

East Asian Experience *in* Environmental Governance



*Response
in a Rapidly
Developing
Region*

Edited by
Zafar Adeel



East Asian experience in
environmental governance:
Response in a developing region

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Introduction to environmental governance concepts in the East Asian context

Zafar Adeel

The East Asian miracle

East Asia has emerged as a dynamic and rapidly evolving region during the past three decades, like a phoenix rising from the ashes of colonialism. The East Asian “experience” has elicited a great deal of interest from observers and scholars. This experience ostensibly pertains to the economic and industrial growth that has brought countries in the region to the doorstep of the first world. The World Bank, for example, indicates that most of the so-called miracle economies are concentrated in this region. These economies went through a major crisis starting in late 1997, the lingering effects of which lasted through the year 2000. Nevertheless, because there are already signs of a strong economic recovery and the environmental governance regime is marginally affected, it is worthwhile to understand the underpinnings of this economic miracle and what role it has played in the development of the environmental governance regime.

Since the 1970s the industrial growth in this region has raised justifiable concerns among environmentalists as to its adverse impacts on the bountiful natural resources and diverse ecosystems. Considerable environmental degradation is apparent on a regionwide basis, ranging from deforestation and loss of biodiversity to pollution of waterways and fresh water resources. Environmentalists, with the help of activist groups and non-governmental organizations (NGOs), have played a key role in

bringing to light these impacts while stirring agitation against most major development initiatives. A limited discussion of the role of these groups is provided in the final section of this book.

The response of the region through the development of an environmental governance regime can be viewed as a complex process. This process is more complicated than either environmental activists or the governments in the region will readily admit. To understand better the East Asian experience and the nascent environmental governance regime, it is quite important to know the political and historical context of the region. This context, in fact, drives how any governance regime is perceived and developed by the countries and peoples of the region. At the same time, the historical evaluation helps us understand the current situation in the region. Islam and Chowdhury (1997) provide a much more in-depth analysis of this background.

Political and historical context

The emergence of an East Asian bloc in the global economy can be traced back to a number of “historical accidents” (Petrie 1994). Three main categories of these historical accidents can be easily identified in a chronological sequence:

- Western imperialism in the region, particularly the introduction of the treaty port system;
- Japanese imperialist endeavours and the role they played in economic development of the region;
- influence exercised by the USA in the wake of post-Second World War geo-politics in the Pacific region.

During the middle of the nineteenth century, a unique cooperative imperialism emerged between the European powers, notably the British, Russian, Prussian, Portuguese, Danish, Dutch, and Spanish empires, as well as the USA (Petrie 1994). This evolved into a treaty port system which resulted in a significant portion of global trade being channelled through this region. The most salient examples of this were the ports of Hong Kong, Manila, Singapore, and Shanghai. This system provided the basis for the involvement and engagement of the region in international trade.

The influence of Japanese imperialism on economies in this region leading up to the Second World War is relatively well documented (Ho 1984). This economic influence in Taiwan, Korea, and China came about in the form of massive investments in selected sectors such as transport and communications, education, and manufacturing. The vested interest in such investments was to exploit fully any complementarities to the benefit of Japanese industries. This led to two major consequences for

the region (Petrie 1994). First, Japan emerged as a key player in the regional economy and its trade in the region surged by about 70 per cent prior to the Second World War. Second, it helped imperial Japan in implementing its hegemonic designs through the Greater East Asia Co-prosperity Sphere (GEACS).

The Second World War brought some abrupt changes to this set-up. The defeat of Japan in the war led to the emergence of the USA as a major political force in the region. The ensuing period has to be viewed in the context of geo-politics from the 1950s through the 1970s. Particularly, the strategic alignment of the USA during the Cold War and its involvement in the conflicts on the Korean peninsula and in Viet Nam were central to its role in this region (Haggard 1988). There was a massive influx of American aid to the Republic of Korea, Taiwan, and the Philippines, and an overall reorientation of the regional trade towards the USA (Islam and Chowdhury 1997). This economic and political orientation provided the platform from which the so-called miracle economies were launched in the region during the mid- to late 1970s.

