

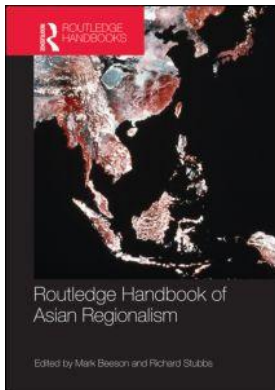
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# Regionalizing environmental security in Asia

*Lorraine Elliott*

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## Introduction

The degradation of environmental resources and services are important challenges for countries in Asia. Policy debates on how best to address these issues are usually driven by efforts to minimize negative economic and social impacts. There is, however, a growing worry that environmental degradation will have – indeed perhaps already is having – consequences for national and regional security. This securitization of the environment in Asia relies on more than an evaluation of existing or likely resource and environmental scarcity. It is a function also of regional perceptions about the nature of security itself and (almost always) elite answers to the question: security for whom and from what?

The purpose of this chapter is to examine the ways in which environmental degradation has come to be represented as a security problem for countries in Asia and for the region as a whole. This examination is mindful of a fundamental disjuncture at the heart of the environmental security literature. The dominant discourse is a statist one that focuses on non-traditional threats to traditional referent objects – states – and assumes some potential for conflict and political violence as a consequence of those threats. The primary security problematic is the maintenance of order and stability and the protection (or securing) of those values that are associated with statehood: political independence, territorial integrity and internal order. The ‘taken for granted’ assumptions that inform this approach focus on connections between resource and ecological scarcity on the one hand and the ‘traditional indicators of insecurity – violent conflict and [even] the outbreak of war’ (Diehl 1998: 275) on the other. Commentators worry about the role that environmental degradation might play in growing political instability and social stress within countries – and tensions between countries. Yet this emphasis on the state as security referent – the answer to the question of ‘security for whom’ – suffers from a number of flaws, not least of which is that claims about environmental degradation and conflict of various kinds are usually speculative rather than founded in solid empirical research. It also runs the risk of militarizing environmental problems, drawing attention away from underlying causes to focus on symptoms. It restricts who can contribute to the security discourse, excluding ideas and concepts that do not have states as the key structures or agents. As Bilgin puts it, the supposed ‘commonsense’ of statism ‘forcl[os] alternative non-statist conceptions of security and the constitution of alternative futures’ (Bilgin 2002:100).

In Asia, as this chapter shows, the actually existing insecurities associated with environmental decline are mostly imposed on and experienced by peoples and communities. This human security model, inspired in its earliest forms by the work of the United Nations Development Programme (UNDP 1994), was premised on concerns with ‘human life and dignity’ (UNDP 1994: 22) that would serve as an antidote to a model of security that ‘had for too long ... been shaped by the potential for conflict between states [and] ... threats to a country’s borders’ (UNDP 1994: 3). Despite this, the more orthodox of the human security models, as evidenced in the 2003 report of the Independent Commission on Human Security and in the work of the Human Security Centre (now known as the Human Security Report Project), still focus primarily on organized violence and on the state as the ‘social protection provider of last resort’ (Lawson 2005: 109). Human security concerns associated with environmental degradation often appear incidental, and those who are most affected by a range of insecurities are often recast as the likely *source* of social tension, civil unrest and other political pressures. In effect, there are two paradigms but only one ontology, that of the state.

In contrast, a more critical ‘human security’ approach to environmental security emphasizes harm and vulnerability over risk and threat (see Elliott 2007b). It focuses on security as emancipation, as ‘freedom to’ rather than ‘freedom from’. This approach to human security recognizes that insecurity lies also in the loss of human dignity and welfare and is exacerbated by differences in environmental endowment. This includes access to resources and environmental services, disproportionate vulnerabilities to environmental degradation (often out of proportion to contributions to pollution and waste) and unequal and inequitable authority and control over resource use.

This chapter begins with a brief overview of the breadth and depth of environmental challenges that face countries, economies and peoples in Asia. Second, it diverts to a short history of the global context within which environmental change has been ‘securitized’. The third section indicates that concerns about the link between environmental degradation and national/regional security are as much generated from ‘outside’ the region as they are from ‘inside’. This section constitutes the body of the chapter, exploring three related environmental concerns that have come to dominate the regional environmental security agenda – water scarcity, food security and climate change. The discussion explores, through the lens of the competing paradigms identified in this introduction, how environmental challenges have or can be securitized. It also suggests that human security models can provide not only different ways of interpreting environmental security ‘triggers’ but also different and more effective strategies for responding to environmental insecurity. This involves an analytical move from risk to vulnerability and a strategic move from mitigation to adaptation and social resilience. Despite the challenges that this presents for more orthodox approaches to security, it is also more certain to deliver outcomes that can guarantee security for both peoples and for states.

