as homestay and their main investment is the basic infrastructure which they already have, good hygiene habits, and a good heart. They are not constructing any new infrastructure, so that this kind of tourism is not altering the environment and land use pattern of the area. This avoids further exploitation of resources for the sake of tourism.

The per capita energy needs in a farmer's home are comparatively less than those of a middle class person from a city. The gap is even wider when compared to a European tourist. It is interesting to observe the reduced consumption levels of travellers choosing to spend their holidays with farmers. In contrast, had they opted for a luxury hotel or a resort, their consumption would have been higher than their normal consumption.

The programme also creates an awareness of the impacts of tourism on natural resources and communities, and of the challenges of climate change. A village development fund set up by the homestay providers and other service providers helps to fund capacity enhancement and programmes on conservation and entrepreneurship in the village. This whole programme is monitored by village committees, ensuring a proper benefit sharing mechanism among the villagers. Such involvement enables the villagers to reinvest their additional income from tourism to become more energy conscious and take positive steps to mitigate climate change at their very local level.

Change the development paradigm, not the climate

Neo-liberal policies pushing for the input-intensive, export-led, industrial agricultural model have polluted the very foundations of our agriculture – soil, water and climate –causing serious damage to seed and agro-biodiversity, and making farming unsustainable and unremunerative for millions of small and marginal farmers.

This model is actively contributing to climate change and making farmers more vulnerable to disasters. However, many of the adaptation methodologies adopted in order to overcome a crisis generally have given way to yet another crisis. A complete shift from one

sector to another is not helpful. Rather, proper adjustments and mitigation and adaptation within each sector will help to face such a situation.

What we need is a decentralised approach which should be based on local realities and should include local knowledge and solutions. Mitigation and adaptation are urgent and necessary, but they are temporary solutions and not sufficient to address the root cause of the problem. A complete paradigm shift from the current development pattern to a new holistic development is essential.

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Subini S. Nair is an agricultural engineer and management graduate working as director of operations with Kabani Community Tourism & Services, a social enterprise facilitating community tourism in India (www.kabanitour.com).

Education for Sustainable Development in a Thai Village

By Chularat Phongtudsirikul

The villagers of Mae Kam Pong have developed a "Sustainable Tourism Community for Learning" programme that serves to bring the local villagers together with tourists, within a learning environment. The tourists provide a source of revenue for the village, as they are introduced to the rich history and culture of the community. Over the past 14 years, many benefits have been seen, such as better quality of life for the villagers, improved infrastructure, including renewable energy and water systems, all allowing for a more self-sufficient community.

Mae Kam Pong community is located east of Chiang Mai in Northern Thailand. Immigrant families who settled in the area developed the community over 100 years ago. Within the community, abundant forests characterize 98 percent of the areas ecosystem and high mountain-slopes, with an elevation of 1,300 meters above sea level. The climate is cool throughout the year and relatively cold in the winter.

In 1999, the leader of the community, with the help of outside organizations, initiated the "Sustainable Tourism" programme within the community of Mae Kam Pong. The village was declared a tourism village in 2000. Visitors can participate in a home stay within the community and enjoy the culture, as well as wonderful nature trails within the area. Other activities include excursions to the coffee plantation that is grown in harmony by a waterfall. The manufacture of tea pillows also complements the production. The tea and coffee products are both sold within the village, as well as other locations, as a source of income for the community. The visitors, alongside the villagers, can work to gain an understanding of a sustainable life within the Mae Kam Pong community.

Hydropower as a renewable resource

The quiet village of Mae Kam Pong has maintained a strong connection with the environment for many generations. Understanding the necessity of preserving their natural resources, the villagers work to avoid contributing to the continuing concern of climate change. With the available renewable resources, they maintain fruitful

Understanding hydropower: Visitors from Myanmar learn about a decentralised source of renewable energy in the village of Mae Kam Pong, Thailand.

plantations, fresh air, running water, and electricity. Although it is a simple community, the people see the wealth in using what is around them and in preserving the environment for generations to come.

The method for gaining electricity in Mae Kam Pong was developed through a fast running water system, utilizing the many local mountain streams. The villagers of Mae Kam Pong also used these active streams to develop a tap water system, providing a supply of necessary clean water for the people.

Furthermore, the community contributes to the preservation of the natural resources in the area through activities such as tree planting, the making of firebreaks, preventing deforestation by protecting the trees in their area, and protecting the wild orchid species. During their stay, visitors not only gain an understanding of the sustainable community, but must also respect the rules and regulations of the community itself, in order to help manage waste, etc. The funds provided by tourism have allowed families to be better provided for, therefore increasing their quality of life.

In recent years, the area of Mae Kam Pong has become a mountain retreat and city getaway. A small resort was built and plots of land have been sold in the area. The village, however, is adamant about controlling climate change and the growth of tourism in order to protect the beautiful natural resources.

Increasing youth participation

The YMCA of Chiangmai has had great involvement with the Mae Kam Pong community and is now working to incorporate more youth participation. This would allow groups of youth to visit the village and learn about sustainability and the conservation of both natural and cultural resources. The groups would speak with community leaders about the benefits of sustainability, witness the use of hydroelectricity, and learn the process of tea and coffee production. Youth are aware of their value in cooperation, unity and sacrifice for the common good during their participation in the Sustainable Tourism Community. Their participation serves to assist in the development of morality and responsibility within our future society, allowing people to live together peacefully, in unity, harmony, and love, working together for a common purpose.

The YMCA brings many groups to visit Mae Kam Pong as a model of sustainable tourism development. Within the plan for youth involvement, there will be a strong focus on renewable energy. The community of Mae Kam Pong switched to hydroelectric energy in order to cut the increasing price for oil and use a more renewable source. Within the community, an association of volunteers and those interested was developed in order to address the issue. A resource person on renewable energy and community development, Mr. Prommin Pongmala, a former village leader, worked with the community in order to enhance their skills. The model of sustainable tourism in Mae Kam Pong has since been replicated in other communities in Northern Thailand.

The community of Mae Kam Pong will continue to serve the future learning of students, teachers and volunteers, in order for them to enhance the environmental management of their own schools and communities. The successes of the community, such as increased quality of life, better infrastructure of drinking water, hydroelectricity, and transportation, and increased income and capital, should be shared for others to follow. Introducing visitors from other countries to the organized quality of environmental education has proven to be a benefit for the visitors as they learn from a cultural experience, and a benefit for the community itself, as it is able to sustain its cultural history through the revenue.

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“Resist or Perish”: Protest Movement against Land Reclamation in Bali

By Ayani Willems

These days in Bali, visitors will see enormous banners with the words “Bali Tolak Reklamasi Teluk Benoa” – “Bali is against land reclamation from the sea at Benoa Bay”. Positioned in strategic places, especially in the capital Denpasar, these protest banners show pictures of excavators and the sea. Tourists might not feel the commotion in the Balinese population. Nevertheless, tourism is at the roots of the struggle against a mega project that would have devastating ecological consequences.