This discussion provides a brief backdrop against which the recent industrial growth and economic boom (and bust) can be evaluated. It lends some weight to regional interpretation of the development in this region, in whatever manner it may be delineated by various international organizations. It also provides a hint of the colonial imprint on the governance structures in the region. The most salient feature of this colonial imprint is the depletion of natural resources (Parnwell and Bryant 1996). A number of natural resources were, and in some cases still are, being exploited beyond any hope of recovery. Some prominent examples of this exploitation during the colonial era include rice, teak, and minerals from Thailand, coffee and sugar from Java (Indonesia), and tin, palm oil, and rubber from what is now Malaysia.

The introduction of political independence in this region and the end of colonial rule has influenced the social, political, and governmental structures. For example, a major common feature has been alignment of élite economic and political groups for mutual interest. These influences do not follow a uniform pattern across the board. It is therefore instructive to take a closer look at the political and economic set-up of the five countries included in this book.

China has developed itself into a major player in the regional as well as global economy and politics. Although the Chinese economy still falls under the umbrella of “developing nations”, it is the world’s seventh largest economy based on GNP and second largest when GNP is converted to purchasing power parity (World Bank 2000). The most salient feature of this economy has been a sustained double-digit growth through the early 1990s. This is in great part attributable to the dynamic

economic reforms introduced since 1993, which are designed to evolve China into a prosperous nation. In addition to financial and fiscal reforms, a broad range of reforms has also been put into action within legal and social welfare systems. Politically, these reforms are also remarkable considering the political set-up whereby the Chinese Communist Party enforces control over all the governmental institutions at every level. It is important to note here that the incredible economic and industrial growth has not been without its environmental repercussions. Some examples of these adverse impacts on the water quality in China are highlighted in Chapter 3 of this book.

Currently, Japan is the most significant player in the regional economy. This is in direct correlation with its importance in the global economy, being the second largest in terms of GDP per capita and third largest in terms of exports of goods and services (World Bank 2000). A majority of Japan's trade with developing countries is focused towards the East Asian region. Understandably, Japan has also led the regional efforts to create a formal economic bloc under the Asia Pacific Economic Cooperation (APEC) umbrella. Internally, Japan has followed a very strict path towards industrial development and economic growth since the Second World War. Particularly, industrial growth during the 1960s and 1970s led to the "bubble economy" of the 1980s. Frequently this growth led to environmental degradation and natural resources depletion, often in other East Asian countries. When compared with other developed nations the emergence of an environmental governance framework in Japan, as presented in Chapter 8, has progressed at a somewhat slower pace.

This book limits its evaluation of the situation on the Korean peninsula to the Republic of Korea (simply referred to as Korea hereafter). Historically, Korea has a colonial imprint of Japanese imperialism, particularly from the late nineteenth century to the end of the Second World War. However, partition of the country into north and south zones following the war has also had significant long-term implications. As mentioned earlier, geo-political considerations and the American influence have greatly impacted on economic growth patterns in Korea. The country has gone through a series of political perturbations, culminating in the adoption of a new constitution in 1987. However, the economic development initiated in 1962 led to tremendous growth of the industrial sector, such that by the end of the 1980s industrial output accounted for 43 per cent of the GDP (Islam and Chowdhury 1997). Since the late 1980s, the country has also focused on developing legislation that can form part of the environmental governance regime. This is discussed in the context of air quality management in Chapter 7 of this book.

Malaysia now has a parliamentary democracy that represents an ethnically diverse society comprising Malay, Chinese, Indian, and other cul-

tures. From the last quarter of the nineteenth century till 1957, Malaysia was almost continually under direct British influence and rule; the exception being the brief Japanese occupation during the 1942–1945 period. A systematic approach to economic planning in the form of the “new economic policy” in 1971 and the “new development policy” in 1991 has been quite successful in overcoming any racial barriers to development in a multi-ethnic society. As a result, the Malaysian economy has seen significant growth – particularly posting an annual growth of over 8 per cent in the late 1980s and through the 1990s. This has helped bring the country inside the OECD envelope, and it is anticipated that it will enjoy developed country status by 2020. However, the results of this growth for the environment have not been altogether favourable. As described in Chapters 2 and 5, the Malaysian government has engaged in a proactive approach in development of environmental legislation and public awareness programmes.

