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# ENVIRONMENTAL POLICY AND LAW

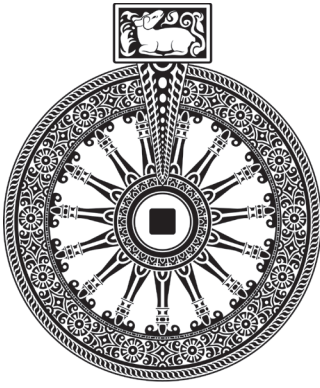
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# ENVIRONMENTAL POLICY AND LAW

This international journal has been created to encourage and develop the exchange of information and experience on all legal, administrative and policy matters relevant to the natural environment and sustainable development. It is concerned in the widest sense with legal and policy aspects of air, water, soil and noise pollution; the protection of flora and fauna; solid waste management; protected areas and land-use control; and development and conservation of the world's non-renewable resources.

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# EDITORIAL

At this writing, four on-going international processes are addressing critical aspects of the law and policy relevant to global conservation and the environment: the 69<sup>th</sup> Meeting of the Standing Committee of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); the 53<sup>rd</sup> GEF Council Meeting; the 53<sup>rd</sup> Session of the International Tropical Timber Council; and the Third Meeting of the Open-ended Committee of Permanent UNEP Representatives (leading into the Third Session of the UN Environment Assembly). Like most of the environmental and conservation action at national and international levels, however, these critical discussions are taking a back seat in the media – even the environmental-policy-oriented media – to the negotiations of the 23<sup>rd</sup> Conference of Parties to the UN Framework Convention on Climate Change (UNFCCC) and related events.

With all due respect and admiration for the intense efforts involved in the numerous annual negotiations that have continued for 25 years without a break under the UNFCCC umbrella (to be covered in our next issue), we find it difficult to reconcile the apparent unification of all environmental issues under that single heading. The aspirational (national commitment) approach of the UNFCCC processes is commendable; however, we must not undervalue the real successes of more conventional approaches such as monitored bans and quotas under the Montreal Protocol on Substances that Deplete the Ozone Layer (the most successful multilateral environmental agreement (MEA)) and the UNEP Chemical Conventions; the trade-based non-compliance system under CITES; and the collaborative approach toward protecting the green web of life on Earth as exemplified by the text of the Convention on Biological Diversity and by that Convention's relationship with other MEAs.

Most important, despite the global focus on climate change, national progress on many of the substantive components of climate change (pollution of land, water and air; destruction of protected areas, forests and untouched ecosystems/landscapes; *etc.*) seems to be rolling back, whether by direct actions and threats of more such roll-backs (as in the US), by lack of enforcement, or by the determination that national standards should be altered to reflect the (lower) standards described under international instruments.

It seems important at this point to remember that progress in any overarching problem area, such as climate change, is best achieved by moving forward a step at a time – for example, by raising standards regarding particular pollution concerns in one environmental medium, while our climate change overview allows us to remain aware of and to close out the possibilities that these higher single-medium standards might be circumvented by switching to pollution of another medium.

Tomme R. Young  
Editor, *Environmental Policy and Law*

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- 15 See Directive 2002/95/EC on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) and Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).
- 16 *Supra*, note 10.
- 17 *Supra*, note 9.
- 18 See website of Ministry of Electronics and Information Technology at <http://meity.gov.in/esdm/policies>.
- 19 *Supra*, note 3.
- 20 *Supra*, note 13.
- 21 Toxics Link. 2015. "Time to Reboot II". New Delhi: Toxics Link.
- 22 *Supra*, note 10; and *supra*, note 9.
- 23 Sohail, S. 2015. "New e-waste draft rules promise a broader scope". *Down to Earth*, 30 November, at <http://www.downtoearth.org.in/blog/new-e-waste-draft-rules-promise-a-broader-scope-49513>.
- 24 Arora, K., Shekar, N., Chandran, P. and Abubaker, M. 2015. "Comments for Strengthening Draft E-Waste (Management) Rules, 2015". *Live Blog of Hasiru Dala*, 30 April, at <http://wastenarratives.com/2015/04/30/comments-for-strengthening-draft-e-waste-management-rules-2015/>.
- 25 Interview by Karishma Chaudhary with Satish Sinha of Toxics Link on e-waste management issues, September 2015.
- 26 "JNN Solar Mission: Scheme/Documents". *Ministry of New Renewable Energy*, at <http://www.mnre.gov.in/solar-mission/jnns/introduction-2/>.
- 27 A government-led campaign in India aimed at cleaning up the streets, roads and infrastructure of India's cities, smaller towns and rural areas.
- 28 Central Pollution Control Board. 2015. "Brief Note on Draft E-Waste Rules, 2015".
- 29 Rajya Sabha Secretariat. 2011. "E-waste in India". New Delhi: Research Unit (LARRDIS).
- 30 A campaign launched by Indian Prime Minister Narendra Modi on 15 July 2015 to train over 400 million people in different skills by 2022.
- 31 UNEP and UNU. 2009. *Recycling – From E-waste to Resources*. Sustainable Innovation and Technology Transfer Industrial Sector Studies. Nairobi and Tokyo: United Nations Environment Programme and United Nations University.
- 32 *Supra*, note 24.
- 33 PTI. 2015. "E-waste management draft rules puts liability on producer: Govt". *India Today*, 7 December, at <http://indiatoday.intoday.in/story/e-waste-management-draft-rules-puts-liability-on-producergovt/1/540564.html>.
- 34 *Supra*, note 21.
- 35 See <https://www.motherdairy.com/>.
- 36 *Supra*, note 4.
- 37 Chaudhary, K. and Vrat, P. 2015. "SWOT Analysis of E-waste Management in India". *Industrial Engineering Journal* 8(10): 27–39.
- 38 Sinha, D. 2004. "The Management of Electronic Waste: A Comparative Study on India and Switzerland". Master's thesis, University of St Gallen.
- 39 *Supra*, note 26.



