



# Fourth ASEAN State of the Environment Report 2009

The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967. The Member States of the Association are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam. The ASEAN Secretariat is based in Jakarta, Indonesia.

## Published by the ASEAN Secretariat

*For inquiries, contact:*

Public Affairs Office

The ASEAN Secretariat

70A Jalan Sisingamangaraja

Jakarta 12110, Indonesia.

Phone : (62 21) 724-3372, 726-2991

Fax : (62 21) 739-8234, 724-3504

E-mail : [public.div@asean.org](mailto:public.div@asean.org)

General information on ASEAN appears on-line at the  
ASEAN Secretariat Website: [www.asean.org](http://www.asean.org)



Japan-ASEAN Cooperation



The preparation of the Fourth ASEAN State of the Environment Report 2009 was supervised and coordinated by the ASEAN Secretariat. The following focal agencies coordinated national inputs from the respective ASEAN Member States: Ministry of Development, Negara Brunei Darussalam; Ministry of Environment, Royal Kingdom of Cambodia; Ministry of Environment, Republic of Indonesia; Water Resources and Environment Administration, Lao People's Democratic Republic; Ministry of Natural Resources and the Environment, Malaysia; Ministry of Forestry, Union of Myanmar; Department of Environment and Natural Resources, Republic of the Philippines; Ministry of the Environment and Water Resources, Republic of Singapore; Ministry of Natural Resources and Environment, Royal Kingdom of Thailand; and Ministry of Natural Resources and Environment, Socialist Republic of Viet Nam.

The ASEAN Secretariat wishes to express its sincere appreciation to the Government of Japan and the Hanns Seidel Foundation for the generous financial support provided for the preparation of this Report. The ASEAN Secretariat also wishes to express its sincere appreciation to the institutions, officials, experts, consultants, and many others who contributed to the preparation of the Report.

Every effort has been made to ensure the accuracy of the information presented, and to fully acknowledge all sources of information, graphics and photographs used in the Report. Any omissions or errors that may appear in this Report are unintended, and for which ASEAN, its Member States or the ASEAN Secretariat assumes no responsibility.

#### **Catalogue-in-Publication Data**

Fourth ASEAN State of the Environment Report 2009  
Jakarta: ASEAN Secretariat, October 2009

Main Report 194 pages, in CD-ROM.

333.705

1. Environment – ASEAN
2. Natural Resources – Economics
3. Resource Development – Consumption

ISBN 978-602-8411-27-1

Printed in Malaysia

The text of this publication may be freely quoted or reprinted with proper acknowledgement.

Copyright ASEAN Secretariat 2009

All rights reserved

#### **Cover Illustration:**

*ASEAN celebrated ASEAN Day 2009 with the theme "Green ASEAN", and the design used for publicity materials is reflected on the cover of this Report. This Report has also adopted the theme of "Green ASEAN".*

---

## FOREWORD

---



I am pleased to present the ASEAN State of the Environment Report 2009, the fourth in the series. The first report was published in 1997 and since then this series of reports published every three years has tracked the status and progress of environmental management in the region.

This report comes soon after the entry into force of the ASEAN Charter on 15 December 2008. The Charter represents a significant development in the long history of ASEAN which transformed the coalition of nations born out of the Bangkok Declaration of 1967 into a legal and rules-based entity. The Charter, among others, has emphasized that ASEAN shall promote sustainable development so as to ensure the protection of the region's environment, the sustainability of its natural resources, and the preservation of its cultural heritage and the high quality of life of its people.

ASEAN celebrated the 2009 ASEAN Day with the theme "Green ASEAN". The theme reflects ASEAN's commitment to build an environmentally sustainable ASEAN Community by the year 2015. The Roadmap for an ASEAN Community 2009 – 2015 lays out the goals, strategies and actions to achieve this goal based on the principle of sustainable development through the ASEAN Socio-Cultural Community Blueprint, the ASEAN Economic Community Blueprint, the ASEAN Political-Security Community Blueprint, and the Initiative for ASEAN Integration 2nd Work Plan.

Accordingly the Report takes a holistic approach in presenting the socio-economic conditions, the status and trends in the various environmental sectors, and what ASEAN is doing to promote environmental sustainability while placing priority on socio-economic development. In line with the theme of "Green ASEAN", the Report has focused on greening the ASEAN economy, highlighting how a sustainable and resilient economic base could be built from the rich natural resources of the region while at the same time ensuring social development and environmental sustainability.