### **Environmental challenges in the Asia-Pacific**

Between 1961 and 2001, Asia’s use of world ecological capacity grew from 15 per cent to 40 per cent, and the region’s ecological footprint is calculated at more than one-and-a-half times its own biological capacity (Wackernagel *et al.* 2005: 3–8). A lengthy exploration of the effect on Asia’s environment as a result of this exponential growth in consumption is beyond the scope of this chapter. In 2005, the Fifth Ministerial Conference on Environment and Development in Asia and the Pacific identified six key threats to environmental sustainability in the region: industrialization, expansion and intensification of agricultural production, consumption patterns, urbanization, increased energy demand, and pressure on water supplies (UN Economic and Social

Commission for Asia and the Pacific [UNESCAP] 2005). These are environmental insecurities in the broadest sense – degradation of ecological services and resources that have consequences for habitat and species, for human quality of life, for the sustainability of communities in both rural and urban areas, and for the economic security of both developed and developing countries in the region.<sup>1</sup>

In 1997, the Asian Development Bank (ADB) reported that Asia had become ‘dirtier, less ecologically diverse and more environmentally vulnerable’ (ADB 1997: 199).<sup>2</sup> In 2001, the ADB appeared even more pessimistic, arguing that environmental degradation in the region was ‘pervasive, accelerating and unabated’ (ADB 2001: 4). By 2006, the United Nations Environment Programme (UNEP) reported some ‘encouraging signs’ that governments in the region were responding to population pressures and ‘extremely rapid environmental growth’ in dealing with environmental problems (UNEP 2006: 18). However in its preparatory work for the 2010 Asian Environment Outlook, the ADB expressed concern that ‘Asia’s rapid economic growth in recent years, combined with brisk urbanization and continued population increase, is changing consumption patterns for a wide range of material, energy, and water resources to an unprecedented degree’ (ADB 2009a: 2). The Bank went on to express its concerns that ‘Asian and Pacific societies are likely to face worsening environment-related risks during the 21st century, as most countries in the region are already highly vulnerable to natural disasters’ (ADB 2009a: 2). By 2010, in preparation for the 6th Ministerial Conference on Environment and Development in Asia and the Pacific, UNESCAP suggested that ‘basic “state of the environment” indicators do not indicate significant improvement in overall [environmental] trends’ (UNESCAP 2010: 3) and reported that as a result ‘larger numbers of people are now more vulnerable to environmental change than before’ (UNESCAP 2010: 2).

There is no doubt, then, (despite UNEP’s guarded optimism) that environmental degradation remains a serious challenge for many governments in the region. The question is whether, and if so how, environmental degradation and its consequences should be understood as security concerns in Asia.

### **Environmental security: a brief history**

Debates and claims about whether or not this litany of environmental problems in Asia will (somehow) result in threats to national and regional security have not taken place in a policy vacuum (see Elliott 2007a). The proposition that various forms of environmental degradation should be taken seriously as a security concern is a global debate that had its genesis in the reassessment of the nature of national and international security after the end of the Cold War. As part of the move to examine security in what are usually referred to as non-traditional terms, the concept ‘environmental security’ seemed to offer new answers to the questions ‘security for whom and from what?’. As noted in the introduction, the orthodox version of environmental security has been primarily a process of adding one more threat – albeit a non-traditional one – to challenges to states and causes of conflict. Efforts in the academic community to trace and categorize causal relationships of the kind embodied in what Thomas Homer-Dixon described as ‘relative deprivation’ conflicts (Homer-Dixon 1991: 109)<sup>3</sup> – relationships that Norman Myers suggests are ‘hardly ... coincidental’ (Myers 1989: 33) – were taken up rather quickly in the policy and journalistic community. Perhaps the most pessimistic and dystopian example is found in Robert Kaplan’s argument that environmental degradation will be:

the national security issue of the early twenty-first century. The political and strategic impact of surging populations, spreading disease, deforestation and soil erosion, water depletion, air

pollution and, possibly, rising sea levels in critical, overcrowded regions like the Nile Delta and Bangladesh—developments that will prompt mass migrations and, in turn, incite group conflicts—will be the core foreign policy challenge from which most others will ultimately emanate

(Kaplan 1994: 58)

Concerns about the impact of environmental degradation on security, and particularly the likelihood of instability and conflict, were articulated – in very general terms it must be acknowledged – in a series of high-profile public statements about international peace and security in a post-Cold War era. Boutros Boutros-Ghali's 1992 *Agenda for Peace* suggested that ecological damage might be a new risk for stability (United Nations Secretary-General 1992: 5). In the same year, a Communiqué from the first ever UN Security Council Summit of Heads of State and Government declared that 'non-military forms of instability in ... the ecological field have become threats to peace and security' (United Nations Security Council 1992). NATO's *Strategic Concept* also suggested that 'security and stability have ... environmental elements as well as the indispensable defence dimensions' (NATO 1999: para 25). Worries about the environmental impact of conflict – that is, environmental degradation as a consequence of war rather than a cause of it – motivated the establishment of a post-conflict environmental assessment unit under the auspices of the United Nations Environment Programme and HABITAT. The US government established an office of Under-Secretary of Defence for Environmental Security, although its primary concern was to ensure that defence establishments were managed in a more environmentally sound way. Various think tanks, mainly in Europe and North America, established research programmes on the environment and security. For most security analysts, however, environmental and human issues were seen to be incidental to more traditional concerns about military-related threats and the conflict and instability that might result.

