

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).

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17 *Supra*, note 9.

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Indonesia

Forest Fires and Climate Change as They Affect Tourism

by Tundjung Herning Sitabuanaⁱ, Ahmad Rediⁱⁱ and H.K. Martonoⁱⁱⁱ

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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