China-ASEAN Environmental Cooperation Center

China-ASEAN Environment Outlook 1 (CAEO-1)

Towards Green Development

Springer

China-ASEAN Environment Outlook 1 (CAEO-1)

China-ASEAN Environmental Cooperation Center

China-ASEAN Environment Outlook 1 (CAEO-1)

Towards Green Development

Springer

China-ASEAN Environmental Cooperation
Center
Beijing
China

ISBN 978-981-10-6210-0 ISBN 978-981-10-6211-7 (eBook)
https://doi.org/10.1007/978-981-10-6211-7

Jointly published with China Environment Publishing Group Co., Ltd., Beijing, China

The print edition is not for sale in China Mainland. Customers from China Mainland please order the print book from: China Environment Publishing Group Co., Ltd.

Library of Congress Control Number: 2017949133

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer Nature Singapore Pte Ltd.
The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

A China-ASEAN Cooperation Fund Project

Guided by:
Ministry of Environmental Protection of People's Republic of China

Supported by:
ASEAN Secretariat

Implemented by:
China-ASEAN Environmental Cooperation Center

Senior Advisory Group:
Xu Qinghua
Li Haisheng
Guo Jing
Song Xiaozhi
Tu Ruihe
Tan Qingrui
Zhang Jieqing

Working Group on China-ASEAN Environment Outlook:
Chair: Zhou Guomei
Core Members:
Shi Feng
Jiang Hongqiang
Su Yang
Ge Chazhong
Huang Haifeng
Zhang Jinhua (United Nations Environment Programme)
Lailan Syaufina (Bogor Agricultural University of Indonesia)
Coordinator: Peng Ning

Key Supporting Experts:
Peng Ning
Wang Yufei

Cheng Cuiyun
Wu Huanan
Lan Yan
Li Xia
Chen Gang
Xie Ran

Peer Reviewers:
Li Lailai (World Resources Institute)
Niramon Sutummakid (Thammasat University of Thailand)
Clarissa Arida (ASEAN Center for Biodiversity)
Sheila Vergara (ASEAN Center for Biodiversity)

ASEAN Secretariat:
Raman Letchumanan (Former Head of Environment Division of ASEAN Secretariat)
Natalia Derodofa
Rocky Pairunan

Foreword

The China-ASEAN Environment Outlook (CAEO) is supported by the China-ASEAN Cooperation Fund. Focusing on "Towards Green Development," it aims to carry out a comprehensive analysis of the status and progress of China-ASEAN green development and environmental protection, and look into trends of green development within the framework of global and regional environmental governance. This research report is prepared under the guidance and support of Ministry of Foreign Affairs, Ministry of Finance, and Ministry of Environmental Protection of People's Republic of China, approved and instructed by ASEAN Secretariat, and implemented by China-ASEAN Environmental Cooperation Center of Ministry of Environmental Protection.

To serve China-ASEAN Environmental Cooperation Strategy and Action Plan, and maintain the continuity and unique expert perspective of the research, it is necessary to build the Outlook into a flagship research report series. Research teams will choose topics of mutual interest and continue preparing and releasing China-ASEAN Environment Outlook in the future. Accordingly, this report is the inaugural edition, China-ASEAN Environment Outlook 1 (CAEO 1), marking an important starting point and achievement of China-ASEAN joint research.

In recent years, China-ASEAN cooperation has focused on economic fields, and gradually expanded to other fields including politics, security, culture, environment, forming a multi-level, wide-ranging, and all-round pattern. At present, China is building a moderately prosperous society and ecological civilization, and ASEAN is also accelerating the development of "green ASEAN" and rapidly pushing forward the integration process. Both sides have entered an important stage of development. China-ASEAN cooperation will also enter a new period of development.

Chinese Premier Li Keqiang depicted a new blueprint of "diamond decade" for China-ASEAN cooperation on the Seventeenth China-ASEAN (10+1) Leaders' Meeting in 2014, and further proposed "to jointly plan the grand strategy for China-ASEAN relations, jointly upgrade China-ASEAN FTA, accelerate the construction of interconnection network, carefully develop new points in maritime cooperation, make efforts to ensure security in both traditional and non-traditional fields, and

actively explore the new fields for humanities, environmental protection, science and technology cooperation". He in particular proposed "to start developing 'ASEAN-China Strategy on Environmental Cooperation (2016–2020)', and share the achievements of scientific and technological innovation and eco-construction, in order to significantly improve the livelihood in each country, greatly accelerate the poverty reduction process, and benefit the people of both sides."