The environmental performance of most ASEAN Member States, as assessed by reputable studies, is above the world average, and the ecological footprint is much lower than that of many nations. However, ASEAN will continue to face growing environmental challenges given the need to lift a third of its population earning less than US\$ 2 a day out of poverty, and the many other pressures exerted on the environment such as population growth, urbanization and industrialization.

Furthermore, many of the environmental problems in the region are exacerbated by developments outside the region. This Report has outlined what we have done and are committed to do in the future to promote environmental sustainability. Therefore this Report provides a useful reference for all parties to join hands with ASEAN to make the region and the planet a better place for our future generations.

I would like to express my sincere appreciation to all those who have been involved in the preparation of this insightful report. I would like to particularly thank the Government of Japan, and the Hanns Seidel Foundation for their generous financial support for this publication.

Thank you.

A handwritten signature in black ink, appearing to read "Surin Pitsuwan".

**Dr. Surin Pitsuwan**  
Secretary-General of ASEAN

---

## CONTENTS

---

Foreword		iii
Table of Contents		iv
List of Tables		v
List of Figures		vii
List of Boxes		viii
Acronyms and Abbreviations		x
Chapter 1:	Introduction	1
Chapter 2:	Geography, Climate and People	7
Chapter 3:	Society and Economy	16
Chapter 4:	Freshwater and Marine Ecosystems	30
Chapter 5:	Terrestrial Ecosystems	52
Chapter 6:	Atmosphere	66
Chapter 7:	Sustainable Consumption and Production	83
Chapter 8:	Global Environment Issues	102
Chapter 9:	ASEAN Environmental Management Framework	117
Chapter 10:	The Way Forward: Green ASEAN	143
Appendix I	Sources and References	158
Appendix II	Regular ASEAN Meetings on the Environment: 2006 – 2009	162
Appendix III	Preparation of the Fourth ASEAN State of the Environment Report	179

## LIST OF TABLES

	Page	
Table 1.1	The PSR Model for the Fourth SoER Framework	5
Table 2.1	Physical Geographical Features	11
Table 2.2	Population, Mid-2008	13
Table 2.3	Annual Population Growth Rate, 2008	14
Table 2.4	Population Density, 2008	14
Table 3.1	AMS's Rank Based on Human Development Index, 2005 & 2006	19
Table 3.2	Percentage of Population Below Poverty Lines, 2000 – 2007	20
Table 3.3	Prevalence of Malnourished Children below 5 Years Old, 2000 – 2007	21
Table 3.4	Production of Major Food Crops, 2000 & 2007	26
Table 3.5	ASEAN Trade in Selected Agricultural and Fishery Products, 2002 & 2006	27
Table 4.1	Total Internal Renewable Freshwater Resources, 2007	32
Table 4.2	Per Capita Water Resource Availability, 2007	33
Table 4.3	Water Use and Projected Water Demand for Selected AMS	33
Table 4.4.	Percentage of Population Using Improved Drinking Water Sources	37
Table 4.5	Percentage of Population Using Improved Sanitation Facilities, 2000 & 2006	37
Table 4.6	River Water Quality Monitoring Network in Selected AMS	38
Table 4.7	Concentration of Pollutants in the Dong Nai River Basin, Viet Nam, 2004	39
Table 4.8	Freshwater Fish Species (as of 2008)	40
Table 4.9	Mangrove Areas, 1980 & 2005	41
Table 4.10	The State and Distribution of Peatland in Selected AMS	42
Table 4.11	Wetlands of International Importance	44
Table 4.12	Total Fisheries Production, 2000 – 2007	46
Table 4.13	ASEAN Criteria for Marine Heritage Areas	47
Table 4.14	Marine Protected Areas (as of September 2009)	48
Table 5.1	Forest Areas, 2000 & 2007	54
Table 5.2	Protected Areas as Percentage of Total Land Area	55
Table 5.3	Protected Areas (based on IUCN Classification)	56
Table 5.4	Inventory of Recorded Species (as of 2008)	58
Table 5.5	Inventory of Recorded Endemic Species (as of 2008)	59
Table 5.6	Inventory of Recorded Threatened Species (as of 2008)	59
Table 6.1	Air Quality Status in Selected Cities in Indonesia, 2007	69
Table 6.2	Air Quality Status in Selected AMS	69
Table 6.3	Annual Average PM <sub>10</sub> at Three Locations in the Philippines, 2001 – 2007	71
Table 6.4	Phase Out of Leaded Gasoline	72
Table 6.5	Air Quality Management in Selected AMS	73
Table 6.6	Ambient Air Quality Monitoring Stations in Selected AMS	76
Table 7.1	Urban Waste Generation in Selected AMS, 2005 – 2008	85
Table 7.2	Municipal Solid Waste Composition in Selected AMS	87
Table 7.3	Solid Waste Management Facilities in the Philippines, 2005 – 2007	88
Table 7.4	RSPO Certified Palm Oil and Palm Kernels (as of May 2009)	95
Table 7.5	Rainforest Alliance Certified Farms (as of August 2009)	95
Table 7.6	FSC Certified Forest Areas	100
Table 8.1	Participation in the Vienna Convention, Montreal Protocol and Its Four Amendments (as of September 2009)	105
Table 8.2	Participation in UNFCCC and Kyoto Protocol (as of September 2009)	106
Table 8.3	Registered CDM Projects (as of September 2009)	107
Table 8.4	National Climate Change Institutional Framework	108
Table 8.5	Participation in MEAs Related to Conservation and Biodiversity	111