## Indonesia

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# Forest Fires and Climate Change as They Affect Tourism

by Tundjung Herning Sitabuana,<sup>i</sup> Ahmad Redi<sup>ii</sup> and H.K. Martono<sup>iii</sup>

On 23 January 2017, President Joko Widodo (Jokowi) called for the development of early plans to tackle land and forest fires, as hotspots had begun to emerge in several regions over the previous two weeks. Jokowi warned all stakeholders interested in the issue of land and forest fire prevention to address hotspots before they turned into fires, fearing that the trauma of 2015 might repeat itself this year. The fires that ravaged the country in 2015 resulted in US\$16.5 billion in material losses. Jokowi stressed the importance of anticipating all possibilities in order not to see a repeat of 2015, although according to Wiranto, Indonesia's Coordinating Minister for Political, Legal and Security Affairs, the government had made some progress in the field of forest-fire containment in 2016. Data collected by US National Oceanic and Atmospheric Administration satellites indicated that, in 2016, the number of hotspots decreased by 82.14 percent. In 2015, a total of 2.6 million hectares of land and forest burned, but this figure decreased in

2016 to just 438,360 hectares. In 2015, the country declared a state of emergency that lasted for 151 days. There was no such declaration in 2016 (Haeril Halim, 2017).

The impact of global warming, already evident in Indonesia, will likely worsen due to further human-induced climate change. Annual rainfall in Indonesia is already down by 2–3 percent, and the seasons are changing. The combination of high pollution density and high levels of biodiversity, together with the country's extensive 80,000 kilometres of coastline and 17,500 islands, make Indonesia one of the most climate-vulnerable countries in the world. Shifting weather patterns have made it increasingly difficult for Indonesia's farmers to decide when to plant crops, and erratic droughts and rainfall have led to crop failures. Millions of Indonesian fishermen face harsher weather conditions while dwindling fish stocks affect their income (Djajaputra *et al.*, 2017).

"In addition, global climate change has impacted *the tourism industry taking into consideration that tourism growth can affect global climate change and contributes to the Green House Gas (GHG) pollutant in terms of carbon emission*" (*ibid.*, emphasis added). Air pollution resulting from Indonesian forest fires has affected other Southeast Asian countries such as Brunei Darussalam, Cambodia, Malaysia, Indonesia, Thailand and the Philippines. The resulting haze is thus an international problem. In the latest occurrence, these countries noted that the forest-fire haze, caused by illegal slash-and-burn

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practices in Indonesia, is a long-term issue that varies in intensity. On 4 September 2015, the Board of the Indonesian National Disaster Management Agency reported that at least six Indonesian provinces had declared a state of emergency due to the haze. The government estimated that the haze would cost it up to US\$35 billion. Clearly, the problem is how to mitigate or prevent the forest fires physically, and to develop the legal tools necessary for their prevention and/or suppression (*ibid.*, at 41).

This article is based on both normative and qualitative research, beginning from positive laws (conventions, laws and regulations) applicable in Indonesia, then turning to legal literature and other sources of clarification.

## Indonesian Law Relevant to the Environment

### The 1945 Constitution Law of the Republic of Indonesia

The Indonesian Constitution Law of 1945 declares that every citizen of Indonesia has a fundamental right to a good and healthy environment, adding the requirement that national economic development shall be organised based on the principles of sustainable and environmentally friendly development. In fact, however, the quality of the country's environment is currently declining and has threatened the survival of human life and other living things. There is a need for all stakeholders to undertake efforts for nature protection and environmental management on a serious and consistent basis. Globally, climate change is exacerbating environmental degradation, enhancing the need for protection and management of the environment. Further legislation seems to be needed, in order to protect, with legal certainty, the right of every person to a good and healthy living environment and to enhance public welfare and achieve happiness (based on the Pancasila philosophy).<sup>1</sup> Such legislation should focus on implementing environmentally sustainable development, guided by an integrated and comprehensive national policy that will take into consideration the needs of both present and future generations.