As one of the priority areas of cooperation within the framework of China-ASEAN cooperation, environmental protection attracts high attention from both China and ASEAN Member States. In 2009, China and ASEAN adopted "China-ASEAN Strategy on Environmental Cooperation (2009–2015)", which determined the priority areas of cooperation. In 2010, the Chinese Government approved the establishment of China-ASEAN Environmental Cooperation Center. Subsequently, China and ASEAN have jointly developed and adopted "ASEAN-China Environmental Cooperation Action Plan (2011–2013)", "China-ASEAN Environmental Cooperation Action Plan (2014–2015)", and "ASEAN-China Strategy on Environmental Cooperation (2016–2020)" and identify the focus of cooperation covering policy exchange and dialogue, green envoy program, environmental industries and technical cooperation, joint research, etc.

Such global environmental and development progress as 2030 Agenda for Sustainable Development and Paris Agreement on climate change is moving forward, and the process of international environmental governance is also accelerating. It becomes a trend to strengthen regional environmental governance and cooperation and achieve sustainable development via green transition. As one of the world's most economically dynamic regions, in the process of launching and constructing China-ASEAN Free Trade Area (FTA), China and ASEAN have formed a basic consensus on the necessity to achieve regional sustainable development through vigorous green economic development and inclusive growth, and to achieve regional sustainable development. Undoubtedly, a series of environmental and resources challenges are emerging, including those brought by population expansion, resources consumption, urbanization acceleration etc.

According to China-ASEAN Environmental Cooperation Action Plan, China-ASEAN Environmental Cooperation Center put forward the project proposal for research and development of a China-ASEAN Environment Outlook in 2015. The application was approved by China-ASEAN Cooperation Fund. According to the project plan, China-ASEAN Environmental Cooperation Center and ASEAN Secretariat jointly organized experts from China and ASEAN Member States to prepare "China-ASEAN Environment Outlook", analyze and assess the current condition and future trend of environment and development in China and ASEAN, and propose research perspectives and expert opinions on how to promote sustainable development in the region.

With "Towards Green Development" as its theme, the first edition of China-ASEAN Environment Outlook (CAEO-1) consists of six chapters to examine the commonly concerned regional green development issues in China and ASEAN. Chapter 1 "Overview of Green Development" reviews the origination of green development and defines green development for the report; discusses green

development practices of different countries in the context of international development; and tries to use "pressure-state-response" (PSR) model to build an evaluation framework for green development. Chapter 2 "China-ASEAN Green Development Status" discusses in detail the current situation and key environmental issues in China's and ASEAN's green development, and makes a comparative study. Chapter 3 "Drivers, Features and Opportunities for Regional Green Development" sticks to the relationship between environment and development as a clue to describe development features of typical countries in the region and then analyzes the challenges and opportunities faced by various countries in achieving green development. Chapter 4 "Policy Measures for Regional Green Development" first reviews green development and environment-related policies and measures in China and ASEAN Member States and then makes in-depth analysis of typical policy measures and the associated benefits and limitations. Chapter 5 "China-ASEAN Green Development Practices" examines selected case studies on green industrial development, resource use, and climate strategies, pollution prevention and control, as well as biodiversity for China and ASEAN Member States including inter alia Thailand, Singapore, Viet Nam, the Philippines, and Cambodia. It provides basic information of background, effects, and implications of these cases, with the hope to inspire readers. Chapter 6 "An Outlook into the Future: Towards Green Transition" presents the forecasts of overall trends of environment and development in China-ASEAN region based on foregoing chapters, and puts forward policy recommendations on promoting cooperation on regional green development. On this basis, the Summary Report for Decision Makers is developed, which argues that the global 2030 Agenda for Sustainable Development brings significant opportunities to China and ASEAN Member States to deepen green development cooperation that the ongoing pragmatic cooperation should be pushed forward, including policy dialogue and exchange, environmental industries and technologies, capacity building, and green development best practices, and that the connection between "Belt and Road" initiative and green ASEAN Community should be established to achieve regional sustainable development.

It is hoped that the joint research of "China-ASEAN Environment Outlook" will build a knowledge-sharing platform to further promote understanding and consensus in the field of environmental development in China and ASEAN; at the same time, it provides relevant information and policy advice for implementing China-ASEAN environmental cooperation strategies and action plans, and promoting sustainable development in China and ASEAN Member States. Moreover, it is expected to depict a beautiful blueprint for and make a positive contribution to enabling China and ASEAN to achieve regional sustainable development.

