

INTRODUCTION
SUSTAINABILITY MATTERS:
ENVIRONMENTAL MANAGEMENT IN ASIA

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I. Introduction

Ten years ago it would have been hard to imagine that environmental issues would be a subject of discussion in major global leadership meetings, but in the last two years they have been tabled at the G20 2009 meeting in Pittsburg and the 2009 APEC meeting in Singapore. In addition, the United Nations has held climate change conventions in Bali (2007) and Copenhagen (December 2009). Even in bilateral meetings between major developed countries, environmental and climate change issues have been part of the agenda. Clearly the deteriorating global environment arising mainly from climate change issues has precipitated global concern and action. Each month, new scientific material and visible natural catastrophes seem to underscore the growing impact of climate change and its consequences on the global economy, livelihoods, food security and cities. We have arrived at a critical crossroad on the environment and at all levels (global, regional national, local) there is now an urgent need for public awareness, government forward planning, cultural adaptation, mitigation efforts and implementation of national environmental management systems. Yet unfortunately the global community still remains divided in terms of the scientific veracity of climate change and its impacts. In the United States, a country with much access to global information, recent survey results show a reduction in believers in climate change on two fronts. In 2008, 71 percent of Americans believed there was solid evidence that the world is warming, but by 2009 only 57 percent believed this. In 2008, 47 percent of Americans believed global warming was caused by human activities, in 2009 only 36 believed this (Begley, 2009: 38–39). Among the reasons for this American perception, ideological persuasion, economic problems, and conflicting scientific errors have undermined the public knowledge of climate change in the US. In Europe, a survey by the German Marshall Fund published in 2009 found similar dwindling public perceptions on climate change. One year ago, 3 in 4 Europeans (75 percent) felt climate change

was a “very serious” problem, today only 67 percent feel this way (EU Centre in Singapore, 2009:4).

Yet despite the skeptics in some quarters, the impact of climate change is already unfolding in many countries and cities. But the global and national communities have been slow in recognizing the connection between environmental impacts and growing natural hazards. In different parts of the global ecosystem, the frequency of cyclones, typhoons, floods, drought, heat waves and rising sea water seem to be causing havoc in many countries around the world. For many countries in Asia, the impact has been devastating: in 2004 violent storms in the Philippines killed 669 people and left another 695 people missing; Mumbai (India) received in July 2005 in 24 hours, 944 mm (37.2 inches) of rainfall that caused massive floods in the city; in Northern India the ground water has fallen by 20 percent between 2002 and 2008 which threatens agricultural output and millions of livelihoods; typhoon Nargis hit Myanmar in 2008 and killed 140,000 people and devastated the lives of another 2.4 million people; China suffered its worst drought in 50 years in 2008–09 which created water shortages for 4.37 million people; the drought in the Middle East and Central Asia has led to a 22 percent drop in wheat production in 2009; typhoon Ketsana in September 2009 killed over 330 people in the Philippines, Cambodia, Laos and Vietnam; and in November 2009, floods from monsoon rains wracked havoc for thousands of inhabitants in the Malaysian states of Terengganu and Kelantan and the Indonesian province of Aceh.

II. Asia: The Environmental Challenge and Prospect

If we are to believe Kishore Mahbubani’s (2008) thesis that the 21st century will become the new Asian Hemisphere in global affairs, then there is reason to believe that the node of human civilizational impetus and economic dynamics is moving back to Asia after going one cycle from Asia to Europe and then to North America. One indicator of Asia’s rising economic prowess is her increasing percentage in the world’s GNP — from 26 percent in 1990 to 38 percent in 2007. Obviously the notion of Asia as some organic constituent is more perception than reality. Asia was defined, formulated and commodified through western perceptions. As Edward Said (1979) argues, the West found its own identity in its sustained cultural development of *Orientalism*. In reality the term Asia only functions as a geographical demarcation. Europe is a more cultural holistic entity than Asia. Yet this large region is now the theatre of global economic impetus,

political muscle-flexing and cultural effervescence. The key regions in 'Asia Rising' are East Asia (China, Japan, South Korea), India and the Middle East with the Southeast Asian region riding on their coat-tails. Yet while there is cautious optimism about the 21st century belonging to Asia, the region is still embedded with major challenges economically, politically and environmentally.