### Acts Related to Climate Change

In Indonesia, climate change has been addressed through Act Number 6 Year 1994, Act Number 23 Year 1997, Act No.17 Year 2004, Act No.25 Year 2004, Act No.1 Year 2009, Act No.32 Year 2009, and Presidential Regulation No.46 Year 2008.

### Forest Fires in Indonesia Relevant Legislation

Act No.32 Year 2009 amended Act No.23 Year 1997 and provides, among others, general provisions; principles, objectives and scope; planning; utilisation; control; maintenance; management of hazardous and toxic substances and waste; information systems; duties and authorities of the government and local government; rights, responsibilities and prohibition; role of people;

monitoring and administrative sanctions; settlement of environmental disputes; investigation and evidence; criminal indictment; transition and closing provisions.

### Crime Against Humanity

Indonesia is the world's largest producer of palm oil and intentional fires are frequently lit in connection with its production, to clear the land. The resulting haze is an annual headache. A prolonged dry season, at least partly a result of the current *El Niño* phenomenon, have made the situation far worse. The forest fires have caused the air to turn a toxic sepia colour in the worst-hit areas of Sumatra and Kalimantan. Levels of the international pollutant standards index (PSI) are pushing 2,000 (PSI above 300 is considered hazardous). This high PSI endangers local fauna – animals have been forced to flee the forests (Lamb, 2015).

Haze has caused the schools in neighbouring countries such as Singapore and Malaysia to shut down, flights to be grounded and events to be cancelled. In addition, Indonesia's forest fires also threaten at least a third of the world's wild orangutans. In the worst affected areas – on the resource- and forest-rich islands of Sumatra and Kalimantan – ten people died from haze-related illnesses in 2015 and more than 500,000 cases of acute respiratory tract infections were reported (*ibid.*). The fire situation appears to be a crime against humanity of extraordinary proportions.

### Impacts of Indonesia's Forest Fires

Forest fires and the resulting haze have caused Indonesia and neighbouring countries significant economic, social and environmental costs. The information on the 2015 fires is used below as an example.

#### Economic Costs

Indonesia's forest fires and the ensuing haze crisis have imposed huge costs on the economies of the countries involved, and impacted the health, education and livelihoods of millions of Indonesians living in the areas with the worst burning. The lack of fire-suppression systems in the forests and plantations, and the sheer size of the areas compound the problem. Poor accessibility is another factor.

Estimates of the total economic costs of the forest fires of 2015 alone exceeded US\$16 billion. This estimate includes losses to agriculture, forestry, transport, trade, industry, tourism and other sectors; direct damage/losses to crops, forests, houses and infrastructure; and the cost of responding to the forest fires. Many of the economic losses resulted from the disruption of air, land and sea transportation due to the haze. From the outset it was expected that these damages would have a serious impact on the economic growth rate of affected provinces and the government's efforts to reduce poverty in the hardest-hit regions, such as Central Kalimantan.

#### Social Costs and Human Suffering

The Jambi Health Agency distributed 22,400 face masks to local residents who live nearby affected regions.

Meanwhile, at least seven areas in Peninsular Malaysia were plagued by air pollution, listed as unhealthy according to the Pollutant Standards Index. The areas affected were Nilai, Bukit Rambai, Port Dickson, Seremban, Batu Muda, Malacca and Banting.

Air quality in villages near the forest fires regularly exceeded the maximum tolerable level of 100 on the international PSI. The toxic smoke caused widespread respiratory, eye and skin ailments and was especially hazardous for the very young and the elderly. The toxic air included not only carbon dioxide, but also cyanide and ammonium. The statistics regarding long-term health impacts of the 2015 fires are still not compiled but are expected to be highly significant. In addition, businesses and schools closed due to the haze, crippling many low-income families and prompting them to fall back into poverty. In 2015, approximately five million students were impacted by school closures.

#### **Environmental Costs of the 2015 Fires**

More than 2.6 million hectares of forest, peat and other land burned in 2015. Fires occur throughout Indonesia and on all type of soils, but fires on peatlands are of particular concern as they cause up to 90 percent of the haze, releasing three to six times more particulate matter than is released by fires on other types of soil. Peatlands are concentrated in the lowland areas of Sumatra, Kalimantan and Papua, where the worst impacts of the fires and haze have been felt. Although burned peat areas can be restored, the short-term impact of their loss includes the destruction of timber, non-timber forest products and grazing lands, as well as the loss of habitat for pollinators and wildlife. While not yet fully analysed, the costs related to biodiversity are estimated to have exceeded US \$295 million. The long-term impact on wildlife and biodiversity is also not fully known, but thousands of hectares of habitat for orangutans and other endangered species were destroyed. Forest and peat fires are a major source of GHG emissions. In October 2015, daily emissions from Indonesia's forest fires reportedly exceeded the emissions from the entire US economy – more than 15.95 million tons of CO<sub>2</sub> emissions per day. If Indonesia could find a way to prevent and promptly suppress its frequent fires, it would meet its stated target of reducing its GHG emissions by 29 percent by the year 2030.