Guomei Zhou
Feng Shi
Ning Peng

Acknowledgements

China-ASEAN Environment Outlook is funded by the China-ASEAN Cooperation Fund, and sincere gratitude goes to the Ministry of Foreign Affairs (MFA), Ministry of Finance (MOF), and Ministry of Environmental Protection (MEP) of People's Republic of China (PRC) and to the ASEAN Secretariat for their review and approval of the project under the Fund. Gratitude also extends to the Department of International Cooperation of Ministry of Environmental Protection of PRC and Environment Division of ASEAN Secretariat for their guidance; to the leaders and divisions for Policy Research, China-ASEAN Cooperation, Asia-Pacific Cooperation, General Affairs Management, and Technology Cooperation of China-ASEAN Environmental Cooperation Center (CAEC) of MEP for their support and advice for project implementation and research report; to Director General Li Haisheng and Deputy Director General Song Xiaozhi at the Department of International Cooperation of MEP for their great support and suggestion. Director General Guo Jing of China-ASEAN Environmental Cooperation Center has devoted many efforts to this project since its approval, offered valuable suggestions on project research and implementation, and proposed strategic, forward-looking recommendations during the research, which comprehensively enhances the level and depth of the report.

It should be noted that any views expressed in this publication are those of the authors and do not necessarily represent the views of any official bodies or institutions. The authors and their research teams shall take sole responsibilities for the consequences of this publication.

Contents

Abbreviations

ABO	ASEAN Biodiversity Outlook
ABS	Access and Benefit Sharing
ACCI	ASEAN Climate Change Initiative
AEC	ASEAN Economic Community
AEGE	ASEAN Expert Group on the Environment
ASCC	ASEAN Socio-Cultural Community
ASEAN	Association of Southeast Asian Nations
ASEAN-WEN	ASEAN Wildlife Enforcement Network
AMME	ASEAN Ministerial Meeting on Environment
AMS	ASEAN Member States
APMS	ASEAN Peatland Management Strategy
APRIL	APRIL Group
APSC	ASEAN Political-Security Community
AWGNCB	ASEAN Working Group on Nature Conservation and Biodiversity
BOD	Biochemical Oxygen Demand
CDM	Clean Development Mechanism
COD	Chemical Oxygen Demand
CPI	Consumer Price Index
DEWATS	Decentralized sewage treatment system
EEA	European Economic Area
EF	Ecological Footprint
EGS	Environmental goods and services
ENRAP	Environmental & Natural Resources Accounting Project
EPI	Environmental Performance Index
ESI	Environmental Sustainability Index
FAO	Food and Agriculture Organization
FSC	Forest Stewardship Council
FYP	Five-Year Plan
GBI	Green Building Index

GDP	Gross Domestic Product
GEO-6	Global Environment Outlook 6th Edition
GEP	Green Envoy Program
GHG	Greenhouse Gas
GMS	Greater Mekong Subregion Cooperation
GTI	Global Taxonomy Initiative
HCVF	High Conservation Value Forest
HDI	Human Developing Index
IAS	Invasive Alien Species
IEA	International Energy Agency
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IRP	International Resource Panel
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
LCCF	Low carbon city framework agreement and evaluation system
MBI	Market-based Instruments
MPAs	Marine Protected Areas
MRFs	Material Recovery Facility
MSW	Municipal Solid Waste
NBSAP	National Biodiversity Strategy and Action Plan
NEB	Net Environmental Benefit
NO_x	Nitrogen Oxides
NSCB	National Statistical Coordination Board
NSS	National Space Society
OECD	Organization for Economic Co-operation and Development
PECSME	Promoting Energy Conservation in Small and Medium Scale Enterprises
PM	Particulate Matter
PSEEA	Philippine System of Integrated Environmental and Economic Accounting
PSR	Pressure-State-Response
RCEP	Regional Comprehensive Economic Partnership
RDFPs	Refuse Derived Fuel Power Plant
REPI	Resource Environmental Performance Index
RHAP	Regional Haze Action Plan
RSPO	Roundtable on sustainable palm oil initiative
SAN	Sustainable Agriculture Network
SBMSP	Science-Based Management Support project
SCG	Siam Cement Public Company Limited
SCP	Sustainable Consumption and Production
SDGs	Sustainable Development Goals
SEC	Singapore Environment Council
SEEA	System of Integrated Environmental and Economic Accounting