The small island of Bali is very important in Indonesian tourism, and the government is doing a lot to promote it. The seven magic words (“Sapta Pesona”) – safe, orderly, clean, fresh, beautiful, friendly, nice memories – are widely spread all over Indonesia. With these seven virtues cultivated for the sake of tourists, people have readily accepted that paddy fields give way to five-star hotels and that water sources are surrounded by concrete for “proper appearance”. But now resistance is growing.

Background to the protest

The protest movement “Bali Tolak Reklamasi” is against the planned land reclamation from the sea at Benoa Bay. Like in Dubai, there are plans to construct an artificial island at Benoa. The investors, PT Tirta Wahana Bali International together with Chinese investors, are envisaging an “all-inclusive” touristic island – a luxurious place with hotels, resorts, private houses, spas and wellness facilities, restaurants, and cafés. Even a hospital and a marina are part of the plans.

On 30 May 2014, Indonesian President Bambang Yudhoyono declared Benoa Bay as “a place for use, development, and tourism”. Only three years earlier, he had declared Benoa Bay a nature reserve. Even football star Ronaldo was made “Ambassador for the Mangroves Forum in Bali” and promoted the protection of the mangrove forests. Now, only a few years later, President Yudhoyono gave the green light to the land reclamation project, even though studies have shown that the project will not benefit the environment – on the contrary!

Coastal protection off track

Several rivers flow into Benoa Bay. During the rainy season, they regularly carry much more water to the region. The planned profound alterations due to the land reclamation from the sea and the related deforestation of mangroves in the bay would affect the course and cur-

Once natural barriers like mangroves and coral reefs are destroyed, beaches are lost to coastal erosion, making people and the tourism sector increasingly vulnerable.

rents of these large amounts of water. Hazards such as water logging and flooding as well as washouts and sediment removal would become inevitable. Raising sea levels may aggravate the situation. With regard to coastal protection in the face of natural disasters such as tsunamis and typhoons, cutting down mangroves would have fatal consequences. The intensity and frequency of extreme weather events is likely to increase with climate change. In addition, Bali is located in a tectonically very active area where earthquakes and seaquakes often cause tidal waves. What an irony that a forest which protects the land is to be cut down in order to gain new land!

The experience of Serangan

Similar land reclamation from the sea took place in the 1990s on the small neighbouring island of Serangan where a casino and a marina park for tourists were planned. The company Bali Turtle Island Development of Tommy Suharto, the son of former president Suharto, dredged up and dumped a mixture of sand and limestone and created a connection to the mainland. But the project did not make any headway. Though it has become easier to reach Serangan, apart from that the land reclamation from the sea has only brought about losses and damage.

Especially the fishermen suffer. Mangroves are the most productive ecosystems of the world; they are the breeding ground of many species of fish. The roots offer a safe habitat to fish, shells and crabs. Snails, sponges, oysters, algae, and barnacles live on the roots of the trees. The deforestation of mangroves makes them lose their habitat and destroys the food chain. Therefore, only a few fish remain and the fishermen hardly get any catch. In view of these negative experiences and the devastation of the livelihoods of many people, it is well comprehensible that many people in Bali reject another land reclamation project. Such developments also have a negative impact on tourism itself. Once marine ecosystems are destroyed, tourists will stop coming.

Destruction of coral reefs in Candi Dasa

For the intended luxury tourism, mangroves which protect the coast and are rich in biodiversity are inaccessible and less attractive than beaches which have been cleared and cleaned. Nevertheless, there are innumerable examples of damaged beaches, which spoil the competitiveness of destinations on the long run. Candi Dasa, a village in eastern Bali, is one of these examples. Once it was an enchanting fishing village with a beach, small homestays and friendly people. But due to the tourism boom, the corals were "harvested" and used to construct resorts. After removal of the natural protective barrier, the beach was lost to the waves, which from time to time caught the tourists in the restaurants by surprise. Today, twenty years later, Candi Dasa is no longer a fishing village, has no beach and hardly gets any visitors. Its future looks rather bleak.

Water problems in Nusa Dua

Hotel owners often simply disregard the regulations governing coastal protection, e.g. the 150 metres of buffer zone between a hotel and the sea. Corruption and nepotism also contribute to diluting legislation in favour of the tourism industry.

Nusa Dua, a very dry peninsula where it has been hard to grow plants, now "grows" hotels, restaurants, and cafés with waterfalls at their entrance. The luxurious resorts, equipped with the latest technologies, are able to use ground water for their swimming pools, while local people have to pay a lot for the tap water which does not even meet drinking water quality standards. This kind of development is not sustainable. Water shortages and the high resource consumption of resorts give rise to conflicts between local people and the tourism industry. "Sapta Pesona" might eventually lose its magic.

Bali at a Crossroads

The people of Bali are at a crossroads. They will have to decide in which direction to steer their native island. This decision is not only about Bali, it is about our Earth, the only home we have. If the resistance movement is successful, the Indonesian people will have more hope to be able to also influence or even stop other environmental sins. "Tolak atau tenggelam!" – Resist or perish!

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English translation: Sabine Reichert-Rubio

Part 4: Challenges Ahead

Tourism in the Fight against Climate Change: A Challenge for International Governance

By Antje Monshausen and Annegret Zimmermann

The diagnosis is unmistakable: tourism is a victim as well as an agent of climate change, and mobility is what contributes most to tourism-generated emissions, with a clear upward trend. This is due to the strong growth in global air traffic, which saw a 21 percent increase between 2009 and 2012 alone. The international nature of transport in tourism calls for finding internationally agreed solutions. But how important is tourism in climate policies and how important is the climate issue for tourism policies and tourism operators?

The World Tourism Organisation (UNWTO)

The UNWTO, a specialised UN body, is committed to the goal of sustainable tourism development. In its Davos Declaration in 2007, the UNWTO acknowledges the responsibility of tourism in climate change and assumes the need for emission reductions within the industry. The declaration contains action recommendations for policies, the economy and for travellers, and is the basis of several UNWTO energy efficiency projects. However, the Declaration, which remains a milestone on the road towards climate protection, ultimately has only given rise to rhetorical calls to reflection on political action. So far the Declaration has not succeeded in prompting UNWTO to make full and systematic efforts towards a mandatory reduction of emissions in the industry. On the contrary, in climate protection negotiations this institution plays a delaying role, insisting on tourism as a driver of growth in poorer countries. Hence it advocates excluding the tourism industry from any regulation and measures of governance that may have an influence on the sector. Unfortunately, it lacks critical reflection on the limited potential capabilities of tourism as a viable path towards poverty reduction and on the risks of increased poverty as a result of climate change. UNWTO also lacks a noticeable participation of civil society in decision making processes. Thus, this underlying conflict cannot be resolved in a constructive manner, nor can any alternative tourism development model be devised.