#### **Flight Cancellations and State of Emergency**

Thousands of forest fires caused by slash-and-burn farming suffocated vast expanses of Southeast Asia, disrupting commercial flights at local airports, including Juanda Airport in Surabaya and Lombok International Airport.

Forest fires in Sumatra and Kalimantan generated thick clouds of smog across the Straits of Malacca to Malaysia. Thirteen out of 16 of the airports in the area were closed. Ten of the closed airports were in Kalimantan, the other three in Sumatra, Aceh and Riau provinces. Flights were delayed for several hours or cancelled at Medan's Kuala Namu International Airport,

Hang Nadim International Airport in Batam and Pekanbaru's Sultan Syarif Kasim II International Airport, when smog reduced visibility to 50–100 metres at the airports.

In Malaysia, delay or cancellation of flights at Kuala Lumpur International Airport, Penang Airport, Senai Airport in Johor Baru and Kuching Airport were reported, due to poor visibility. At Kuching Airport, visibility fell to 400 metres forcing the cancellation of 26 flights. Changi International Airport in Singapore did not escape the effect either, as the Civil Aviation Authority of Singapore increased the allocated space between departing and landing aircraft. The visibility on both runways fell to less than 1,500 metres, but although the airport delayed many flights, it did not cancel any.

The haze sent air quality in Singapore and Malaysia into hazardous territory, with the three-hour PSI reading in Singapore reaching 121 (in earlier years, it went even higher – in June 2013 it reached 401).

Indonesia's haze crisis caused schools in neighbouring countries to shut down, events to be cancelled and Indonesian products to be boycotted, as millions tried to avoid the intense smoke.

#### **Efforts to Fight the Fires**

The government of Indonesia deployed as many as 30 aircraft and 22,000 troops to fight the fires on the ground, and stationed several warships from Kalimantan on standby to evacuate victims if required. On land, firefighting operations were carried out in Jambi. However, the teams had difficulty finding water sources, and only limited access to equipment.

In addition, countries such as Australia, Canada, Malaysia and Singapore also sent aircraft, for water bombing and other means of firefighting, although at times water-bombing operations had to be cancelled due to limited visibility.

#### **Australia**

On 12 October 2015, Australia's L-100 Hercules aircraft arrived at Sumatra. It operated for five days in South Sumatra then returned to fight fires in New South Wales (see Djajaputra *et al.*, at 11). In addition, the Australian government sent a Lockheed L 100-30 Hercules aircraft to Sultan Mahmud Badaruddin II Airport in Palembang, from which it was deployed to extinguish forest fires (*ibid.*).

#### **Canada**

Canada sent Canadian-made CL-215 bombers, which Indonesia viewed as “game-changing” in the fight against the Kalimantan and Sumatra forest fires. These amphibious aircraft have a solid track record in firefighting operations across Europe and North America (*ibid.*). They can land on a river, lake or sea to scoop up a very large amount of water and then take off again. They were each able to douse fires over an area of 1–1.6 hectares at a time. With just one strike, fires were gone (Wahyudi Soeriaatmadja, 2015; Sutopo Purwo Nugroho, 2015).

### Malaysia

Malaysian Prime Minister Najib Razak made a formal statement that he considered the haze a serious issue and a burden on Malaysians as well as Indonesians. As a result, Malaysia's Maritime Enforcement Agency dispatched one Bombardier CL 415 amphibious aircraft, one Hercules C-130 aircraft and a survey helicopter to assist in dousing the fires. The Bombardier amphibious aircraft uses a water-bombing technique capable of putting out a fire the size of a football pitch. It operated seven hours a day to put out the fires consuming large swathes of forest in South Sumatra, whilst the Dauphin helicopter was used as a fire spotter.

Another C-130 from Malaysia's Air Force ferried logistics to South Sumatra where a 25-member team was stationed for a week-long operation that was estimated to cost the Malaysian government up to 1.7 million ringgit (more than US\$ 400,000) (Hishammuddin Hussein, 2015).

### Singapore

Singapore's Ministry of Foreign Affairs provided an assistance package including a Singapore Civil Defence Force, a firefighting assistance team, a C-130 aircraft for cloud-seeding and a Chinook helicopter equipped with a water bucket for aerial firefighting. This assistance enhanced the 25,000-person force that Indonesia had deployed to little effect up to that point. In Palangka Raya and Sumatra, the continued very high PSI inhibited aircraft operation. Firefighting helicopters were unable to water-bomb certain areas due to very low visibility.