---

Table 8.6	CITES-Listed Species (as of September 2009)	112
Table 8.7	World Heritage Sites (as of September 2009)	112
Table 8.8	Status of National Biodiversity Strategies and Action Plans	113
Table 8.9	Participation in Chemical and Hazardous Waste-related Conventions (as of May 2009)	114
Table 9.1	Lead Countries/Chairperson for the Priority Areas of Cooperation on Environment	123
Table 9.2	Completed and On-Going Programmes and Activities to Control Transboundary Haze Pollution	128
Table 9.3	AMS National State of the Environment Reports	134
Table 9.4	Major Cooperative Activities with ASEAN Dialogue Partners, 2006 – 2009	141
Table 10.1	Environmental Performance Index for Selected AMS, 2008	147
Table 10.2	Ecological Footprint and Bio-capacity for Selected AMS, 2005	148

## LIST OF FIGURES

	Page	
Figure 1.1	Pressure-State-Response Model	4
Figure 2.1	Map of the ASEAN Region	9
Figure 2.2	Land Area of AMS	9
Figure 2.3	ASEAN Population Compared to Other Regions, Mid-2008	13
Figure 2.4	Crude Birth and Death Rates, 2006	14
Figure 2.5	ASEAN Population Projection & Urbanisation Rate	15
Figure 3.1	Trend in Human Development Index, 1980 – 2006	19
Figure 3.2	Gini Coefficient for Selected AMS, 1990 – 2007	21
Figure 3.3	Male and Female Adult Literacy Rate, 2007	23
Figure 3.4	Male and Female Labour Participation Rate	23
Figure 3.5	Unemployment Rate of People 15 Years and Above, 2000 – 2008	24
Figure 3.6	Rate of Economic Growth (GDP at Constant Price), 2000 – 2008	24
Figure 3.7	Per Capita GDP (ASEAN Average) at Current Market Prices, 2000 – 2008	25
Figure 3.8	Per Capita GDP at Current Market Prices, 2000 – 2008	25
Figure 3.9	GDP Share of Major Economic Sectors for Selected AMS, 2007	25
Figure 3.10	Percentage of Employment by Major Economic Sectors for Selected AMS	26
Figure 3.11	Production of Oil Palm Fruit by Major Producers, 2005 – 2007	27
Figure 3.12	ASEAN Primary Energy Consumption, 2008	27
Figure 3.13	Total Primary Energy Supplied to GDP Ratio in Selected AMS, 2006	27
Figure 3.14	ASEAN Growth Rate of Tourist Arrivals	28
Figure 3.15	Tourist Arrivals, 2000 – 2008	28
Figure 4.1	River Water Quality throughout Thailand, 2005 – 2007	38
Figure 4.2	Status of Water Quality in Malaysian River Basins	38
Figure 4.3	Percentage of Rivers Monitored in the Philippines for DO	39
Figure 4.4	Percentage of Rivers Monitored in the Philippines for BOD	39
Figure 4.5	Coral Reef Distribution in Southeast Asia	46
Figure 4.6	Total Extent of Marine Protected Areas in ASEAN, 1995 – 2007	48
Figure 6.1	Average SO <sub>2</sub> Concentration in Malaysia, 1998 – 2007	70
Figure 6.2	Annual Average PM <sub>10</sub> in Bangkok, 1995 – 2006	70
Figure 6.3	Annual Cumulative Hotspot Counts in Sumatra, January 2006 – April 2009	78
Figure 6.4	Annual Cumulative Hotspot Counts in Peninsular Malaysia, January 2006 – April 2009	78
Figure 6.5	Annual Cumulative Hotspot Counts in Borneo, January 2006 – April 2009	78
Figure 6.6	Annual Cumulative Hotspot Counts in Cambodia, Lao PDR & Viet Nam, January 2006 – April 2009	78
Figure 6.7	Annual Cumulative Hotspot Counts in Myanmar, January 2006 – April 2009	79
Figure 6.8	Annual Cumulative Hotspot Counts in Thailand, January 2006 – April 2009	79
Figure 6.9	Comparison of Observed Continental- and Global-scale Changes in Surface Temperature with Results Simulated by Climate Models Using either Natural or Both Natural and Anthropogenic Forcings	81
Figure 7.1	Municipal Solid Waste Treatment and Disposal Methods in Selected AMS	87
Figure 7.2	Industrial Waste Generation in Thailand, Singapore and Malaysia	90
Figure 8.1	Consumption of Ozone-Depleting CFCs, 1995 – 2007	105
Figure 8.2	Trend in Carbon Dioxide Emissions by Regions, 1995 – 2005	106
Figure 8.3	Total Carbon Dioxide Emissions, 2005	107
Figure 9.1	Environmental Cooperation in the Roadmap for an ASEAN Community 2009 – 2015	121
Figure 9.2	ASEAN Institutional Framework for Environmental Cooperation	122
Figure 9.3	ASEAN Institutional Framework for Cooperation on Transboundary Haze Pollution	122
Figure 10.1	EPI of AMS Compared to Selected Countries Outside the Region	147
Figure 10.2	ASEAN Population and Ecological Footprint	147