In the environmental sphere, Asia is a cause, victim and benefactor of environmental problems and climate change issues and outcomes. In rising to the challenges of development, and securing better qualities of living and standards of life, Asian governments have not been equal to the task in delivering the best environmental goods for their communities and citizens. Among the top 10 poorest countries in the world, five come from Asia (China, India, Pakistan, Bangladesh and Indonesia) (Kotler and Lee, 2009:8–9). The challenges to sustaining environmental quality in countries and cities are products of traditional and new factors. Firstly, the demographic factor is a primary variable in the human-nature equation which will continue to scourge Asian countries for many decades ahead. Large populations still plague the environmental and developmental deliverables for China (1.3 billion), India (1.1 billion), Indonesia (240 million), Pakistan (172 million), Bangladesh (147 million), and the Philippines (90 million). In other Asian states, rapidly growing populations (Lao PDR, Cambodia, Timor Leste) and aging populations (Japan, Singapore, South Korea, Thailand) are causes of concern for their governments and these have different environmental implications and impacts. Small countries like Brunei, Singapore, and Kuwait which are wealthy oil producers or refiners have large per capita carbon impacts, much higher than large countries like India, Indonesia or Thailand. The neo-Malthusianists of the developed world are less sympathetic and patient to the way populations have exploded in many developing countries in Asia and Africa. Their response to this predicament is that it reflects the demographic choices of governments and communities within these large populous countries and hence they have to bear the consequences of their demographic challenges. The most well known advocate of this position is Garrett Hardin (1980) in his life-boat scenario, promethean ethics and 'triage' solutions.

Secondly, the shift from rural to urban living has created major environmental stress in many Asian cities. In 2007, the global population reached 50 percent in urban living. In Asia while many countries have not crossed the 50 percent threshold in urban population, the phenomenal

growth of capital cities has made urban living a major environmental nightmare for urban governments. The most challenging scenario is the development of mega-cities (10 million and above) which dominate many Asian countries: Bangkok, Calcutta, Dhaka, Mumbai, Jakarta, Manila, Osaka, Shanghai, and Tokyo. Apart from the Japanese mega-cities, none of the other mega-cities in Asia has followed the correct eco-logic; all have been unable to implement environmentally sustainable urban systems; and do not have the right urban governance to manage their brown issues. The urban environment, with its artificially controlled cultural landscapes, needs more attention. Much discourse has been in sustainable cities, the ecological footprint and now eco-cities. But environmental attention to urban arenas must be balanced. Attention to eco-cities cannot be based solely on intra-urban environmental issues because the survival and sustenance of urban populations depend more on extra-urban ecosystem relationships for water, food and natural resources (Savage, 2006). The cities of Asia will suffocate if hinterlands and the ecological footprints are not given sufficient environmental attention.

Thirdly, capitalism and globalization has widened the disparities of wealth of peoples between and within countries. Despite the fact that capitalism is a failed system for sustainability in the developed world, it is the model for development for the rest of the world. In the developed world, capitalism will increase the debt of the 10 richest countries from 78 percent of GDP in 2007 to 114 percent by 2014 (*The Economist*, 2009:11). The rich thrive on tapping resources from a global environment while the poor have to eke out a living from recycling and reusing goods. Ironically, it is the poor that are the best exemplars of the three 'R's in conservation: reuse, recycle and reduce. Given these disparities of wealth between and within countries, it seems difficult to enact policies to reduce carbon emission and pollution because both the rich and poor of cities and countries are contributors to environmental problems: the *rich* leave a massive ecological footprint around the world by their environmentally unfriendly conspicuous consumption; while the *poor* are denied usage of clean water, modern sanitation and proper refuse disposal systems which undermine the cities' general public health. Hence the continuing disparities of wealth and status in many cities in Asia will remain a challenge for the development of environmentally sustainable cities. Widening disparities of wealth amongst populations, underscoring capitalistic and globalizing processes are in the long run a destabilizing factor economically, socially and environmentally.

