

Introduction: Enabling Asia to Stabilise the Climate

A Stable Climate Is a Common Asset for Humankind

The 5th Assessment Report (AR5) published by the Intergovernmental Panel on Climate Change (IPCC) in 2013 and 2014 revealed that temperatures will continue to rise as long as anthropogenic greenhouse gases (GHGs) are emitted into the atmosphere, and that the climate will not stabilise unless GHG emissions can ultimately be brought down to zero. AR5 also warned that we are in a critical situation, and if we continue to emit the current amounts of GHG, there is only 30-year quantity of GHG that can be emitted if we want to prevent a temperature rise less than 2 ° C from preindustrial levels.

A stable climate is a precious common asset for humankind. Local climates are incorporated into one comprehensive climate system at the earth's surface. Therefore, we cannot secure this common asset unless all countries take individual responsibility to deal with GHG emission reduction. Climate stabilisation is something that must be taken up by every country under the United Nations Framework Convention on Climate Change (UNFCCC).

A social transformation for climate stabilisation is the most significant world-wide challenge this century, and no country has experienced such a challenge before. We need to completely shift our social trend away from highly energy-dependent technology societies, a path that we have been on for 250 years since the Industrial Revolution, and turn our efforts in the direction of low-carbon societies within 50 years. Only then can we finally achieve zero-GHG-emission societies. There is not much time remaining to achieve this goal.

The Responsibilities and Role of Asia Are Vital

Asia has a very significant role and responsibilities for climate stabilisation. If Asia continues its current development in the form of highly energy-dependent societies, it is predicted that Asia will make up half the share of worldwide economic power, energy consumption, and carbon dioxide emissions in 2050. It is no longer possible for developing countries with their rapid economic growth to follow the path trod by developed countries to become highly energy-consuming technology societies. If the present infrastructure development and industrial investment follow the conventional pattern, developing countries in Asia will be locked in to a high-carbon-emission pathway for another half-century. Therefore, Asian countries themselves need to explore a path of development different from that followed by developed countries, and achieve leapfrogging to low-carbon societies.

An Opportunity to Leapfrog by Integrating Knowledge and Wisdom In-Country

The worldwide transition to low-carbon societies is a massive undertaking and it is up to each Asian country to set a vision for future society. Therefore, each country needs to form policies for national and local development by utilising its in-country knowledge without relying on others. It is necessary for each country to understand its specific situation and explore a future vision with the citizens who love their own country, with their full ownership.

This is a historical challenge that Asia is facing and, at the same time, it is a perfect opportunity for Asian countries to lead the development of a low-carbon world.

Good Practices of Science-Based Climate Policy Development Making Progress in Asia

Under these circumstances, this book aims to outline the challenges faced by each Asian country on how they are progressing in building up low-carbon societies, and it aims to share the information with other countries in the region and the rest of the world. By doing so, global cooperation for developing low-carbon societies can be further promoted.

The first part of this book clarifies that Asia holds the key to worldwide climate stabilisation, and examines model analyses of China, India, Japan, Vietnam, and Asia as a whole, showing that there is large scope for achieving development while reducing GHG emissions.

The second part introduces good practices showing how results of the examination of model analyses are actually incorporated into national and local-level low-carbon development policies and how they effectively work for policy formulation. For example, in Thailand, results from the model analysis have supported the Thai Intended Nationally Determined Contribution (INDC) to be submitted to the Conference of the Parties under the UNFCCC. This is a good example of national-level science-based policy formulation. On the other hand, in Malaysia, results from the model analysis on Iskandar were applied as a scenario in the development of a low-carbon society in Iskandar. Urban population is expected to account for 70–80 % of the worldwide population within this century. Therefore, it is likely that urban areas will take a front-line role in the formulation of low-carbon societies. The example of Iskandar shows one good practice in low-carbon society formulation.

The third part explains how to overcome barriers to measures implemented in each country's major policy sectors so that possible GHG emission reduction is actually realised by utilising good practices developed so far. Key categories for promoting decarbonisation are the promotion of public transportation, formulation of compact and energy-efficient cities, and forest conservation for enhancing carbon sinks and biomass energy use. Moreover, education and research communities are essential for formulating science-based policies. In this part, we present some advanced examples of how Asian countries are facing up to the challenges of leapfrogging to low-carbon societies.

International Cooperation for Knowledge-Sharing Towards Realising a Low-Carbon Asia

This book was written by experts and researchers who are making serious efforts to realise low-carbon development in Asia. On the way to low-carbon development is a very tough challenge that has never before been accomplished. Moreover, we have to lay out a new development pathway in a short span of time and then overcome various actual difficulties. Indeed, it will be a major contribution to the world if Asia can head in the direction of low carbon. However, there are three major obstacles to low-carbon development in Asia.

First, there is still no full-fledged system bridging science and policy to develop science-based policies. Second, policies responding to climate change have not yet been integrated into national development policies, and some policies have been formulated dependent on funds, resources, and knowledge from developed countries. Hence, in some countries, it is not sufficient to foster and make use of research communities in-country due to such constraints. Third, regional cooperation and collaboration are not fully matured as ways by which people can share similar environmental and developmental stages.

The only way to accomplish development that follows a new pathway in a very short time is to foster a research community in-country. In this way, we can promote science-based policymaking by facilitating discussions between policymakers and the research community, and go ahead with knowledge-sharing in the region by making full use of regional cooperation.

Japan has been conducting substantial international cooperation contributing to GHG reduction for approximately 20 years. However, it is high time for Asian countries to blaze a new trail towards realising low-carbon Asia under their own initiative. The Low Carbon Asia Research Network (LoCARNet) is a knowledge-sharing community, composed of researchers and those concerned who support the challenges being faced by developing countries themselves. With such network collaboration, Asia is making steady progress in the direction of low-carbon development. In 2014, at the LoCARNet annual meeting in Bogor, Indonesia, participants launched a declaration entitled “Asia is ready to stabilise the climate”.

Utilise Asia’s Full Force and Make the Leap to Stabilise the Climate

The decade starting from COP 21 could well be the turning point for a major transition for world civilisation. In a business-as-usual scenario, Asia will account for about half of the world’s economy, energy consumption, and CO₂ emissions in 2050, and if the region does not take this situation seriously, it will be impossible to make any significant global and historic changes. Now we are about to enter the age of substantial transition. For Asian countries that have not yet been locked in to high-carbon societies, it is indeed the very best opportunity to move forward to create a new low-carbon civilisation led by Asia.

In fact, this is what the world is very much looking forward to. In the past, it was Japan that succeeded in leapfrogging from the devastation of World War II to make a miraculous recovery and become an economic powerhouse. This was as the result of innovative technologies brought about by the oil crisis during the 1970s, which gave Japan a chance in a million to spring back from environmental problems associated with industrialisation and urbanisation and to overcome what had been an energy self-sufficiency rate of almost zero.

Asia can play a very significant role in turning the current climate crisis into opportunities for new development, so that the region can realise its potential and lead the way in low-carbon development. We will be more than happy if this book can provide confidence and hope to people not only in Asia but also across the whole world.