

Fire, Smoke, and Haze

The ASEAN Response Strategy

EXECUTIVE SUMMARY

Edited by S. Tahir Qadri

This publication was prepared by staff and consultants of the Asian Development Bank. The analyses and assessments contained herein do not necessarily reflect the views of the Asian Development Bank, or its Board of Directors or the governments they represent, or the Association of Southeast Asian Nations, or its Member Countries.

The Asian Development Bank and the Association of Southeast Asian Nations do not guarantee the accuracy of the data included in this publication and accept no responsibility for any consequences for their use.

In this publication, the term “Country” does not imply on the part of the Asian Development Bank or the Association of Southeast Asian Nations any judgment as to the legal or other status of any territorial entity.

© Asian Development Bank 2001

ISBN No. 971-561-338-1
Stock No. 121300

Published by the Asian Development Bank
P.O. Box 789, 0980 Manila, Philippines

Printed in the Philippines

For more information on ADB, visit <http://www.adb.org>

Contents

<i>Message</i>	iv
<i>Foreword</i>	v
<i>Acknowledgements</i>	vi
<i>Abbreviations and Acronyms</i>	1
<i>Background</i>	2
Southeast Asian Fires and Haze	2
Underlying Causes	2
Direct Causes	2
Contributory Factors	3
Indirect Factors	3
Impacts	4
Responses	5
Role of the Asian Development Bank	5
<i>Looking Ahead</i>	16
<i>Conclusions</i>	18

Message

1997 and 1998 were crisis years for the Association of Southeast Asian Nations (ASEAN). The financial turmoil that hit ASEAN countries' economies during this period was compounded by the haze that enveloped a good part of the region. The pernicious practice of burning forests to clear land for commercial purposes and the unusually dry weather that caused even the earth to catch fire combined to produce a pall of catastrophic proportions. The loss in terms of agricultural production, transportation, tourism, and other economic endeavors has been estimated at more than \$9 billion. The cost to human health, loss of biodiversity, destruction of forests, and general environmental degradation is immeasurable.

ASEAN's response was swift. ASEAN Ministers met frequently to draw up measures to deal with the problem. They adopted a Regional Haze Action Plan (RHAP), with corresponding national action plans and implementation measures, prescribing urgent action on three fronts—monitoring, prevention, and mitigation. Resources were mobilized and action undertaken to carry out these plans.

The ASEAN Specialized Meteorological Centre in Singapore has been strengthened to more effectively detect hot spots, predict the weather, and provide early warning of fires. Firefighting mechanisms have been organized in fire-prone areas and operational exercises have been carried out. Meetings with plantation owners and forest concessionaires have been organized to impress upon them the seriousness of the zero-burning policy that ASEAN has adopted. And the ASEAN Secretariat has set up a special unit to coordinate efforts to deal with the haze problem. Meanwhile, in the long term, the ASEAN Environment Ministers have agreed to work on an ASEAN Agreement on Transboundary Haze Pollution.

In all this, ASEAN has received the support of the Asian Development Bank (ADB), Global Environment Facility (GEF), United Nations Environment Programme, United Nations Development Programme, individual governments, and nongovernment organizations (NGOs).

This publication, a joint effort of ADB and ASEAN, brings together the current knowledge about land and forest fires, examines their causes and impacts with particular reference to Southeast Asia, and suggests what could happen in the future. It describes and assesses ASEAN's response to the haze phenomenon and the role of ADB and other international bodies. Finally, it lays down a blueprint for future national, regional, and global action to deal with the haze problem in Southeast Asia.

This work should, therefore, be of great interest to many—national governments, regional and international organizations, NGOs, and the media, which wrote so much about the disaster when it occurred but little about the measures that have been taken to address it.

I wish to extend to ADB ASEAN's congratulations and appreciation for this publication, a most valuable contribution to the reasoned discourse on a serious international problem, with constructive proposals for action to deal with it. I would also like to reiterate ASEAN's thanks to ADB for its unremitting support for ASEAN's response to the haze crisis. In so doing, I reaffirm ASEAN's commitment and resolve to ensure that this disaster does not happen again on such a devastating scale.

RODOLFO C. SEVERINO Jr.

Secretary-General

Association of Southeast Asian Nations

Foreword

Every year, millions of hectares of the world's forests are consumed by a large number of fires, resulting in billions of dollars in suppression costs and causing tremendous damage, health problems, and even deaths. The forest fires that have hit the Association of Southeast Asian Nations (ASEAN) countries, especially Indonesia, have been particularly severe, with the United Nations Environment Programme labeling the blaze of 1997-1998 among the most damaging in recorded history. The environmental, economic, and social dimensions and impact of these catastrophic fires, and the associated transboundary atmospheric haze pollution, were profound.

Most tropical fires are set or spread accidentally or intentionally by humans. When severe droughts over the last two decades have combined with large-scale logging in the rain forests and indiscriminate use of fire for land clearance, the results have been devastating. As a result of these and other contributory factors, all areas of ASEAN are prone to wildfires, which are likely to remain a serious threat for some time.