Fourthly, despite the rising standards of living in general, poverty still exists in many Asian states. Of the top 10 poorest (below US\$1 a day) countries in the world, five are in Asia (India; China; Pakistan, Bangladesh; Indonesia) (Kotler & Lee, 2009:8). In 1990, 29 percent of the world's population was classified as living in extreme poverty (less than US\$1 a day) and the UN's Millennium Development Goal (MDG) was to bring this down to 10 percent by 2015. By 2004, the figure seemed promising as extreme poverty had dropped to 18 percent (The World Bank, 2008:31) but since the 2008–09 global financial crisis, there is now pessimism about the MDG meeting its 2015 target. After all, support from the developed countries is likely to diminish over the next decade given that the 2008–09 global financial crisis has cost economic losses of an astounding US\$26 trillion according to the Bank of England (Laszlo, 2009:17). This is a tragic outcome for Asian states especially India and China aspiring to lead the Asian renaissance. Hence when developed Western countries pressurize China to upgrade its currency, they fail to recognize that the country has the second highest percentage of people living in extreme poverty in the world. As Philip Kotler and Nancy Lee (2009:xix) argue in their book, of all the problems facing mankind, poverty is “among the most persistent and shameful”. So long as poverty remains a major issue in developing Asian countries, the conflict and contestations of resources and environmental goods will never be equal and will never be managed in an environmentally sustainable manner. As Joan Martinez-Alier (2005:1) in her thought provoking book, *The Environmentalism of the Poor* argues, the environmental movement has grown as a reaction to economic growth and not as against economic growth. And Nicholas Stern (2009:8) notes climate change and poverty are “inextricably linked”. Hence in developed and developing countries, environmentalism has different meanings, embraced by both the wealthy and the poverty-stricken. The result is three environmental movements: the cult of the wilderness; the gospel of eco-efficiency; and the environmentalism of the poor.

Fifthly, most Asian countries are in the throes of developmentalism (economic development, modernization) and statism (national identity, nationalism) and are thus seeking trajectories like the developed countries in the west, even though such economic and political models have failed and are environmentally flawed. Hence while globalization is said to make borders porous, in reality new Asian states are cementing their national credos, developing nationalism and are hyper-sensitive to border infringements and contestations. As Paul Kennedy (1993: 134) argues, while

the autonomy and functions of the state have been eroded by transnational trends, there is no adequate substitute to replace the state in responding to globalization. Globalisation is thus a convenient term for selective usage whenever it suits individual governments. Indeed if states accepted the most globalised system, the global ecosystem, we could have a more concerted and effective basis of international cooperation.

The global economic system of capitalism is certainly a major driver of development in Asia but the environmental consequences are likely to be felt later. Development thus needs to ensure ecosystem vulnerabilities, Green risks and environmental sustainability considerations. As Nicholas Stern (2009:62) contends, development is a way to “strengthen a society’s ability to adapt” and hence development without adaptation is “misguided”. China’s appetite for natural resources around the world to feed her massive industrial output and consumer demands is a case in point. Unfortunately while the west dominated this unequal system for decades, without much sanction and criticism, the rise of Asia’s economic dynamos seem to be the target of increasing criticism, concern and containment policies. Suddenly there seems to be a frightening realization that the global powerhouses are changing, corporate buyouts and natural resource consumption is in new Asian hands, and that Gaia will not be able to support an American quality of life and standard of living without dire environmental consequences globally. Developing countries like China, India and the Southeast Asian states are all caught up in the *nouveau riche* frenzy for materialism and the desire for a better quality of living. Tata’s introduction of the ‘People’s Car’, the Nano at a rock bottom price of US\$2,500 might be a commercial coup for Tata but an environmental disaster for India.