## LIST OF BOXES

		Page
Box 2.1	Ha Long Bay – A Unique Ecosystem	10
Box 2.2	Natural Hazards in ASEAN – The Case of Cyclone Nargis	13
Box 3.1	Progress in Achieving MDG 1 Target 1: Halve, between 1990 and 2015, the proportion of people whose income is less than US\$ 1 a day	20
Box 3.2	Poverty Eradication in Malaysia	22
Box 4.1	Water Conservation in Singapore	34
Box 4.2	Water Demand Management in Selected ASEAN Cities	36
Box 4.3	Community Participation in Mangrove Rehabilitation in Koh Kong Province, Cambodia – A Case Study	41
Box 4.4	Belait Peat Swamp in Brunei Darussalam	43
Box 4.5	Lower Kinabatangan-Segama Wetlands in Sabah, Malaysia	45
Box 4.6	Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security	48
Box 5.1	Heart of Borneo – Three Countries, One Conservation Vision	55
Box 5.2	Top Ten New Species Discovered in 2008	56
Box 5.3	Hornbills in Southeast Asia	57
Box 5.4	Conserving the Javan Rhino in Ujong Kulon National Park, Indonesia	60
Box 5.5	ASEAN Wildlife Enforcement Network	63
Box 6.1	Car Free Day in Indonesia	75
Box 6.2	Marikina City Bikeways in the Philippines	76
Box 6.3	Viet Nam’s “Master Plan of the National Natural Resources and Environment Monitoring Network to 2020”	77
Box 6.4	ASEAN Specialised Meteorological Centre	77
Box 7.1	Solid Waste Management in Bandung, Indonesia	86
Box 7.2	Semakau Offshore Landfill in Singapore	88
Box 7.3	Waste Collection System in the Philippines – Eco-Soldiers	89
Box 7.4	Thailand’s Strategy on Sustainable Consumption and Production	93
Box 7.5	Roundtable on Sustainable Palm Oil	94
Box 7.6	Energy Efficiency in Singapore	98
Box 8.1	Conservation and Restoration of the Angkor World Heritage Site	113
Box 8.2	E-Inventory for Malaysia	115
Box 9.1	Section D: Ensuring Environmental Sustainability, ASCC Blueprint 2009 – 2015	119
Box 9.2	ASEAN Leaders’ Declarations Related to Environment, 1981 – 2009	120
Box 9.3	ASEAN Environment Ministers’ Agreements/Declarations Related to Environment, 1981 – 2009	120

预览已结束，完整报告链接和二维码如下：

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_10525](https://www.yunbaogao.cn/report/index/report?reportId=5_10525)