As a partnership for sharing experiences, information, responsibilities, and benefits, and working toward common good through joint efforts and approach, ASEAN is in a strong position to address its fire problem at the regional level. Following the 1997 fires, the affected ASEAN countries assumed a more operational stance toward the fire and haze disasters. Major initiatives in response to the 1997-1998 fires included national strategies for coordinated action and collaborative regional efforts. At the ASEAN level, a Regional Haze Action Plan (RHAP) was formulated and endorsed by the ASEAN Environment Ministers in Singapore on 23 December 1997. The adoption of this instrument has proved to be a turning point in the region's approach to preventing and mitigating the damage from recurrent fires and haze. The RHAP document is a reflection of ASEAN's determination to actively tackle the problem.

The Asian Development Bank (ADB) has been playing its part, supporting and catalyzing action to prevent and mitigate the impact of forest fires and haze. It has provided technical assistance at the regional level through the ASEAN Secretariat and advisory technical assistance at the national level to Indonesia.

Fire, Smoke, and Haze, of which this is an Executive Summary, is intended as a reference source and general guide for fire and haze management in the ASEAN region, primarily targeting policymakers and professionals at the regional level and in the ASEAN member countries, as well as in other donor countries and agencies. As such, it reviews the fire and haze situation in the region, but putting it into an overall global context. It draws on the findings of ADB's two related technical assistance projects, including lessons learned and proposals for follow-up in the short and medium term.

ADB stands ready to provide the necessary assistance at the regional as well as at the national level in support of the efforts aimed at addressing the underlying causes of forest fires and associated haze as documented in this publication. But it is important to recognize that the initiative and responsibility for successful implementation rest with the countries concerned. Regional organizations such as ASEAN can act as a facilitator and coordinator of bilateral or multilateral support, using its influence and capacity to mobilize intraregional cooperation and collaboration in dealing with the challenge. In this context, as the publication points out, the emphasis has to be on prevention, because as the old axiom goes, "prevention is better than cure."

ROLF SELROD ZELIUS

Chief, Office of Environment and Social Development

Asian Development Bank

Acknowledgements

This volume is the result of the work of a number of experts and institutions without whose support it would not have been possible to compile the enormous amount of information available and convert it into a concise publication. In particular, we would like to acknowledge the assistance and support provided by the ASEAN Secretary-General Rodolfo C. Severino Jr., ASEAN Environment Ministers, ASEAN Senior Officials on Environment, Haze Technical Task Force, ASEAN Secretariat, Regional Haze Action Plan Coordination and Support Unit, and ASEAN Specialized Meteorological Centre.

Special acknowledgement is due to the following for their efforts, in various capacities, as individual contributors or as members of various teams, in making this publication possible:

- 1. Erik Scarborough, Larry Maramis, Adelina Kamal, Riena Prasiddha, Vinca Safrani, and Conny Andryani, as members of the management unit, for their valuable contributions throughout the Project that led to this publication.*
- 2. Erly Sukrismanto, as Forest Fire Management Specialist; Djohan Widjaja as Information Management Specialist; John Low Kwang Keang as Atmospheric Sciences and Meteorology Specialist; John M. G. Hansen, Brian J. Graham, and Bruce J. Arthur, consultants for three AusAID-financed studies; and Raymond Yee, consultant for the ASEAN Haze Fund Study.*
- 3. Steffen Henkel and Lucia de Carlo, two interns from Passau University, Germany, who provided their assistance and support to the management team.*
- 4. The Panel of National Fire Management Experts from ASEAN member countries, who participated and provided technical inputs in many activities associated with the Project.*
- 5. C. Chandrasekharan, who compiled the first draft of the publication.*
- 6. Raman Letchumanan for his excellent suggestions to strengthen the publication.*

This acknowledgement would be incomplete if support of several regional and international institutions that collaborated with the Project during its implementation and beyond was not recognized. These include the Asia-Pacific Center for Environmental Law, EU-Forest Fire Prevention and Control Project, Global Fire Monitoring Center, GTZ-Integrated Forest Fire Management Project, Hanns Seidel Foundation, Indonesian Center for Environmental Law, and several donors, including AusAID, CIDA, JBIC, UNEP, US Agency for International Development; and institutions including the US Forest Service, NOAA, World Health Organization, World Meteorological Office, and WWF-Indonesia.

At the Environment Division of the Asian Development Bank, we would also like to acknowledge the efforts of ADB staff Elizabeth del Mundo, Ruby Arico, Vergel Latay, Julito Baldesimo, Emma Bides, Vicky Mabugat, and Helen Cruda in finalizing the publication. ADB consultant Graham Dwyer worked as copy editor, and jointly on the design and typesetting with Segundo Dela Cruz, Jr.

S. TAHIR QADRI

Editor

J. WARREN EVANS

Manager, Environment Division