Historically speaking, Thailand has a unique character in the group of five countries discussed in this book. It has never been colonized formally by either the European or Japanese empires, although it developed alliances with both through various stages of its recent history. Its politics was dominated by military influence until 1992, when liberal democracy was fully established. Regional conflicts and geo-politics have placed Thailand in a position to receive military and financial support from the USA (Dixon 1995). Such support has resulted in a boost to the Thai economy. Additionally, orientation of the Thai economy towards export-oriented manufacturing helped Thailand to reach double figures in annual economic growth during the early 1990s (Islam and Chowdhury 1997). Despite the economic slump in 1997–1998, the national economy has shown a strong recovery. Development of environmental institutions, as described in Chapters 4 and 6, is still progressing towards maturity.

Factors related to environmental impacts

Economic growth

The economic crisis in Asia, starting in 1997 and reaching full bloom in 1998, has triggered an extensive debate on the so-called myth of the Asian miracle. The East Asian economies had been praised, equally extensively, for their rapid growth and model development strategies prior to the crisis (Weder 1999). However, the perspective of environmental governance, as discussed in this book, is somewhat different to that held by most economists. Seen from this view, the economic growth in East Asia was coupled to rapid growth of both industrial and urban sectors,

Table 1.1 Growth rate of GDP, percent per annum

Country ^a	1981–90	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
China	10.4	9.3	14.2	13.5	11.8	10.2	9.6	8.8	7.8	7.1	8.0	7.3
Korea	12.7	9.1	5.1	5.8	8.4	9.2	6.8	5.0	–6.7	10.9	9.3	3.0
Malaysia	5.2	8.6	7.8	8.3	9.2	9.3	10.0	7.3	–7.4	6.1	8.3	0.4
Thailand	7.9	8.5	8.1	8.3	8.7	8.6	5.9	–1.4	–10.8	4.4	4.6	1.8
Japan ^b	4.0	3.8	1.0	0.3	0.6	1.5	5.0	1.4	–2.8	1.0	1.5	

a. Data for 1981–1995 from ADB (1997); Data for 1996–2001 from ADB (2002)

b. Data for Japan from IMF (1999)

which in turn led to a certain set of environmental impacts. These impacts on natural systems are persistent and long term, and possess an “inertia” of their own. Although the economies in the region slowed down during 1998 and gradually recovered during 1999 and 2000, the environmental impacts did not follow a similar fluctuating trend and were more or less persistent. For example, the levels of pollution in coastal waters show no incremental reduction during the 1997–2000 period.

Economic growth in the region was strongly tied to export-oriented policies, high savings rates, sound macroeconomic policies, and strong institutional frameworks (Weder 1999). As already noted for the five selected countries, the rule of law, political stability, and historical context play an important role in defining a country’s growth. This experience, despite some variability from country to country, has certain commonalities, including colonial rule – or at least heavy influence from Europe or the USA – political instability, correlation to regional and global trade, and geo-political influences. Against this backdrop, one may compare the economic performance of the five countries. Table 1.1 provides an overview of GDP growth rates from the 1970s through to the present time. A gross similarity between the economies, not including Japan, is their sustained growth at levels above 5 per cent, with China leading the race with double-digit GDP growth figures.

Explosive population growth

As can be observed from Table 1.2, all countries in the East Asian region have been successful in reducing population growth rates. Nevertheless, the population growth in this region is still quite significant, with the exception of Japan where population growth has been steadily decelerating. This is important when seen in terms of absolute numbers; the five countries listed here comprise a quarter of the global population. On a

Table 1.2 Population statistics for East Asia

Country	Average annual growth rate (%)		Total population (millions)		% living in urban areas
	1980–1990	1990–1998	1980	1999	1999
China	2.3	1.2	981	1,250	32
Japan	0.8	0.3	117	127	79
Korea	2.0	1.1	38	47	81
Malaysia	4.8	2.8	14	23	57
Thailand	2.7	1.4	47	62	21

Source: World Bank (2000) and World Bank (2001)

regional scale, the population has more than doubled during the latter half of the twentieth century (UN ESCAP 2000). This growth in population has been offset by a much faster growth in economies, as observed earlier. However, the other side of this coin shows a trend of unsustainable consumption of natural resources.