### Russia

Russia sent two amphibious aircraft water-bombing planes. These Russian-made aircraft, the Beriev Be-200s, can scoop 12,000 litres of water from rivers, lakes or the sea and dump it over the fire. Russia took over from Malaysia and Australia, when they both ended their five-day missions. The Beriev Be-200s can carry up to 37,200 kg of water and fly up to 3,850 km without refuelling.

## Tourism and Climate Change

Tourism has long been a major contributor to Indonesia's economy. In 2013, a total of 9.73 million international visitors entered Indonesia, staying in hotels for an average of 7.5 nights each and spending an average of US\$ 1,142 per person during their visit, or US\$152.22 per person per day (Indonesia-Investments, 2014).

The *Travel and Tourism Competitiveness Report 2015* (World Economic Forum, 2015) ranked Indonesia 50<sup>th</sup> of 141 countries studied. It ranked the price competitiveness of Indonesia's tourism sector as 3<sup>rd</sup>, noting that Indonesia had quite good travel and tourism policies and enabling conditions. The country also scored quite high on ratings of natural and cultural resources. However, the country scored rather low in the infrastructure sub-index (ranked 75<sup>th</sup>), as some aspects of the tourist service infrastructure are underdeveloped.

At that point, the government was reported to be investing in tourism development by attracting more foreign investors. Priority investment areas were reported to be Java, Sumatra, Bali, Sulawesi, North Maluku, West and East Nusa Tenggara, Tanjung Kelayang and Belitung. As quoted in the *Jakarta Post*, the government was aiming for 275 million visits by domestic tourists by the end of 2019, and had secured commitments from potential investors, totalling US\$ 70 million towards the construction of accommodation, marinas and ecotourism facilities in three of those areas (Desy Nurhayati, 2016).

### Impact of Climate Change on Tourism

About 20–30 percent of flora and fauna species will become extinct if the global average temperature rises by 1.5°C; this toll will increase to 40–70 percent of species, were the temperature increase to reach 3°C. GHG emissions, which are primarily attributable to forestry and energy, are widely described as the main contributors to global temperature increases. The forestry sector accounts for as much as 75 percent of the total GHG emissions produced in Indonesia, whilst energy and transportation contribute less than 23 percent. The rise of sea level in Indonesia has also caused changes of water current, damages to mangrove forests, and enhanced the intrusion of sea water onto land. It has also caused the loss of small islands.

### Initiative in Response to Climate Change

Indonesia's ministries have joined forces to respond to these challenges through the climate change reduction initiative. The country hosted the 13<sup>th</sup> UN Framework Convention on Climate Change Conference of the Parties in Bali in 2007. By 2020 Indonesia intends to reduce GHG emissions by 26 percent. To that end, it developed the Indonesia Climate Change Sector Roadmap which provides set national goals, sector targets, milestones and priorities for actions with regard to adaptation and mitigation of climate change for all affected sectors such as water, agriculture, marine and fisheries, health, energy, forestry and peatland, waste, industry and transportation. The Roadmap will serve as detailed policy guidance and a mainstreaming tool for the sectors and cross-sector development programmes to take up climate change issues in all aspects of development planning.

### Programmes, Projects and Other Initiatives

At least six programmes in Aceh and Bali address these concerns, including the Pangandaran programme, the Environmentally-friendly Hotel programme, the Indonesia Eco Tour Alliance (IETA) and the Forest Rehabilitation Programme. Several are developed under the UN-originated Programme to Reduce Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+), as well as its Coral Triangle Initiative, and coral reef rehabilitation and management programme (COREMAP). The Ministry of Forestry implements REDD+ and a reforestation programme known as the One Billion Tree Programme. Action plans with regard to the Coral Triangle Initiative include

identification of country and priority seascapes, the development of a marine protected areas network, an alternative livelihood programme, and the establishment of a rapid alert system for marine biodiversity in the coral triangle. Based on COREMAP, Indonesia initiated a long-term project to protect, rehabilitate and achieve sustainable use of the Indonesian coral reefs and their associated ecosystems which will enhance the welfare of the coastal communities.

The Ministry of Culture and Tourism (MOCT) supports and encourages all such initiatives in the tourism sector. MOCT has been focusing its contribution in three major initiatives, which have been recognised by policy and regulation, as provided in Law No.10 of 2009 on Tourism, which underlines the importance of sustainable tourism development for Indonesia. In addition, programme and project work includes World Tourism Organization (UNWTO) work on Tourism Development Supporting Biodiversity Conservation and the UNWTO Energy Efficiency for Sustainable Tourism project in Pangandaran.

#### **Aceh and Bali**

“Aceh Green” is the progressive vision of the provincial government of Aceh with regard to new development. It highlights the consideration of sustainable use of natural resources and equitable distribution of benefits to local communities. One of its programmes plans and supervises the involvement of the Aceh government in REDD+, particularly in carbon trading. It also focuses on the management of environmental services.