As regards climate change, the UNWTO seems to remain bound to its historical origins as the international voice of national tourism authorities, and blindly follows the established pro-growth path. But this vision of unlimited growth is clearly a false response to progressive climate change. A different tourism is required!

The United Nations Framework Convention on Climate Change (UNFCCC)

Policy responses to climate change are coordinated under the United Nations Framework Convention on Climate Change (UNFCCC). International air and maritime transport emissions (known as bunker emissions) have not been taken into consideration so far. Under the Kyoto Protocol (1997), which regulates global greenhouse gas emissions in other sectors, the United Nations International Civil Aviation Organisation (ICAO) and International Maritime Organisation (IMO) were put in charge of developing emissions reduction instruments.

However, the UNFCCC should not hide behind this allocation of mandates and should send a strong political message urging the ICAO and IMO to pass ambitious targets for the international transport sector. Civil society organisations and scientists have always stressed the role of tourism in climate protection negotiations and call for a more prominent consideration of the tourism industry.

The International Civil Aviation Organisation (ICAO)

Under the Kyoto Protocol, the International Civil Aviation Organisation (ICAO) was commissioned to develop a global concept for the reduction of CO_2 emissions in air transport. After years of standstill, in September 2013 the 38th General Assembly of the ICAO decided to develop a global market-based mechanism, which should be ready by 2016 and applied to international air transport emissions from 2020 onwards. Thus, after decades of fruitless negotiations, binding emission reduction measures could be achieved in one of the fastest growing industries. One of the most effective concepts would involve a cap-and-trade system with strict CO_2 emission caps and limited emission certificate trading. The aviation industry, mainly represented by the International Air Transport Association (IATA) and the ICAO, however, are against agreeing on binding reductions and advocate offsetting 100 percent of the sector's CO_2 emissions instead. However, experience with emission certificates acquired by the aviation industry shows that there is also a trade in certificates with very poor environmental and social standards (Filzmoser 2013).

The ICAO is discussing several technological methods of reducing the climate impact of air transport. The less controversial measures include the development of technologies to enhance efficiency, continuous training in

the aviation industry, and efficient navigation in the global air space. However, the use of "sustainable" alternative fuels (agrofuels, waste oil fuels) must be subject to a critical assessment of environmental and social impacts.

To fulfil its international mandate of developing a CO_2 emissions reduction concept for air transport, the ICAO must, in addition to technological considerations, also agree on specific and binding reduction targets.

Tourism on the post-2015 agenda: Sustainable production and consumption

20 years after the United Nations Conference on Environment and Development, the International Community met again at Rio de Janeiro in 2012 for the Conference on Sustainable Development. Since then, the magic solution has been "Green Growth", sometimes with the term "inclusive" tagged on to emphasise the social dimension of sustainability. Tourism has an assured place in this concept, as it supposedly – if designed in a sustainable manner – contributes to economic growth, income and job creation. The 10-year sustainable consumption and production programme also names "sustainable tourism" as a strategically important sector. The so-called "Sustainable Development Goals" (SDGs), which will replace the Millennium Development Goals from 2015, might also establish a link to tourism under sustainable production and consumption strategies, as can be inferred from the document developed in July 2014 by the Open Working Group of the UN General Assembly on Sustainable Development Goals.

All the political efforts that rely on positive impacts of sustainable tourism have in common that they want to make use of the potentials available locally while reducing negative impacts. But there is also an urgent need to acknowledge the challenges posed by international mobility, an issue which has unfortunately not really been addressed by these concepts.

The role of the tourism industry

Tourism is a sector with little regulation. Business players therefore have a key role in terms of corporate social responsibility (CSR). In 2009, the World Travel & Tourism Council, which represents the interests of the global tourism industry, announced plans for a 50 percent reduction in emissions within the industry by 2035. However, it is not visible yet how these reductions are to be achieved, or to which extent they are already effective. It is of particular concern that these reduction announcements are not in line with the airline industry's emission reduction pledges. If the tourism industry wants to effectively reduce emissions, it must increasingly select other means of transport and hence rely on other tourism products.

Many CSR measures within the tourism industry focus exclusively on business management and on the local impacts of business operations on people and the environment. Climate impacts caused by mobility are excluded, or are only addressed by appealing to the travellers' responsibility to offset their air travel.

Future challenges

The tourism and transport industries, as well as political decision makers in tourism systematically underestimate their responsibility for climate change and evade it with statements on the economic importance of tourism, without taking into consideration the industry's impact on increased poverty due to climate change. In climate politics, tourism must be recognised as a key sector and binding reduction targets must be developed. Tourism, as a luxury sector, should bear its part of the costs arising from climate change, according to the "polluter pays principle".

Disregarding the fact that all emission savings are being eroded by the growth in air travel, tourism must cast off its dependence on the aviation industry and switch to the most environmentally friendly forms of mobility possible. Sustainable tourism can only be achieved if travel to and from destinations happens in a sustainable manner. A "faster, farther, shorter" concept of travel is not compatible with sustainable production and consumption patterns, which can only be achieved through consistent product development efforts aimed at an effective reduction in air travel.

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English translation: Centro Superior de Idiomas de la Universidad de Alicante, S.A.U.

The YMCAs of Asia & Pacific and their Climate Change Initiatives

By Duncan Chowdhury

Human society has been plundering the resources of the earth and destroying the environment in the name of development and modernity. Rapid climate change has resulted in inevitable global warming of our Mother Earth, with enormous negative impacts on human lives. Concerted efforts of all quarters are required to reverse the situation in order to save the earth from the imminent dangers. Preservation of nature and the environment has become the biggest challenge for us in the post-modern era.

Concerned individuals, civic groups, governments and international bodies are relentlessly working to reduce carbon emissions through concerted efforts. The Asia and Pacific Alliance of YMCAs (APAY) has been engaged in various environmental programs for quite a long time. Most of these efforts were focused on change of individual behavioural patterns and local action programmes. Our Green Ambassadors Training programme was one of its noteworthy programmes. It encouraged the youths of our YMCAs to be more eco-sensitive and become conscious and instrumental in preserving the nature.

Towards climate-friendly alternatives in tourism

APAY recently got involved in promoting alternative tourism to make tourism more climate-friendly. Tourism has a distinct relation with climate change, leads to deforestation, plundering of farm land, excessive use of water, degradation of the environment, and excessive use of energy. We feel that it is now time to engage ourselves more proactively in climate change mitigation and adaptation, if we really want to bring about positive changes in this area. The YMCAs of our region are less involved in advocacy programmes. However, influencing policy patterns of governments can make huge differences and bring positive changes.

The APAY Resource Group on Climate Change is comprised of members who actively involve themselves in studying climate change, lobbying, advocacy, and sharing of resources and information. They support APAY in taking steps in this area, e.g. by organizing workshops and seminars with a view to raising awareness among the YMCA members, especially the youth, acting as a resource group, sharing information and ideas and disseminating information to the various YMCAs involved in various programs to combat climate change. They support YMCA initiatives at regional, national and local levels to mitigate the sufferings of climate change and reduce carbon emissions.