SERIEE	European System for the Collection of Economic Information on the Environment
SGLS	Singapore Green Labelling Scheme
SO_2	Sulfur Dioxide
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
UMTNP	U Minh Thuong National Park
VOC	Volatile Organic Compounds
WCED	World Commission on Environment and Development
WDPA	World Database of Protected Areas

List of Figures

List of Tables

List of Boxes

Summary Report for Decision Makers

In September 2015, heads of governments around the world adopted the 2030 Agenda for Sustainable Development at the UN Sustainable Development Summit. Serving as a new global development agenda succeeding the Millennium Development Goals (MDGs), the 2030 Agenda highlights 17 Sustainable Development Goals (SDGs), with 169 associate targets, further emphasizing an integrated approach and comprehensive solutions toward coordinated economic, environmental, and social development. In December 2015, nearly 200 UNFCCC Parties adopted the Paris Agreement, which provides new institutional framework and arrangements for global response to climate change after 2020 and underpins the shift of global economy toward curbing emissions and strengthening resilience to climate change. These two milestone events indicate that the international community has already reached consensus on sustainable development with well-shaped philosophy, theory and corresponding institutional arrangements, and is moving toward the implementation phase. It also signifies the emergence of a new trend for global environmental governance.

China and ASEAN Member States have been making their best efforts in experimenting and implementing policies and practices of green development according to their own conditions. In the context of implementing the 2030 Agenda and the Paris Agreement, great potentials and opportunities will be released for China and ASEAN to boost regional environmental protection and development.

Overview of Green Development

Since entering the twenty-first century, the world has been experiencing increasingly serious environmental pollution and resource exhaustion, which results in a number of crises relating to climate, biodiversity, water, food, energy, and various resources. These stimulate constant reflections on the prevailing economic development model featuring "high energy consumption, high pollution, and high ecological damage" and give rise to thinking and research on a new development model. With the growing public understanding of links between economic activities, resources, and the environment, and in response to the 2008 financial crisis, green development came into being, as an effective approach toward economic

development, environmental protection, and social inclusion. China frames a development path with five concepts, i.e., innovation, coordination, green, opening and sharing, further contributing to the consolidated foundation of theory, institutional set-up and practice for green development.

Basic Features of Green Development: Resource Conservation, High Energy Efficiency, and Environmentally Friendly

This report defines green development as a model and institutional innovation based on traditional development, and a new development model and path in favor of resource conservation and environmental protection, established under the constraints of environmental capacity and resources carrying capacity.

With an overall aim to realize the coordination between economic development and resources and the environment, green development works to reduce the impact on resources and the environment while seeking economic growth. Green development will attain three objectives: (1) to address preferentially the problems of resources and environment facing mankind through energy conservation and emission reduction; (2) to improve resource efficiency and green competitiveness of industries by virtue of technological progress; and (3) to transform the economic development mode, adjust, and improve structure, and promote the green development of the economic system by means of green transition.

In essence, green development requires energy-saving and environment-friendly economic activities. It is directed at minimizing environmental load and impacts caused by economic activities through available and appropriate technologies and economic conditions, to finally control such load and impacts within the resource supply capacity and environmental self-purification capacity of ecosystems. It aims to ensure good ecosystem status and human health, and bring forth a virtuous cycle between socioeconomic activities and ecosystems. Specifically, green development focuses on "low consumption, low emission, and low pollution," and "high benefit, high carbon sink, and high cycle."

In the implementation process, green development shares the same goals with sustainable development. Green development enables the balanced development of economy, environment, and society through transformation of economic development models, reduction of resource consumption and pollution emissions, and promotion of social progress and fairness. Therefore, green development is an important means to tackle climate change and realize sustainable development.

Construction of Indicator Systems and Methods to Evaluate Green Development

The 2030 Agenda stresses the need to monitor and assess progress in implementing SDGs. In the same way, monitoring and evaluation are also conducive to advancing the process of green development.

Green development aims to coordinate economic growth and the carrying capacity of resource, environment, and ecosystems. Therefore, to evaluate how green the development could be and the degree of green transition, it should consider costs of consumption and pollution related to resources and environment caused by economic activities and explain stock and flows of resources (e.g., using