Similarly, the more recent “Bali Green Province” (BGP) initiative reflects the commitment of the provincial government of Bali, in conjunction with its district and city governments, private sector, NGOs, academics and local community groups. It aims to enable Bali to be recognised as a clean, healthy, comfortable, beautiful and sustainable destination for tourists. BGP has developed three core programmes known as “Green Economy”, “Green Culture” and “Bali Clean and Green”.

#### **Pangandaran**

As a major tourism destination in West Java, Pangandaran faces both opportunities and threats from tourism. Continuous degradation of natural resources and cultural values are perceived to be the cost it has to pay for its tourism prominence. Supported by UNWTO and MOCT, the local community of Pangandaran and the local government of Ciamis have initiated tourism planning which combines environmental concerns and biodiversity conservation in its activities for tourism development. Local community groups have started adaptation initiatives by developing “coral reef adoption” tours for tourists. UNWTO and MOCT provided support for these efforts until 2012, developing mitigation measures through an energy-efficiency programme, as well as working with local hotels, tour operators and business activities.

The project “Sustainable Tourism through Energy Efficiency with Adaptation and Mitigation Measures” in

Pangandaran (STREAM) began following the 2006 tsunami – a collaboration between UNWTO and the Indonesian Ministry of Tourism and Creative Economy (IMTCE), which have been working together in Pangandaran to revitalise tourism to the area (World Tourism Organization, 2014). With an investment of US\$ 1.7 million, the project aims to significantly increase the climate change resilience of Pangandaran and the competitiveness of its tourism sector, thereby serving as a model to be adopted and replicated in other destinations in Indonesia. It is part of the International Climate Initiative, supported by what was the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. This initiative supports climate protection projects worldwide in developing, newly industrialising and transition countries in order to contribute effectively to emission reductions, and mitigation and adaptation to climate change. STREAM is one of the central elements of “project Pangandaran”. According to Márcio Favilla Lucca de Paula, UNWTO Executive Director for Competitiveness, External Relations and Partnerships, STREAM is a practical example of how the tourism sector can engage local communities to be part of a sustainable solution in adapting to climate change. In addition, the STREAM project also provides seminars and workshops to increase the knowledge of local tourism stakeholders on climate change response, capacity building on energy efficiency, renewable energy technologies and energy management systems for hoteliers, as well the rehabilitation of mangroves and coral reefs by locals and tourists as a means to naturally capture and store carbon emissions.

On 5–7 May 2014, the STREAM project supported the efforts of those in the tourism sector in West Java to reduce the area’s energy footprint and promote climate adaptation. STREAM is thus a practical example of how the tourism sector can engage local communities to be part of the solutions to fight climate change.

The project’s achievements include the implementation of energy-efficiency and renewable-energy measures in several hotels and restaurants, and the development of a Low Carbon Planning Software Tool that helps to visualise and develop low-carbon tourism in the area. In addition, the project has also launched comprehensive rehabilitation programmes to restore and protect Pangandaran’s mangrove forests and coral reefs – over 1,400 coral segments and 38,000 mangroves were planted with high rates of success (*ibid.*).

The Mangrove Ambassadors Programme (MAP) in Pangandaran is another key project. It is part of a joint project of UNWTO and the IMTCE, supported by the government of Germany, and aims to promote climate change mitigation and adaptation measures. Through this programme, at least 451 school-age participants have urged global tourism leaders to take climate change seriously, taking into account that climate change is affecting their daily lives at Pangandaran tourism destinations (World Tourism Organization, 2013). Their handwritten letters were delivered by Sapt Nirwandar, the Indonesian Vice-Minister of



Tourism and Creative Economy during the presentation of the STREAM project at ITB Berlin, explaining how the school children are impacted by climate change. In her letter, Tiara Citra Dewi, a 14-year-old student, expressed her hope that the global leaders can do something against climate change.

In addition to promoting their letter-writing campaign, the MAP involved school children in planting and monitoring mangroves as an innovative way to promote a local and long-term sustainable solution to climate change adaptation. Through such programmes, Indonesia's future generations become not only an active part of the fight against climate change in their communities but also the voice of this movement amongst the older generations.

These projects epitomise the engagement of local communities. More than 2,000 people from various organisations and community groups are currently involved in mangrove conservation, including 450 school children. As of April 2014, most project initiatives were fully or partially run and monitored by local partners.

According to Favilla Lucca de Paula, climate change is not a remote event for tourism, rather it is a recognised phenomenon that already affects the sector. He cited the results achieved by STREAM, as an exceptional example of how tourism can be an effective tool in the fight against climate change, protecting natural resources while leading to inclusive development of local communities and fruitful cross-sector cooperation. In particular, STREAM has promoted several green tourism activities, seeking to engage tourists visiting Pangandaran in the fight against climate change. By experiencing Pangandaran in solar-powered boats or on locally produced bamboo bikes and actively participating in mangrove planting, tourists get a deeper understanding of their impact and how sustainable tourism can benefit host communities.