The periodic warnings of the Worldwide Fund for Nature (WWF) that the world is already consuming 20 percent above its capacity and by 2050 will be 100 percent above what Gaia can support seems to be publicly unheeded. What are the boundaries of humanity’s load on our planet seems to be now a concern with some scientists trying to quantify the earth’s limits (Rockstrom, 2009). On the other hand, each country seems to accept a finite world in which every national stakeholder wants to maximize its share of the constant global pie. The end reality is what Hardin (1968) predicted four decades ago, the tragedy of the global commons. Unfortunately this scenario is delayed because the rich and wealthy in developed and developing countries have the political muscle and economic power to control and buy-in scarce natural resources. The global poor as Jeffrey Sachs (2005) notes still remain an embarrassing large number

(one-sixth of global population live in extreme poverty) despite 50 years of United Nations, World Bank and IMF poverty alleviation schemes and programmes.

The choices countries have before them in tackling environmental and climate change issues are not easy nor are they zero-sum options. In climate change, the most pressing environmental challenge for the 21st century (Rees, 2003; Martin, 2007), the general mantra for solutions lies in two areas: adaptation and mitigation. Given that few Asian countries have the economic clout, scientific capacity, and research and development abilities, the options for mitigation seems remote. Yet Asian states are large emitters of carbon dioxide. Globally, China is the largest emitter of greenhouse gases due largely to her rapid economic development, her massive industrialization and high reliance on fossil fuels for energy. The Chinese government will need to reduce coal-based energy supplies but the options for alternative energy are not without problems. Her large hydropower project, the Three Gorges Dam has been the butt of severe environmental and social criticisms. The dam has led to the displacement of 1.3 million people, and the flooding of 13 cities, 140 towns, 1,350 villages, while the environmental fallout is yet to be fully calculated and experienced. Furthermore China's proposed eight dams in the upper reaches of the Mekong River (Yunnan) has been seen as an ecological disaster for countries in the lower Mekong River (Lao PDR, Thailand, Cambodia and Viet Nam) and a likely cause of future political tensions between her smaller Southeast Asian neighbours.

The best prescription from James Lovelock (2007) for an interim halting of carbon emissions is the use of nuclear energy; which seems a controversial energy solution for the author of the Gaia perspective. But for the global community these have had mixed reviews. China is following the French model and racing towards building numerous nuclear energy plants across the country without much global attention. And India is equally interested in boosting its nuclear energy output with hopefully the help of the United States. Yet for other Asian states like Iran and North Korea, any attempt at nuclear energy developments is greeted with suspicion and fear. Nuclear power is a neutral issue, but countries have the choice for peaceful or belligerent usage. In Southeast Asia, Thailand, the Philippines and Indonesia seem bent on following a nuclear energy path but this raises other concerns because of the tectonic instability in the region.

Indonesia is another major Asian contributor of greenhouse gases but for different reasons from China. Indonesia's greenhouse gas emissions stem

from natural and landuse changes. Globally, Indonesia has the highest emissions of carbon dioxide arising from degrading peat – some 500 million metric tonnes released in 2008 excluding losses caused by fire. The country has also the third largest peat carbon stocks in the world after Canada and Russia. Much of Indonesia's carbon releases also stem from landuse changes due to forests fires, the spread of oil palm plantations, rural development and reforestation of commercial timber plantations. If Indonesia is going to reduce its carbon emissions it needs to rework its development strategies. At the moment the government hopes to be a major global biofuel supplier and its competition with Malaysia in this area seems to be misplaced and environmentally irresponsible.

To date one can list hundreds of adaptive suggestions by communities, cities and countries with regard to climate change. But all these micro and meso scale ad-hoc, piece-meal adaptive mechanisms seems unlikely to change the course of increasing carbon emissions towards 550 ppm, reducing the build-up of greenhouse gases, and slowing down global warming and its likely impacts on ecosystems and human populations around the world. For the smaller countries, local adaptive measures might provide temporary solutions and solace, but climate change is an environmental issue of global proportions that cannot be solved at the local levels. There are two fundamental guidelines in dealing with adaptive measures for environmental and climate change issues: i) adaptation must take place at the local and regional levels (Stern, 2009:60); ii) adaptation must be grounded in 'risk management' involving diversification, flexibility and education (Stern, 2009:61–62). Given its strong agriculture base, Asian states will need to adopt both 'hard' (drought resistant crops; seawalls; irrigation technologies) and 'soft' (crop rotation patterns) adaptive technologies.