Even more important than the gross increase in numbers is the trend of increasing urban populations which far outpaces the overall growth rates. This is, in part, due to migration of people to urban areas in greater numbers. As shown in Table 1.3, a number of the fastest-growing existing and potential mega-cities – those with population in excess of 10 million – are located in this region. Of the five countries considered here, only China and Thailand have a majority of their population still living in rural areas; Japan, Korea, and Malaysia have a vast majority of their populace living in urban settings. The growth of population, particularly

Table 1.3 Top 10 fastest-growing mega-cities in Asia

City and country	% annual growth
Dhaka, Bangladesh	4.0
Karachi, Pakistan	3.3
Istanbul, Turkey	3.1
Bombay, India	2.7
Delhi, India	2.6
Jakarta, Indonesia	2.3
Manila, Philippines	2.2
Tehran, Iran	2.0
Calcutta, India	1.8
Beijing, China	1.5
Shanghai, China	1.3
Tianjin, China	1.2

Source: ADB (1996)

urban population, has serious consequences for utilization of natural resources and impacts on the environmental compartments. In some of the countries in this region, the absence of an adequate urban infrastructure is the root cause of these environmental impacts (UN ESCAP 2000).

Major environmental impacts

The East Asian miracle has left a broad range of environmental impacts in its wake. It is indeed challenging to come up with a complete list of these, but below are some of the greatest impacts in this region:

- degradation and destructions of forests;
- massive soil erosion and desertification, partly due to improper land use and management practices;
- pollution of air by particulates (aerosols) as well as greenhouse gases;
- contamination of fresh water resources with urban, industrial, and agricultural wastes;
- accumulation of pollutants in coastal areas and impacts on fisheries;
- transport air pollution in the form of smoke and haze on a regional scale.

Each of these impacts is present to varying degrees and magnitudes in the five countries discussed in this book. By nature, these problems are not limited by national boundaries and thus require regional responses. It is also important to consider the correlation of these environmental issues with broader socio-economic factors. Most importantly, degradation of the environment has serious consequences for food security, poverty, quality of life, and economic stability.

Environmental governance in East Asia

Governance and environmental governance

It is somewhat difficult to grasp the concept of governance and even more so to define environmental governance. Governance can be defined as a complex set of values, norms, processes, and institutions by which society manages its development and resolves conflict, formally or informally. Generally speaking, governance involves state players (various levels of government), but also civil society at the local, national, regional, and global levels (Hempel 1996). It also involves political institutions and sets of rules, including decision-making procedures that give rise to social practices. Historically, such governance has been an essential component of global security and economic development issues. The addition of environmental issues to this list is relatively new and has emerged over the

past two or three decades. The realization that most environmental problems and concerns are of a transboundary nature and that we all share common natural resources has highlighted the need for an environmental governance regime that is global in its extent.

Environmental governance comprises complex governance elements dealing with various environmental compartments in an integrated manner through involvement of a wide range of actors and stakeholders. Environmental governance is also applied at a range of scales, from local to national to global. On the whole, it is the key for achieving balance between consumption, human welfare, and environmental consequences. However, it is based on a relatively short history and relies upon still-emerging scientific disciplines.

Implementation of environmental governance

Development of environmental governance regimes and the related institutions in the East Asian region has clearly been affected by the UN Conference on Environment and Development (UNCED 1992) held in Rio, and Agenda 21. A number of approaches for establishing regulatory and institutional frameworks to achieve sustainable development were identified in Agenda 21. These have been recognized by the governments in the region and implemented with varying degrees of success. It is also interesting to note that promoting approaches to sustainable development has had a side-effect of encouraging participatory approaches, where NGOs and the private sector have a greater role to play. The governmental structures pertaining to environment have also seen a gradual streamlining, as is apparent from the information presented in Table 1.4.

