

# **A review on the driver of fires and associated biodiversity impacts in Southeast Asia**

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## **Abstract**

Peatland ecosystem in Southeast Asia has seen significant deforestation and degradation in recent decades. The clearance of natural forests for agricultural land followed by drainage has become a substantial issue in peatlands. Peat fires are the primary cause of smog or transboundary haze, biodiversity loss, and increased greenhouse gas (GHG) emissions. This review study aims to identify best management practices in managing peatland ecosystems in Southeast Asian countries. Initial findings suggest that excessive draining (via canal construction), fires, logging, and land conversion are the primary sources of peatland degradation. Furthermore, conflict over land as an essential source of livelihood has impacted the peatlands. Peatlands' economic use necessitates planned after-use, such as agriculture, forestry, recreation, wildlife habitat, and biodiversity protection (nature conservation). This will almost certainly require some form of restoration or rehabilitation, such as rewetting to raise water tables. There is a lack of understanding of the function of peatlands, resulting in peatland management that does not align with the ecological functions of peatlands. ASEAN member countries have been conducting peat restoration activities and for them to run effectively, efficiently, and economically, there is a need to understand and apply the required technical principles. Peatland restoration should return degraded peatlands to conditions that are as close to natural as possible within practical constraints and at a reasonable cost. As part of after-use plans, carbon emission reduction and sequestration projects should be assessed for feasibility and options included.

**Keywords:** Keywords: best practices, peatland, Southeast Asia

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