Hence the December 2009 United Nations Framework Convention for Climate Change (UNFCCC) meeting had much global anticipation of delivering global solutions and a comprehensive action plan based on its 192 government members, but in reality the meeting betrayed mixed responses. There was the ugly confrontation between the US and China, the deadlock between the developing and developed countries over responsibilities, and on the other hand the European Union states' offer of monetary assistance to developing countries for their adaptive strategies. Clearly the Copenhagen meeting demonstrated deep divisions amongst states and global agreement on solutions seem much more difficult. In short, the global community demonstrated a lack of responsibility, poor leadership and selfish national motivations. Both India and China had different perspectives to

the Copenhagen meeting. Both countries are contributors and likely victims of climate change hence both India and China had vested interests in the Copenhagen meeting. The 2009 Copenhagen meeting as expected led to a clash of interests between the developed and developing states. Already the G77 (the Group of 77) in Bangkok made it clear they want to maintain the Kyoto Protocol which is binding for developed but not developing countries. The European Community and the US hoped to change that perspective in Copenhagen (Tolleson, 2000:1034), but as it turned out it was not an easy or acceptable proposition. India's position is for "common but differentiated responsibility" (Pachauri, 2009:1054) while China expected the developed countries to demonstrate leadership in Copenhagen especially in providing technical and financial assistance to developing countries (Pan, 2009:1055). Yet both the Asian powerhouses set aside their diplomatic differences and signed a five-year agreement in October 2009 to increase cooperation in tackling climate issues. As Raul Estrada-Oyuela (2009:1056) argues, any agreement at Copenhagen would require a strong negotiator with exceptional skill, knowledge and diplomacy. The Copenhagen dialogue has left the global community still divided and Asian states are likely to feel its impacts and implications in the coming decades. The bottom line at Copenhagen is that the Summit fell short of its goal to cut carbon emissions sharply enough to hold off a 2-degree-Celsius rise in global temperatures. Asian states and cities must now put greater emphasis in activating their adaptive systems in response to the increase in carbon emissions, rise in global warming, and varied environmental impacts it is likely to unfold on their communities.

III. Commentary on the Collection of Essays

This collection of 24 essays on Asia's environmental issues is not a *prescription* for environmental problems *per se* but reflects rather a broad spectrum of interdisciplinary interventions, processes and viewpoints on environmental management in the Asian region. Given that environmental problems are multi-faceted and multi-dimensional challenges, there can be no single 'one size fits all' explanation or solution. The environment, after all, covers all aspects of human endeavours, living environments, leisure places and work spaces. While studies in this book might use single variables and perspectives to analyse issues, these are done for the ease of analysis rather than a reflection of the complex reality people and communities confront in environments.

In this study, the idea of environmental management is a complex issue which requires definitions of three elements: what is meant by environment, what is the nature and process involved in management and who comprises and decides management. The question of environment is a general term which covers a range of associated terms and labels: ecology, ecosystem, nature, Green, natural resources, physical landscape, flora, fauna, environmental sustainability, urban environments and cosmos. In this book, we use the term “environment” in the way Ian Simmons (2008:3) defines it as “those elements of nature which are in an ecological relation with humans, that is, where there exists a possible transfer of energy and materials between them”. The use of the term ‘management’ tends to underscore the work places of business where organization and employees are involved. We manage corporations, shopping malls, hospitals, and restaurants. In nation-states and countries the word “management” is replaced by “governments and governance”. Hence depending on the scale of environment management in this book, the papers cover the corporate levels, specific bioregions and ecosystems, cities and national territories. In short, these articles address environmental issues at both the private and public sectors. At one end of the scale ‘*management*’ might be the appropriate term, but at national levels *governance* might be better suited. The people responsible for environmental management cover a broad spectrum from political leaders, corporate chieftains, national administrators, urban planners, to NGO personnel, pressure groups and the concerned public volunteer. Since the environment concerns everyone, the responsibility of the environment has to be shared. Every citizen is a stakeholder of the environmental health and sustainability within communities, neighbourhoods, cities, countries, regions and globally. We all have multiple citizenships at various scales and hence must exercise responsibility in what we do.

