

# RUNAWAY FIRES, SMOKE–HAZE POLLUTION, AND UNNATURAL DISASTERS IN INDONESIA\*

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**ABSTRACT.** Fires on Sumatra and Kalimantan have taken a heavy toll on Indonesia's remaining tropical forests. Drought exacerbates the fire hazard, but it does not cause the fires, most of which have been the result of inappropriate land-use policies and practices. Peatland fires have emitted vast quantities of smoke that periodically blanket large parts of insular Southeast Asia, impairing visibility, disrupting travel, hampering economic activity, and posing serious health risks. The development agenda of Indonesia's New Order regime paid scant attention to forest management, including the need to detect, control, and suppress unwanted fires. *Keywords:* drought, Indonesia, runaway fires, smoke-haze.

Tropical deforestation is continuing at a rapid rate. Between 1990 and 2000, close to 1 percent of the remaining natural tropical-forest cover of the world, or about 14.2 million hectares, was lost annually, according to a recent global survey, which found that conversion of tropical forest to permanent agriculture accounted for the bulk of the loss (FAO 2001). In addition, vast tracts of forest have been fragmented and degraded. Expanding road networks are a major cause of forest fragmentation, and they also open up intact forests to the depredations of pioneer farmers, loggers, hunters, invasive plant and animal species, and drought and fire. Especially in recent decades, as Johann Goldammer observes, anthropogenic fire has emerged as "a major driving force in the depletion and savannization of tropical forests" (1999, 1782). Nowhere is this trend more evident than in Indonesia, where fires during prolonged droughts have destroyed enormous tracts of rain forest and other vegetation. In addition to their destructive impact on forest resources, biodiversity, and indigenous peoples' homelands, out-of-control fires yield huge quantities of smoke. In 1997 and 1998, smoke from fires on Sumatra and Kalimantan (Indonesian Borneo) blanketed most of insular Southeast Asia, periodically disrupting transportation, hindering economic activity, and creating serious health risks.

Indonesia is the world's largest archipelago and one of its most biologically diverse regions (Myers and others 2000). With a total population of close to 219 million in 2004, it is the fourth most populous country on earth after China, India, and the United States (Population Reference Bureau 2004). Located in the humid tropics of island Southeast Asia, Indonesia boasts a greater area of tropical forest than does any other country except Brazil and the Democratic Republic of the Congo (formerly Zaire). Since about 1950, however, the forest-covered area has declined from around 160 million hectares, or about 84 percent of the total land area, to

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