A recent state of the environment report prepared by UN ESCAP (2000) highlights that there is increased promotion of community participation, decentralization of administration, and integration of national and local decision-making processes in the region. As can be observed from Table 1.4, there is apparent vertical integration at the governmental level that is helpful in implementation of effective environmental governance. Each country has a dedicated administrative facility at the ministerial level that is charged with coordination amongst related ministries and implementation of and compliance with governmental programmes.

Selection of sectors for analysis

Three sectors have been selected for a more detailed evaluation in this book: agriculture (with emphasis on pesticide usage), water resources

Table 1.4 National implementation of environmental governance

Country	Vision document	Policy institution	Executing agency	Apex national council
China	China's Agenda 21	State Environmental Protection Administration	State Environmental Protection Administration	
Korea	Green Vision 21	Ministry of Environment (MoE)	Various commissions/bureaus under MoE	Environmental Conservation Committee
Japan	National Environment Plan	Environmental Agency	Various departments/bureaus	Japan Council for Sustainable Development
Malaysia	Vision 2020	Ministry of Science, Technology and Environment	Department of Environment	Environmental Quality Council
Thailand	National Plan	Ministry of Science, Technology, and Environment (MoSTE)	Various departments under MoSTE	National Environmental Board

Source: Adapted from UN ESCAP (2000)

(and quality issues), and air pollution. A close scrutiny of each of these sectors is provided in the subsequent sections. This includes looking at the core issues and drivers behind them. The governance structures for each of these sectors are investigated to assess their strengths and weaknesses, as well as correlation to environmental governance at national scale and linkage to sustainable development. As a result of this assessment, some patterns and trends emerge. At the same time, the unique situation in each country leads to a disparity in approaches adopted. These are discussed to a greater extent in the final section of the book.

In all the five countries, the agricultural sector remains a predominant player in the national economy, making it an important component of the environmental governance regime. This sector has been under increasing pressure to meet the needs of the burgeoning populace while faced with reduction in arable lands. A most poignant example of meeting this challenge of food security can be seen in the case of rice production. A revolution in rice production started in Asia during the 1970s and continued through the 1980s. During this period tremendous achievements in rice production were made, in which an increase of about 50 per cent was recorded in the years from 1978 to 1989 in this region. This “green revolution” saved the region from serious food shortages during the 1970s when overall global food production was actually decreasing (Uitto 2000).

The driving force behind the green revolution was the technologies of chemical fertilizers for soil enrichment and pesticides and herbicides for crop management. Coupled with high-yielding rice varieties and increased land for rice production, remarkable progress was achieved. However, the price for this advanced technology and food security was paid by the environment. The use of chemical fertilizers, pesticides, and herbicides was critical for the success of the green revolution, but their indiscriminate use caused a long-term degradation of the environment (Hough 1998).

The environmental degradation is apparent at several levels. First, the pesticides used for agricultural purposes are persistent and resist natural degradation processes. As a result, they remain in the soils in agricultural areas and then leach away with water to rivers and coastal areas as well as underground aquifers. Second, this polluted water adversely impacts ecosystems that it comes in contact with. As an example, fish populations in rivers and coastal mangroves often have high levels of pesticides. Third, the food produced through these chemical technologies typically has residual levels of pesticides and insecticides. Lastly, the improper use of these technologies has been linked to accidental exposure of farmers to chemicals. This problem is particularly acute in the East Asian region, where the level of education is generally low and programmes for training pesticide users are not particularly successful.

The water resources in the East Asian region have served as the life-line for economic and industrial growth. However, the growing demand for often limited water resources has pushed water on to the “endangered” list. At the same time, the existing water resources have also been polluted through run-off from industrial, urban, and agricultural activities. According to a recent study, the water resources in this region are projected (when using a conventional development scenario) to be at a “medium” level of vulnerability by the year 2025 (Raskin 1997). To avoid major problems in water availability, it is essential to establish programmes for integrated management of water resources and for protection of these resources from various pollution sources. It is also important to harness the financial and technical resources of the private sector for improving water supply and sanitation infrastructures. All of this requires well-defined national goals and governance mechanisms, which makes it an interesting study.