While few articles make cross comparisons between cities or states, one can make independent cross-comparisons because the varied articles cover a range of scales from regions (Southeast Asia; East Asia) to countries (Vietnam, Thailand, India, Nepal) and cities (Hong Kong, Singapore, Ho Chi Minh City) in Asia. The articles also cover a plethora of environmental management themes dealing with legal environmental issues, conservation methods, policy matters, Green planning, environmental measurements, enforcement matters, environmental education and environmental monitoring. There is also a wide range of ecosystems and Brown issues to meet the environmental interests of varied specialists, corporate honchos and Green activists dealing with forestry, water

issues, varied types of wastes (solid, hazardous, electronic), fisheries and aquaculture, agriculture, and energy in urban, rural, marine and pristine areas. Certainly no environmental management book would be complete without discussions on adaptive and mitigation strategies. And in this collection of essays one can find all sorts of environmental strategies from fiscal management to legal frameworks, from specific breeding programmes for endangered species to forest plantations.

While this collection of environmental essays are abridged and edited versions of the Masters' theses and Study Reports of the Masters in Environmental Management (MEM) students they cannot be viewed as purely academic conceptual statements situated in a vacuum and without experiential realities. Indeed, we would argue that these essays reflect important environmental statements in three ways.

Firstly, many of the students are locals from the countries and cities in Asia that they are writing about and hence have often a lifelong experience with their subject matter. Their writings demonstrate a candid sincerity of what is happening on the ground and often the topics picked underscore a certain familiarity that students have had over time. In short, students' theses are rarely random academic exercises but reflect the individual interest or familiarity each student has with an environmental theme of his or her country or environmental theme.

Secondly, many of the Masters students have working experience in the corporate, government and non-government organizational (NGO) sectors and hence are not discussing issues in a vacuum. The working experience of students more often reflects a working engagement with environmental issues and hence many are cognizant about the administrative processes, economic limitations and political underpinnings of managing environmental problems. This working knowledge with the environment provides a realistic and applied dimension to the analysis. In short, these papers are grounded in grassroots realism even though they are framed within academic-derived concepts and theories.

Thirdly, given that environmental issues are complex, holistic problems covering a wide array of issues, disciplines, and perspectives, these papers cover varied interdisciplinary as well as disciplinary perspectives and analysis. In these papers one will see evidence of the disciplinary dialogue and philosophy of the MEM programme which educates students to adopt interdisciplinary and multidisciplinary perspectives on environmental issues. Unlike the 'culture wars', the environmental themes in these contributions demonstrate that the scientific, social science, legal and policy perspectives need to be understood and analysed within a holistic and

integrated manner before realistic and pragmatic prescriptions, solutions and mitigation issues can be implemented. One of the tragedies of environmental debates is the lack of dialogue between the hard and soft sciences. In these papers there is glimmering hope of unlocking disciplinary territories between the sciences and non-sciences and a genuine and realistic dialogue of interdisciplinary perspectives.

IV. Reflections

Given the importance of environment and climate change issues to newly developing states in Asia, this book underscores the complex environmental themes which resonate in the academic literature as well as manifest themselves in grassroots realities. Environment is as much an integral component in the developmental processes of many Asian developing communities, cities and countries as it is an important variable which could undermine development programmes and trajectories.

The urgency of environmental attention caused by the speed of climate change issues unfolding globally warrants our immediate attention to how societies and governments need to manage their environments. Unfortunately Asia has its own spread of successful and failed states. Each failed state adds to the litany of accumulating environmental woes at the regional and global scales. Unfortunately unlike political issues, environmental factors do not observe political boundaries. The ecosystem issues transcend economic, political and cultural borders. Each variable of the environment cannot be studied in isolation, nor can they be addressed without a broader understanding of the complex forces in which they find expression. This collection of papers does not offer magic formulas for environmental solutions and mitigation, but hopefully, this collection of case studies can underline important correlations, present new data, identify areas for environmental monitoring, alert promising areas of research, define environmental problems, situate environment within development programmes of countries and companies, explore new areas for environmental engagement and innovation, and shed new light on promising areas for averting environmental catastrophes.

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