The STREAM project has also launched an initiative intended to stimulate behaviour change by rewarding hotel guests who adopt climate-friendly actions during their stay. For example, those who reuse towels (rather than requiring them to be laundered every day) receive a complimentary mangrove planting voucher. Since 2011, STREAM has been developing a global approach to low-carbon tourism in Pangandaran. The project will function as a lighthouse example in the fight against climate change which can be replicated in other destinations.

#### ***The "Environmentally Friendly Hotel" Programme***

There are quite a number of environmentally friendly hotels operating in Indonesia. These range from international chain hotels that have received international awards to local chains and even small independent lodges. For example, the Gran Melia Jakarta received the Green Globe 21 Benchmarked Certificate (2004) under the new Green Globe 21 certification programme. It has implemented a series of mitigation measures, covering its energy and water consumption, and its waste

production and disposal. It is also implementing an integrated environmental and social policy.

Ecolodge – a local chain – is deeply committed to the conservation of this rich biodiversity area. All five of its lodges try to implement modest mitigation measures, whilst also contributing to adaptation initiatives by putting a percentage of revenue towards developing and supporting a range of conservation projects in the surrounding areas. Similar initiatives have also begun in other lodges.

#### ***Indonesia Eco Tour Alliance***

The IETA initiatives arise from the concern of tour operators regarding the degradation of the quality of natural resources and its impact on nature-based tours in Indonesia. This alliance is a network of Indonesian tour operators, who are selling environmentally and community friendly tours. Both mitigation efforts and contribution to adaptation initiatives are applied in their tours. The tours follow the standard for ecotourism. IETA members include Sumatra Ecoventure (North Sumatra), PT Indonesia Ecoventure (Jakarta), Indonesia Ecotravel.com, Pabebo Tours (South Sulawesi), Likes Tour (Moluccas), Tngkoko Eco Guide (North Sulawesi) and many others.

#### ***Forest Rehabilitation Programme***

The Borneo Orangutan Survival Foundation (BOS) is an Indonesian non-profit environmental organisation established in 1991 in Balikpapan, East Kalimantan. The Forest Rehabilitation Programme is located in Kutai Kartanegara, particularly in four villages (Margomulyo, Sei Merdeka, Amburawang Darat and Tani Bakti). The programme covers 1,852.63 hectares of which 983.24 hectares are covered by a Right to Use Certificate issued by the National Land Agency Board. This latter programme was initiated by the BOS Foundation, in conjunction with local government.

#### ***International Events Related to Tourism and Climate Change***

The UNWTO has partnered with UNCTAD, the United Nations Conference on Development and Trade, to present the Annual Report on Economic Development in Africa at UNWTO's Headquarters in Madrid. The 2017 edition focuses on tourism as a catalyst for transformative and inclusive growth on the continent, and underlines the immense potential of the sector. Recently, from 9 June 2017 to 4 July 2017, there have been several notable events related to tourism and climate change (World Tourism Organization, 2014).

One of these is particularly relevant to Indonesia. From 21–23 June, the UNWTO's Manila Conference set a roadmap to measure sustainable tourism. Nearly 1,000 experts from over 80 countries convened to lay the groundwork for an expanded statistical framework to measure sustainable tourism in its economic, social and environmental dimensions. The outcome, "Call for Action on Measuring Sustainable Tourism", represents a global commitment to sustainable tourism and the need

to measure it through a consistent statistical approach recognising that effective sustainable tourism policies require an integrated, coherent and robust information base.

## Conclusion

Almost ten million international visitors entered Indonesia in 2015. The country not only gains income from these visitors, but is well rated with regard to its travel and tourism policies, and its natural and cultural resources, thereby attracting foreign investors. Clearly, tourism is expected to develop in Indonesia as a source of foreign income. It remains keen to increase domestic tourism, and still aims to log 275 million trips by domestic tourists by end of 2019. Global climate change has a significant potential impact on the tourism industry. On the one hand, tourism growth can increase GHG emissions, while on the other, the serious climate impacts resulting from the country's forest-fire problems may affect its desirability as a tourism destination. Thus, Indonesia's need to mitigate, suppress or prevent the forest fires, physically as well as legally, is one part of a larger programme on climate mitigation, including measures to protect, rehabilitate and achieve sustainable use of the Indonesian coral reefs and their associated ecosystems which will enhance the welfare of the coastal communities in the long term.

Indonesia is on the right track. The government should continue and strengthen its efforts to facilitate the development of its tourism industry to achieve sustainable tourism, in a manner which will enhance the social and environmental welfare of its citizens.