The Kuala Lumpur commitment and call for action

As a part of the continued environmental activities, APAY held the APAY Regional Conference on Climate Change from 24 to 26 October, 2014, in Kuala Lumpur, Malaysia. About twenty delegates from the YMCAs who have a special interest in the issue of climate change participated in the conference. The statement of the conference (see box) stands as the position paper of APAY on climate change and the YMCAs of the Asia and Pacific shall relentlessly continue all their efforts for climate change mitigation and adaptation at local, national and regional levels.

Duncan Chowdhury is the Executive Secretary of the Asia and Pacific Alliance of YMCAs, based in Hong Kong, and responsible for the coordination of the Global Alternative Tourism Network.

Asia and Pacific Alliance of YMCAs
Kuala Lumpur Declaration

Preamble

The Asia and Pacific Alliance of YMCAs comprises the 27 YMCA movements of the Asia Pacific region. Around twenty members representing various YMCA movements from this region came together for the APAY Conference on Climate Change in Kuala Lumpur, Malaysia, from 24 – 26 October, 2014.

The APAY Conference on Climate Change was an important opportunity for participants to delve into the different aspects of climate change, examine the diverse environmental activities of the YMCAs of our region, and finally formulate an APAY position paper on climate change.

Our Learning and Concerns

During the conference we learnt that, as the Intergovernmental Panel on Climate Change (IPCC) has concluded, present day climate change is attributed directly or indirectly to human activity that alters the composition of the atmosphere due to accumulation of greenhouse gases. A major cause of the global in-

crease in carbon dioxide concentration is the excessive use of fossil fuels.

Climate change has led to rises in sea level and more extreme weather (including rainfall variability, frequency and the associated intensity of storms etc.), as well as the negative impact on our health, ecology, environment and the economy. It is unjust that those who have contributed the least to climate change suffer the most from the effects today and will suffer even more in the future.

In view of the increased volume of mass global tourism, the YMCA can play a pivotal role promoting, organizing, and implementing alternative, climate-sensitive tourism in its hostels, hotels, tourism services and products.

We, individually and collectively, need to take urgent action in limiting carbon emissions, and building up our resilience to climate change. Inter-governmental discussions are to be encouraged that result in appropriate and fair mitigation of and adaptation to climate change.

Good practices are already taking place in a number of YMCAs for climate change mitigation and adaptation, and these experiences need to be shared with and replicated in other YMCAs.

Climate change should be a major concern for the international community, including the YMCA.

Our Vision
The Asia and Pacific Alliance of YMCAs recognizes the scientifically analyzed human factor in climate change and understands the scale and urgency of the problem that it has to help address immediately. The APAY is committed to reducing carbon emissions through various environmental activities in all national YMCA movements, ecologically sustainable programs including community-based tourism, raising awareness of climate issues, and developing organizational capacity to maximize our efforts to counter climate change.

Challenge 21, the most recent interpretation of the mission statement of the YMCAs, calls us to "defend God's creation against all that would destroy it and preserving and protecting the earth's resources for coming generations". This reminds us of our responsibility as members of the YMCA community to work towards restoration of God's creation. We envisage that all YMCAs shall be climate-sensitive and committed towards building sustainable communities with a decreased climate change impact. We also commit to work towards limiting global emissions to keep the Earth's warming to no more than two degrees Celsius above pre-industrial levels.

Call for Action
We hereby urge the YMCAs of all levels of our region...

...to conduct a carbon audit of their respective YMCAs, and take effective measures to reduce carbon emissions by lowering energy consumption, preventing energy waste, promoting recycling and re-using, sharing facilities, and promoting and utilizing renewable energy when and wherever possible.

...to raise awareness about climate change by making their YMCAs more green, mobilizing the youth to engage in green-conducive activities, forming Green Teams to co-ordinate, promote, and enhance green initiatives, promoting ecologically sustainable tourism, holding conferences online to limit or even avoid travelling.

...to mobilise funds for environmental projects and make environmental technical knowledge and wisdom easily available.

...to establish networking and collaboration with relevant governments and climate change-related organizations.

We call for the genuine involvement of YMCAs in doable action programmes, working for and with poor and marginalised communities who are victims of climate injustice, and supporting grass-roots communities to build resilience to climate change.

We shall promote and implement sustainable and climate-sensitive tourism through GATN that is community-based, in contrast to commercial tourism that is heavily dependent on fossil fuels use.

We will involve ourselves in study and research on climate change issues and challenges, assisted through

collaboration with organizations and academic institutions that are specialists in the area.

We also commit to change and condition our own lifestyles to be more environment-friendly.

We see as crucial that the APAY Resource Group on Climate Change, Green Team, and GATN are empowered to be the voice for climate change victims through active involvement in climate change advocacy and lobby initiatives.

Finally, we envision that all YMCAs shall commit themselves towards becoming carbon neutral by 2025.

Relocating Tourism in Times of Climate Change

By Ernest Cañada

The high levels of inequality associated with the growth in tourism seen in regions like Central America, coupled with the threats that these societies are likely to face in the short and medium term as a result of climate change and peak oil, suggest the need to urgently rethink this development model in search of other alternatives. Potential alternatives will have to be diverse and adapted to different contexts. The possible kinds of alternatives should be discussed considering supply, demand and economic linkages in the region that benefit the local population.

Demand: focus on majorities

There is a growing need for a different tourism development model based on demand from a majority of the population, not just the higher purchasing power segment. The concentration of tourism in high-income segments, in most cases travelling to distant destinations, restricts access by the population of a certain area to some of its resources and territory. This leads to gentrification and exclusion.

For basic democratic reasons, an alternative tourism model should take into consideration the needs and rights of the population as a whole, especially the lower and middle classes, which constitute the majority. Admittedly, these segments will generate smaller spending per person in a certain location, but this does not mean that, as a whole, they cannot generate an equal or even greater level of spending than the other segments, and do so with much greater stability and regularity and smaller leakages of funds to other countries or tax havens.

The current focus on high-income segments often involves the need for long-haul flights. But this does not take into account the fact that air transport is currently one of the most critical aspects of the tourism industry. On the one hand, we have to consider the environmental impact of this means of transport, which is especially serious in terms of its contribution to climate change. It is also serious on account of its dependency on fossil fuels, now that we are approaching the peak oil era, a point of no return in which oil extraction costs will continue to rise, or become unprofitable and hence cease to be economically viable. Thus, the entire energy matrix based on fossil fuels is called into question and along with it the tourism industry itself.

Obviously, this process is not devoid of specific difficulties, and probably cannot be carried out in one go, but the greater the progress towards this transition, the lesser the impact of the failure of the current model. This would call for reviewing and shifting the focus towards products and services catering to the leisure-related needs of the common man, with policies clearly encouraging such offers. This type of tourism associated with the less affluent segments of society is by no means new in regions like Central America. It is widely offered and there is extensive experience. The problem is that, in recent years, tourism growth has unfailingly been associated with foreign visitors, preferably with greater spending power, and the sector has turned its back on this type of initiatives catering to the common man.