The air pollution problems in the East Asian countries have been primarily driven by two major factors: uninhibited industrial growth and urbanization. The development and implementation of air quality standards has lagged considerably behind those in the developed nations. This is partly reflected in inclusion of countries in this region in the Non-Annex I list of the Kyoto Protocol (under UN FCCC), with the exception of Japan. In layman’s terms, the countries in this region are allowed to continue and/or increase emissions of greenhouse gases to achieve satisfactory growth in their industries and economies. Again, it is interesting to study the development of a governance regime to monitor and control air pollution in the region.

Overview

An equitable emphasis on the three selected sectors is intended by using case studies from the five selected countries. The authors of the case studies have linked the problems and issues to the governance structures in their respective countries. Often, the history of the development of these structures is also discussed, which provides insights into the shortcomings and limitations of the political processes involved. The role of various stakeholders, including government, the general public, NGOs, and industries, is described to complete the picture. The authors have also attempted to outline prescriptions for each sector in their respective country.

The book comprises four sections, with one section dedicated to each of the three sectors. The first section examines the management of pesticides in the agricultural sector of Malaysia (Abdullah and Sinnakkannu),

China (Hao and Yeru), and Thailand (Tabucanon). This sector is the most complex in terms of the number of players involved and the myriad of legislative enactments. It is interesting to observe the complex inter-relationship between various laws and rules, while keeping in sight the limitations to their implementation on the ground. The second section focuses on water resource management in Malaysia and Thailand. Tabucanon, in her second contribution to this book, indicates that Thailand's perspective is driven by urban utilization of water and pollution issues. In contrast, Ahmad and Ali contend that Malaysia's water utilization patterns are largely driven by agricultural usage. While there are some similarities in the legislative framework of these two countries, inherently different approaches are adopted towards solving water management problems. The third section compares the air pollution issues and governance mechanisms in Korea (Lee and Adeel) and Japan (Yamauchi). The nature of the problems is somewhat similar, in part because of similar levels of industrial and economic development. The approaches to environmental governance are also somewhat similar in the two countries, with almost parallel development of environmental legislation.

The fourth section provides an overarching analysis of the governance structures in the region. An in-depth discussion of linkages of environmental protection and sustainable development to economic growth is undertaken. Paoletto and Termorshuizen outline a number of options for environmental governance through a comparison between approaches undertaken by the OECD countries, the USA, and the East Asian region. The final chapter (Adeel and Nakamoto) summarizes the findings of the earlier sections through a comparative evaluation. A synthesis of prescriptions for effective environmental governance is also provided.

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The East Asian region has seen considerable growth in its economy, industrial base, and population in the last two decades. Interestingly, all three of these factors are often linked to over-exploitation and degradation of environmental resources. *East Asian Experience in Environmental Governance* provides a broad-brush overview of the existing governance regime that deals with the environmental challenges in the region. Three sectors are selected for deeper analysis: pesticide management; water quality and resources management; and air pollution management. These sectors are also closely linked to the economic and industrial growth of the region.

Five countries are selected as representatives of this region: China; Japan; Korea; Malaysia; and Thailand. This selection, therefore, includes representation of highly-industrialized, industrializing, and developing economies. This grouping also provides a mix of political and historical backgrounds that are diverse enough to provide a glimpse of the "typical" East Asian governance mechanisms.

The findings from this book, and the case studies contained herein, can help in developing a fundamental understanding about environmental governance in terms of what works and what does not in this region. Clearly, only effective and meaningful environmental governance can ensure long-term sustainability of the remarkable industrial and economic growth observed in this region.

Zafar Adeel is an environmental engineer with post-graduate degrees from Carnegie Mellon University and Iowa State University. He has experience in a variety of environmental issues, including solutions to industrial environmental problems, modeling of environmental systems, water pollution problems, and environmental policy development. Dr. Adeel serves as an Academic Programme Officer in the United Nations University, Tokyo.

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