## References

### Legislative Documents

- Act Concerning Ratification of the United Nations Framework Convention on Climate Change (Act No.6 Year 1994). State Gazette of the Republic of Indonesia No.42 Year 1994, Supplement State Gazette of the Republic of Indonesia No.3557.
- Act Concerning Environment Management (Act No.23 Year 1997). State Gazette of the Republic of Indonesia No.68 Year 1997, Supplement State Gazette of the Republic of Indonesia No.3699.

- Act Concerning Ratification of Kyoto Protocol to the United Nations Framework Convention on Climate Change (Act No.17 Year 2004). State Gazette of the Republic of Indonesia No.72 Year 2004, Supplement of State Gazette of the Republic of Indonesia No.4403.
- Act Concerning National Development Planning System (Act No.25 Year 2004). State Gazette of the Republic of Indonesia No.104 Year 2004, Supplement State Gazette of the Republic of Indonesia No.4421.
- Act Concerning Civil Aviation (Act No.1 Year 2009). State Gazette of the Republic of Indonesia No.1 Year 2009, Supplement State Gazette of the Republic of Indonesia No.4956.
- Act Concerning Protection and Management of Environment (Act No.32 Year 2009). State Gazette of the Republic of Indonesia No.140 Year 2009.
- Presidential Regulation Concerning National Council for Climate Change (Pres. Reg.46 Year 2008 [4 July 2008]).

### Others

- Djajaputra, G., Redi, A. and Martono, H.K. 2017. "The Civil Aviation, Climate Change Reduction and Legal Aspects of Forest Fires in Indonesia". *IOSR Journal of Applied Chemistry* 10(1): 33-47, available at [www.iosrjournals.org/iosr-jac/papers/vol10-issue1/Version-1/E1001013347.pdf](http://www.iosrjournals.org/iosr-jac/papers/vol10-issue1/Version-1/E1001013347.pdf).
- Haeril Halim. 2017. "Jokowi orders early fire prevention for 2017". *The Jakarta Post*, 23 January.
- Indonesia-Investments. 2014. "2013's Growing Number of Tourists in Indonesia Meets Government Target". 4 February.
- Lamb, K. 2015. "Indonesia's fires labelled a 'crime against humanity' as 500,000 suffer". *The Guardian*, 26 October, at <https://www.theguardian.com/world/2015/oct/26/indonesias-fires-crime-against-humanity-hundreds-of-thousands-suffer>.
- Desy Nurhayati. 2016. "Government prioritizes tourism development in 10 regions". *The Jakarta Post*, 6 September, at <http://www.thejakartapost.com/news/2016/09/06/government-prioritizes-tourism-development-10-regions.html>.
- Hishammuddin Hussein (Malaysian Defence Minister), speaking at the Subang Military Air Base in 2015.
- Sutopo Purwo Nugroho (Indonesian Disaster Management Agency), as quoted in 2015.
- Wahyudi Soeriaatmadja. 2015. Reporting on Jakarta and Shamon Teoh Malaysia on 5 October.
- World Economic Forum. 2015. *Travel and Tourism Competitiveness Report 2015*. Geneva: WEF. See "Country/Economy Profiles: Indonesia", at [http://www3.weforum.org/docs/TT15/WEF\\_Global\\_Travel&Tourism\\_Report\\_2015.pdf](http://www3.weforum.org/docs/TT15/WEF_Global_Travel&Tourism_Report_2015.pdf).
- World Tourism Organization. 2013. Press Release: "Indonesia's future generation pledges tourism leaders to fight climate change". PR No.: PR13014, at <http://media.unwto.org/press-release/2013-03-06/indonesia-s-future-generation-pledges-tourism-leaders-fight-climate-change>.
- World Tourism Organization. 2014. Press Release: "UNWTO-led project helps fight climate change in Indonesia". PR No.: PR14030, at <http://media.unwto.org/press-release/2014-05-06/unwto-led-project-helps-fight-climate-change-indonesia>.

### Notes

- 1 [According to Wikipedia, "Pancasila" is the official, foundational philosophical theory of the Indonesian State. The word is comprised of two Old Javanese words originally derived from Sanskrit: "pañca" (five) and "sīla" (principles). Ed.]



## Morocco

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# Environmental Communication in Moroccan Enterprises: Progress, Transition and Practice

by Nadia Haouari,<sup>i</sup> Abdelhadi Makan<sup>ii</sup> and Abderrahmene El Ghmari<sup>iii</sup>

Public awareness of environmental problems was initially a consequence of environmental disasters caused

by companies. From the Torrey Canyon oil accident in 1967 (Bellamy *et al.*, 1967) to Schweizerhalle in November 1986 (Giger, 2009), Seveso in 1976 (Consonni *et al.*, 2008) and Chernobyl in April 1986 (Berger, 2010), it is obvious that the environment has paid a heavy price for industrial growth.

This growth was accompanied by other threats, which are less spectacular, because they are diffused and less

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