Supply: conglomerates of multiple players

As opposed to the current trend towards the concentration of capital, speculative activities and "financialisation", a different tourism development model should aim to reduce the weight of big corporates and speculators, whether of a transnational or of a local nature. Instead, it should give priority to business structures consisting of large conglomerates of micro-, small- and medium-sized businesses, linked together by partnerships, community-owned, and publicly owned structures.

One of the keys to the success of this type of approach lies in the ability of individual players to engage with each other and form alliances to pursue a tourism proposal with a territorial identity, without necessarily meaning that the area involved should be exclusively devoted to tourism. The sum of multiple coordinated initiatives in a certain area can make up for the individual limitations of each, and can perfectly well compete with the products and services backed by large capital. This calls for forging alliances to build attractive, diversified and financially viable offers which at the same time contribute to the democratisation of natural resources and ensure access to them for the majority of the population, as opposed to the privatising logic of prevailing tourism operations.

The present context is characterised by an extremely severe international economic crisis and the pressure of financial capital on public and common property, resulting in the transfer of income from the lower and middle classes to a few minorities and the privatisation of common property. This causes the need and offers the opportunity for a shift in class alliances, leading to a more favourable approach to the development of productive economies based in specific areas. Such a restructuring of relations between different social groups can facilitate new forms of economic and institutional organisation.

Territory: self-contention, diversification and complementarities

Lastly, as the third strand in this approach, the integration of tourism in a certain area should be based on diversification and complementarities with other activities. This helps to reduce a specialisation in tourism and the negative impacts caused by such concentration and the dependence on it. It implies that, in certain areas, tourism should decrease and other sectors should be promoted. The high level of concentration of this activity in such areas and their attendant vulnerability is not sustainable, neither from an environmental nor from a social standpoint. However, other areas can grow their tourism activity as part of an effort to broaden their economic base.

We must move away from the territorial logic imposed by neo-liberal globalisation, which promotes spatial specialisation in a context of global competition. Instead, more integrated territories should be promoted, with a diversity of activities, in which tourism would be one out of many, allowing for a progressive shift towards a more endogenous development.

The presence of tourism in a certain area can be strengthened by means of short farm product marketing circuits. This relationship should not just be viewed from a one-way perspective – as a means of producing food to cater for tourists' needs – but also as a way in which tourism can be used as a platform to make known, promote and market certain local food products. This type of tourism would represent an opportunity to add value to local food production in a specific area, thereby contributing to food sovereignty.

Relocating tourism, rethinking society

Rethinking the shape and the weight we want tourism to have in a certain society also entails reviewing what we want that society to be like. Advancing in that direction might appear utopian today. However, it is essential to do so. Huge challenges like climate change, peak oil or the increasing impoverishment and dispossession suffered by part of our society cannot be viewed as alien to tourism. If tourism really wants to be a development option, it must urgently address the need to rethink the role it plays in the societies involved, with due consideration of their major socio-environmental and ethical challenges.

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English translation: Centro Superior de Idiomas de la Universidad de Alicante, S.A.U.

Justice Delayed is Justice Denied: Towards Climate Justice in Tourism

By Christina Kamp and Sumesh Mangalasseri

"Earth provides enough to satisfy every man's need, but not every man's greed." This statement by Mahatma Gandhi, the father of the Indian nation, points to the root cause of the climate crisis the world is facing today. The greed of a few super rich and the affluent lifestyles of a growing upper and middle class have led to the crisis. This crisis is not an isolated one, but interlinked with many other predicaments. A "business as usual" approach aggravates the situation, increases the gap between rich and poor, and undermines the development aspirations of billions. The need of the poor for survival defines the call for climate justice. It points to the need for an ethical and justice based approach in climate change discourses, negotiations, and action.

The principle of Common but Differentiated Responsibility (CBDR)

The world needs developed countries to cut their own emissions first and fast and pay for adaptation and mitigation in developing countries. This is a broad consensus established in the international debate on climate justice. It is based on the recognised principle of Common but Differentiated Responsibility (CBDR), a guiding principle of international cooperation and solidarity.

The rights of nature have also been pointed out in these discussions. "The focus must not be only on financial compensation, but also on restorative justice, understood as the restitution of integrity to our Mother Earth and all its beings", as formulated in the "Peoples Agreement" by the World People's Conference on Climate Change and the Rights of Mother Earth in April 2010 in Cochabamba, Bolivia.

The effects of climate change, capacities to adapt and the positive and negative impacts of tourism are not evenly distributed. The prime victims are the poor and marginalised, they pay the price. Therefore, a differentiated approach in both tourism development and climate negotiations is essential, based on human rights (see box) and CBDR. While under the United Nations Framework Convention on Climate Change (UNFCCC) Common but Differentiated Responsibility applies to countries, it can also be applied to sectors. It points to the historical debt of the tourism sector, which has caused a huge amount of emissions in the past, continues to do so at present and is set to continue to do so in the future. It also points to the capacities of the tourism sector to contribute to mitigation and adaptation. The tourism industry is both able and obliged to take bold steps on a new path that respects the fundamental right of people everywhere in the world to exist and develop.

The role of the tourism sector

Tourism has an enormous impact on the climate. "If tourism was a country, it would rank 5th in terms of global emissions", said Michael Hall, professor at the University of Canterbury, Christchurch/New Zealand, at the international symposium "Travel & Tourism in the Age of Climate Change" in 2009 in Eastbourne, UK. Though this may have changed a little, it gives a rough idea of the dimensions of the global tourism challenge, and especially the aviation sector. Given current growth trends, in 20 to 30 years tourism might be the sector with the highest emissions. There is an increasing mismatch between tourism's rapidly escalating emissions and the sector's voluntary reduction targets.

The tourism industry initially attempted to portray themselves as a victim of climate change rather than a contributor. Reservations were mostly regarding the future threats that climate change held out to the sustainability and existence of tourism destinations. At the same time, the tourism industry has been protecting their business interests under the pretext of "trickle-down effects" and alleged poverty eradication – an argument NGOs have repeatedly questioned, e.g. in a "Last Call to Durban" position paper in 2011. The tourism industry affects the lives of common people in a multitude of ways. Rather than alleviating poverty, it often poses serious threats to the livelihoods of local communities.

Tourism emissions are luxury emissions

The current tourism industry is very much based on (over-)consumption for the luxury of those who can afford to buy. The emissions from tourism can be considered 'luxury emissions' – as opposed to 'survival emissions' which are inevitable for life on this planet to continue.

The inequalities today are not only between "North" and "South", but also between and within countries. The rise of a new upper and middle class in emerging economies such as the BRICS and others has resulted in a new demand in tourism and a significant increase in domestic, regional and long-haul travel. The conspicuous consumption of these travellers and the demand for more tourism-related infrastructure is carbon -intensive and a serious matter of concern.

The situation is aggravated by the business and promotion strategies of regional and national tourism organ-

Climate Change – A Threat to Human Rights

Climate change is threatening the lives and livelihoods of billions of people. Poor communities, especially those who are vulnerable and marginalized at the same time, did not really contribute to this catastrophe, but are suffering from a serious problem created by others. Many of the impacts that can already be felt or may be expected to occur in the future directly or indirectly affect their human rights, including the rights to food, water, health, and housing.

It may not be possible to establish a causal relationship between certain emissions caused by a specific country in the past, specific impacts of climate change and their direct and indirect impacts on the human rights situation. However, global warming is clearly one factor that leads to rising sea levels, more severe cyclones, environmental damage, and increasing water scarcity. Due to climate change, the number of people suffering from diseases and the consequences of heat waves, flooding, storms, and droughts is bound to increase. Climate change will affect the health and food security of millions of people.

A human rights perspective in looking at the risks facing communities and their possibilities to adapt to climate change draws attention to power relations and the deeper causes of inequality and discrimination. The human rights framework underlines the importance of the effective involvement of individuals and communities in decisions affecting their lives. Protecting human rights in the face of climate change requires comprehensive measures, including effective mitigation and the special protection of vulnerable persons and communities.

The international community is obliged to avert the threats of climate change and governments are obliged to take measures to avert the impacts. At the same time, they must ensure that mitigation and adaptation measures related to climate change are not "false solutions" that might also violate human rights. For example, energy production from renewable sources, such as agro fuel crops, must not compete with or endanger food production, putting food security at stake.

(Evangelischer Entwicklungsdienst 2011, pp. 61-64)
English translation: Christina Kamp

isations concentrating on increasing the number of international visitors. For example, the carbon footprint of the soccer World Cup 2010 in South Africa was eight times larger than in Germany in 2006. 67 percent of the emissions were caused by international air travel. The environmental impact would have been significantly lower if more tickets had been sold to soccer fans from neighbouring African countries instead of overseas tourists (Taylor 2011). It is obvious that the entire development paradigm only supports 'growth oriented' strategies. Large sections of society remain exempted from the so-called benefits, but are bearing the costs.

Subsidies for aviation and tourism also add to the problem. They promote a highly carbon-intensive sector and at the same time, through this misallocation of funds, governments lose large amounts of revenues. Revenues, however, are urgently needed for the transition to a low-carbon economy and to improve the resilience of the poor in the face of climate change and other threats.

Sustainable production and consumption go together

As climate negotiations happen between countries, the approach to calculating obligations to reduce emissions has so far mainly been based on the responsibilities of nation states. The USA and China are today the world's biggest polluters. However, much of the CO_2 emitted in China, for example, comes from "dirty" industries that have been outsourced. The producers are Chinese, and the ways in which they produce are governed by Chinese legislation and policies, but the consumers of their products live in other parts of the world. Similarly, in tourism, emissions from transport within the destinations, food, accommodation, and entertainment depend on the sustainability or lack of sustainability of tourism there. But international tourists "export" their emissions and leave ecological footprints in other countries. The responsibility to reduce emissions is thus a common responsibility shared by both: producers who decide on how to produce and consumers who decide what to consume.

The injustice of market-based approaches

To ensure drastic emissions reductions in all countries and by all sectors, there is a need for binding commitments – not voluntary pledges – and for urgent, ambitious and determined implementation – particularly by major polluters such as tourism and aviation. This must happen in line with the principle of CBDR, based on their historical responsibility, capacities, and expected growth trends.

Most of the so-called market-based 'solutions' have tended to delay actual progress. They are designed to turn global commons such as the atmosphere and the earth's shared natural resources into market commodities. "Carbon credits" and "offsetting" schemes entail "permits to pollute" which can be bought by those who can afford them – which again benefits global elites. It allows polluters to buy their way out of reducing their emissions.

According to Paul Peeters, NHTV Breda University of Applied Sciences, Netherlands, considering the total cumulative emission budgets until 2100, it is physically impossible to let tourism grow and get the emission rights from other sectors. Purchasing allowances from carbon markets is, according to Paul Peeters, "a complicated way of saying, we are not doing much, others have to do it".

But who should do that? Should the luxury emissions caused by the tourism sector be "offset" by sectors which are far more essential for human survival on this planet, such as agriculture which is needed to ensure the food security of the world's population, or the construction sector which provides housing, the power sector which generates electricity for basic needs, or the health sector? All of these sectors, for their part, also need to reduce their own emissions. None of them – and no other – is likely to reduce its own emissions and in addition compensate for the emissions caused by tourism and aviation.

"System Change, not Climate Change!"

The current growth oriented development model is in deep crisis, but it still has a green card to play in order to reap profits for a few. Agrofuels and carbon trading have become new profit-making ventures that will result in new forms of colonialism, including enormous corporate land grabbing of peoples' lands and forests in the Global South. The 'green growth' approach is celebrated by those who have much to 'grow' from the 'greening' of profit.

However, growth and reduction cannot go together. The rhetoric of sustainability and pro-growth strategies need to be delinked. The hard truth is that the only way to significantly reduce aviation emissions is to halt the growth in supply and demand. A real system change requires challenging the forced growth of the system itself in order to restore harmony with nature and among human beings – and it needs to happen fast.

"We don't have another 30 years for a system change", said Lidy Nacpil, campaigner with the Jubilee South Asia Pacific Movement on Debt and Development in the Philippines. At a workshop on climate justice at the Asia-Europe People's Forum (AEPF) in Milano in October 2014, she emphasized that certain victories need to be won very soon: "We have less than 15 years to do what has to be done before it will become impossible – to keep global warming below two degrees Celsius. There has to be immediate drastic reduction of greenhouse gases, which has to take place in the next ten years. And the impacts of climate change need to be addressed now! We cannot tell victims to wait until we change the system."

Binding commitments supported and implemented by the international community and nation states are essential, but not sufficient. Many solutions will come not from the top down, but from communities working together to identify truly sustainable solutions. These kinds of solutions are decentralized, participatory and based on local creativity and wisdom. They recognize the importance of common values and responsibilities which arise from the concept of common heritage and common concern of humankind.

We have reached a stage which demands very urgent and critical interventions. Any further delay is a betrayal of future generations and of the people who really are, and going to be, affected by the extravaganza of the affluent – including tourism. Any delay in justice is a denial of justice.

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References

Air Transport Action Group (2010): The right flightpath to reduce aviation emissions. A position paper presented by the global aviation industry. November 2010. Accessed at: www.atag.org/component/downloads/downloads/72.html (18 November 2014)

Arbeitskreis Tourismus und Entwicklung et al. (2011): Last Call to Durban. Beyond Numbers: A call for social, economic and climate justice in tourism. Accessed at: http://tourism-watch.de/files/cop_17_positionpaper_climatejustice_tourism.pdf (18 November 2014)

Ariza-Montobbio, Pere/Sharachchandra Lele (2010). Jatropha plantations for biodiesel in Tamil Nadu, India: Viability, livelihood trade-offs, and latent conflict. Ecological Economics, 70(2), pp. 189-195

Bai, Zhanguo et al. (2009): Global Assessment of Land Degradation and Improvement (GLADA). ISRIC – World Soil Information. Wageningen

Bailis, Robert E./Jennifer Baka (2010): Greenhouse Gas Emissions and Land Use Change from Jatropha Curcas-Based Jet Fuel in Brazil. Environmental Science & Technology, 44(22), pp. 8684-8691. Iowa City

Bird, Neil (2014): Fair share: climate finance to vulnerable countries. Overseas Development Institute. London

Bread for the World (2013): International Aviation. Addressing emissions while respecting equity issues. Facts 36. Berlin. Accessed at: www.brot-fuer-die-welt.de/fileadmin/mediapool/2_Downloads/Fachinformationen/Aktuell/Facts_36_international_aviation.pdf (18 November 2014)

Bread for the World (2014a): Aviation in times of Climate Change. Agrofuels – boon or bane for future mobility? Facts 40. Berlin. Accessed at: www.brot-fuer-die-welt.de/fileadmin/mediapool/2_Downloads/Fachinformationen/Aktuell/FACTS_40_Aviation_in_times_of_Climate_Change.pdf (18 November 2014)

Bread for the World (2014b): Flying green. Potentials, Risks and Perspectives of Agrofuels in the Aviation Sector. Facts 47. Berlin. Accessed at: www.brot-fuer-die-welt.de/fileadmin/mediapool/2_Downloads/Fachinformationen/Aktuell/Facts_47_Flying_green.pdf (18 November 2014)

Bread for the World (2014c): TourismWatch No. 76 (September 2014). Berlin. Accessed at: http://tourism-watch.de/files/tourismwatch_76_final_0.pdf (18 November 2014)

Bread for the World (2014d): TourismWatch. Special Issue on Agrofuels and Climate Change, March 2014. Berlin. Accessed at: http://tourism-watch.de/files/tw_special_itb_2014_0.pdf (18 November 2014)

Brunnengräber, Achim (2009): Kyoto's flexible mechanisms and the right to pollute the air. Critical Currents 6, pp. 26-35. Uppsala

Cambridge Institute for Sustainability Leadership (CISL)(2014): Climate Change: Implications for Tourism. May 2014. Cambridge. www.cisl.cam.ac.uk/Resources/Climate-and-Energy/Climate-Change-Implications-for-Tourism.aspx (18 November 2014)

Chepstow-Lusty, Alex J. et al. (2009): Putting the rise of the Inca Empire within a climatic and land management context. Climate of the Past Discussions, Volume 5, Issue 2. Göttingen

Coplin, Leslie G. (2012): Sustainable Development of Algal Biofuels: The National Academies Press. Washington

Darby, Megan (2014): Global shipping emissions set to rise unchecked. Responding to Climate Change (RTCC), 17 October 2014. London. Accessed at: http://www.rtcc.org/2014/10/17/global-shipping-emissions-set-to-rise-unchecked/ (18 November 2014)

Deutsche Welle (2011): Lufthansa, la primera en vuelo regular con biocombustible. (10 July). Accessed at: www.dw.de/lufthansa-la-primera-en-vuelo-regular-con-biocombustible/a-15224580. Bonn

Deutsche Welle (2012): Lufthansa suspende sus vuelos con biodiésel (13 January). Accessed at: www.dw.de/lufthansa-suspende-sus-vuelos-con-biodi%C3%A9sel/a-15666085. Bonn

Deutsches Biomasseforschungszentrum (2014): Biobasierte Treibstoffe im Flugverkehr – Stand und Perspektiven. Kurzstudie. Leipzig

DLR (2014): Luftverkehrsbericht 2012 – Daten und Kommentierungen des deutschen und weltweiten Luftverkehrs. Accessed at: www.dlr.de/fw/desktopdefault.aspx/tabid-2937/4472_read-39079/ (18 November 2014)

Ecotourism Kenya (2007): Ecotourism Kenya Newsletter, Issue No.18, Oct-Dec 2007

Ecotourism Kenya (2013): The Eco-rating certification guide, Ecotourism Kenya, Nairobi. Accessed at: www.ecotourismkenya.org/downloads/issue%2018%281%29.pdf (18 November 2014)

Evangelischer Entwicklungsdienst (2009): TourismWatch. Special Issue – Climate Change. October 2009. Bonn. Accessed at: http://tourism-watch.de/files/TourismWatch_ClimateChange_1.pdf (18 November 2014)

Evangelischer Entwicklungsdienst (2011): Alles was Recht ist – Menschenrechte und Tourismus. Impulse für eine menschenrechtlich orientierte Tourismusentwicklung. Accessed at: http://tourism-watch.de/files/Alles_was_Recht_ist_final.pdf (18 November 2014)

Evangelischer Entwicklungsdienst (2012): Beyond Greening. Reflections on Tourism in the Rio-Process. Bonn. Accessed at: http://tourism-watch.de/files/profil_13_beyond_greening_rio20.pdf (18 November 2014)

Gascón, Jordi/Diana Ojeda (2014): Turistas y campesinado: El turismo como vector de cambios de la economía campesina en la era de la globalización. Madrid; Tenerife: FTR; Pasos; ACA

Gössling, Stefan (2000): Sustainable Tourism Development in Developing Countries: Some Aspects of Energy Use. Journal of Sustainable Tourism 8 (5), pp. 410-424

Government of Kenya (2013): National Climate Change Action Plan 2013-2017. Government Printers. Nairobi

Government of Rwanda (2011): Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development. Kigali

IATA (2012): IATA urge a la OACI medidas económicas para el cambio climático: Comunicado nº25 de la IATA. Montreal

IATA (nd): Alternative Fuels. Montreal. Accessed at: www.iata.org/whatwedo/environment/pages/alternative-fuels.aspx (18 November 2014)

IDB/UNDP (1990): Our own agenda: Environmental Commission of Development of Latin America and the Caribbean. Inter-American Development Bank/United Nations Development Programme. New York

Informe Planeta Vivo (2014): Personas y lugares, especies y espacios. McLellan, Richard et al. (eds). WWF International, Gland

Institut für Energie- und Umweltforschung Heidelberg GmbH (2014a): Kurzstudie Agrotreibstoff im Flugverkehr. Heidelberg

Institut für Energie- und Umweltforschung Heidelberg GmbH (2014b): Kurzstudie. Agrotreibstoffe aus Produktionssteigerungen? Potentiale, Ansätze, Praxiserfahrungen. Heidelberg

IPCC (1999): Aviation and the Global Atmosphere. Eds. Penner, J.E. et al. Cambridge University Press. Cambridge

IPCC (2007): Climate Change 2007: Synthesis Report: Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva

Kamp, Christina (2009): Two Degrees – "A Recipe for Disaster". Huge Challenges for the Tourism Sector. In: TourismWatch No. 56, September 2009. Evangelischer Entwicklungsdienst (EED). Bonn. Accessed at: http://tourism-watch.de/en/content/two-degrees-%E2%80%93-%E2%80%9C-recipe-disaster%E2%80%9D (18 November 2014)

Lee, David et al. (2009): Aviation and global climate in the 21st century. Atmospheric Environment 43(22&23), pp. 3520-3537

Lufthansa (2010): Balance: Company, Social responsibility, Environment, Corporate citizenship. Deutsche Lufthansa AG. Frankfurt/M.

Murphy, Brett P./David M.J.S. Bowman (2012): What controls the distribution of tropical forest and savanna? Ecology Letters, 15(7), pp. 748-758

Nielsen, Hannah/Anna Spenceley (2010): The success of tourism in Rwanda – Gorillas and more. World Bank/SNV. Accessed at: http://siteresources.worldbank.org/AFRICAEXT/Resources/258643-1271798012256/Tourism_Rwanda.pdf (18 November 2014)

Patt, Anthony G./Laban Ogallo/Molly Hellmuth (2007): Sustainability – Learning from 10 years of climate outlook forums in Africa. Science (80-) 318(5847), pp. 49–50. doi:10.1126/science.1147909

Peeters, Paul et al. (2007): Innovation Towards Tourism Sustainability: Climate Change and Aviation. International Journal of Innovation and Sustainable Development, 1(3): pp. 184-215

Peredo Beltran, Elizabeth (2011): On the Way from Cochabamba to Durban. Reflections on Climate Justice. In: TourismWatch No. 63, June 2011. Evangelischer Entwicklungsdienst (EED). Bonn. Accessed at: http://tourism-watch.de/node/1688 (18 November 2014)

Rettet den Regenwald (2011): Accion terminada: Lufthansa carga combustible en la selva. Accessed at: www.salvalaselva.org/mailalert/733/lufthansa-carga-combustible-en-la-selva (18 November 2014)

Ritsema, Geert (2012): Biokerosene: Take-off in the wrong direction. Milieudefensie; Walhi. Amsterdam. Accessed at: https://milieudefensie.nl/publicaties/rapporten/biokerosene-take-off-in-the-wrong-direction (18 November 2014)

Ruiz, Rodrigo (2011): Percepción de los impactos del cambio climático de los pueblos indígenas andinos. In: Glaciares Andinos, Recursos Hídricos y Cambio Climático: Desafíos para la Justicia Climática en el Cono Sur. Programa Chile Sustentable. Accessed at: http://cambioclimatico.democracyctr.org/wordpress/wp-content/uploads/2012/04/LIBRO-GLACIARES-ANDINOS-1RA-PARTE.pdf (18 November 2014)

Ruiz, Rodrigo/Pablo Ortiz (2010): Crisis Climática: Impactos y Políticas, perspectivas y propuestas de los pueblos indígenas andinos. Coordinadora Andina de Organizaciones Indígenas (CAOI). Lima

Sanderson, Katharine (2009). Wonder weed plans fail to flourish. Nature, 461 (17 September 2009), pp. 328-329

Sankaran, Mahesh/Jayashree Ratnam, Niall P. Hanan (2004): Tree-grass coexistence in savannas revisited – insights from an examination of assumptions and mechanisms invoked in existing models. Ecol Lett 7(6), 480–490. doi:10.1111/j.1461-0248.2004.00596.x.

SAWAC (nd): Finding future water in Southern Africa: Avoiding conflict and war. Accessed at: www.sawac.co.za/articles/waterwar.htm (18 November 2014)

Scheiter, Simon/Steven I. Higgins (2009): Impacts of climate change on the vegetation of Africa: an adaptive dynamic vegetation modelling approach. Global Change Biology, 15(9), pp. 2224-2246

Scott, Daniel/Paul Peeters/Stefan Gössling (2009): Can Tourism 'Seal the Deal' of its Mitigation Commitments?: The Challenge of Achieving 'Aspirational' Emission Reduction Targets. Background study for the symposium Tourism y Travel in the Green Economy (14th to 15th September). Gothenburg

Skarka, Johannes (2012): Microalgae Biomass Potential in Europe Land Availability as a Key Issue. Technikfolgenabschätzung – Theorie und Praxis 21(1), pp. 72-79. Karlsruhe

Taylor, Tristen (2011): Washing FIFA green: the World Cup and global warming. In: Cottle, Eddie (ed.) (2011): South Africa's World Cup. A Legacy for Whom? Scottsville

Thießen, Friedrich/ André Haucke (2013): Die Luftverkehrsteuer – Auswirkungen auf die Entwicklung des Luftverkehrs in Deutschland. Schlussfolgerungen aus den Jahren 2011 und 2012; Technische Universität Chemnitz

UNCED (1987): Report of the World Commission on Environment and Development. Our Common Future. Accessed at: http://www.un-documents.net/wced-ocf.htm (18 November 2014)

UNEP (2009): Climate in peril: A popular guide to the latest IPCC reports. Nairobi

United Nations (1998): Kyoto Protocol to the United Nations Framework Convention on Climate Change. Accessed at: http://unfccc.int/resource/docs/convkp/kpeng.pdf (18 November 2014)

United Nations Framework Convention on Climate Change (1994): United Nations Framework Convention on Climate Change. Full text of the Convention. Accessed at: http://unfccc.int/not_assigned/b/items/1417.php (18 November 2014)

UNWTO-UNEP-WMO (2008): Climate Change and Tourism: Responding to Global Challenges. Madrid. United Nations World Tourism Organization (UNWTO), United Nations Environment Programme (UNEP) and Word Meteorological Organization (WMO)

Uysal, Muzaffer/Richard Perdue/Sirgy Joseph (eds) (2012): Handbook of Tourism and Quality-of-Life Research: Enhancing the Lives of Tourists and Residents of Host Communities. Springer Science and Business Media. Heidelberg

Viner, David/Maureen Agnew (1999): Climate change and its impacts on tourism. A report prepared for WWF-UK, Climate Research Unit, University of East Anglia. Norwich. Accessed at: http://assets.wwf.org.uk/downloads/tourism_and_cc_full.pdf (18 November 2014)

Wadhams, Nick (2009): How a Biofuel 'Miracle' Ruined Kenyan Farmers. 4 October 2009, Time. Accessed at: http://content.time.com/time/world/article/0,8599,1927538,00.html (18 November 2014)

Weaver, David (2011): Can sustainable tourism survive climate change? Journal of Sustainable Tourism 19 (1), pp. 5-15

World People's Conference on Climate Change and the Rights of Mother Earth (2010): Peoples' Agreement. World People's Conference on Climate Change and the Rights of Mother Earth, 22 April 2010, Cochabamba, Bolivia. Accessed at: http://pwccc.wordpress.com/support (18 November 2014)

WWF (2014): Living Planet Report 2014: Species and spaces, people and places. Gland

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