These themes gained more prominence (although not necessarily any more empirical credibility) in the first years of the twenty-first century. In 2000, UN Secretary-General Kofi Annan reported to the General Assembly, in his Millennium Report, that the degradation and even possible destruction of the planet's ability to provide life-sustaining services was a fundamental global challenge to the security of current and future generations (United Nations Secretary-General 2000: 55–65). The Report warned of a real risk that 'resource depletion [and] severe forms of environmental degradation [could] increase social and political tensions in unpredictable but potentially dangerous ways' (United Nations Secretary-General 2000: 44). These concerns were taken up once more by the 2004 report of the UN Secretary-General's High-Level Panel on Threats, Challenges and Change, which proclaimed that the 'biggest security threats ... extend to environmental degradation' (United Nations 2004: 1).

Despite these regular references in the 1990s and early 2000s to connections between environmental degradation and security, environmental issues rarely took prominence over other concerns as a key driver of security policy. From the latter part of the 2000s, these debates – and one in which Asia features prominently – were rejuvenated as governments, international organizations and non-governmental organizations directed their attention to climate change as a likely source of conflict. This was accompanied by an almost damascene conversion of defence and military practitioners to environmental security as central to their particular mission.

### *Securitizing climate change*

In March 2007, the new UN Secretary-General Ban Ki-moon anticipated that 'climate-related changes in [the] environment and the resulting upheavals – from droughts to inundated coastal

areas to loss of arable lands – are likely to become a major driver of war and conflict’ (UN Secretary-General 2007). The Board of the Bulletin of the Atomic Scientists concluded that ‘global warming poses a dire threat to human civilisation that is second only to nuclear weapons’ (Bulletin of the Atomic Scientists 2007) and, in consequence, moved the hands of its doomsday clock from seven to five minutes to midnight. In its 2007 *Strategic Trends* release, the UK Ministry of Defence identified climate change, a shifting environment, and an increased demand for natural resources such as food, water and energy, as challenges to stability that would create new sources of insecurity and tension (UK Ministry of Defence 2007). In April 2007, the Military Advisory Board of the Center for Naval Analysis in the US released a widely cited report arguing that climate change would generate significant threats to US national security interests (The CNA Corporation 2007). The UN Security Council held its first and somewhat controversial debate on global warming in April. British Foreign Secretary Margaret Beckett, at the time president of the Security Council, told the Council that the threat from climate change had grown ‘larger in scale and sharper in outline’ with consequences that ‘reach to the very heart of the security agenda’ (Beckett 2007: 18).

In September 2007, the London-based International Institute for Strategic Studies (IISS), which styles itself as the world’s leading authority on political-military conflict, included a long discussion of climate change in its annual *Strategic Survey*, identifying climate change as a potential ‘existential security threat’ (IISS 2007: 47). In October 2007, in a widely anticipated but nevertheless controversial decision, the Nobel Peace Prize was awarded jointly to the Intergovernmental Panel on Climate Change and former US Vice-President Al Gore for their work on climate change. In announcing the prize, the Norwegian Nobel Committee said that climate change was a threat to the security of humankind but one that might also ‘induce large-scale migration’ and ‘increase [the] danger of violent conflicts and wars within and between states’ (Norwegian Nobel Committee 2007).

In March 2008, the High Representative and the European Commission prepared a paper on climate change and international security for the Council of the European Union (European Commission 2008). In April 2008, the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) published its report *Climate Change and Security: Challenges for German Development Cooperation* on behalf of the German Federal Ministry for Economic Development and Cooperation (Carius *et al.* 2008). Climate change featured in the UK government’s first-ever National Security Strategy published in March 2008 (Cabinet Office 2008) and in a US National Intelligence Assessment in June later that year (Fingar 2008). In June 2009, the UN General Assembly adopted a draft resolution sponsored by the Pacific Island countries, which called (among other things) for a comprehensive report on the possible security implications of climate change to be prepared for the 64th session of the General Assembly (UNGA 2009). In September 2009, the UK government appointed – from within the ranks of the defence forces – a climate and energy security envoy, Rear Admiral Neil Morisetti, in response to their concerns that ‘climate change will act as an increasingly powerful amplifier of instability across some of the most volatile regions of the world’ (Foreign and Commonwealth Office 2009). The US administration’s 2010 Quadrennial Defense Review (QDR) reinforced this view. While noting that climate change alone does not cause conflict, it also suggested that ‘climate change could have significant geopolitical impacts around the world ... contribute to food and water scarcity, ... increase the spread of disease and ... spur or exacerbate mass migration’ (Department of Defense 2010: 85). Global debates about the security implications of climate change have also raised concerns about new geopolitical tensions and a changing balance of power that comes not from changes in military capability but from resilience or otherwise to the impact of global warming. Russia’s attempts to claim the Arctic seabed are seen in this light, as are debates in Canada about the

security, sovereignty and defence implications of an ice-free Northwest Passage (which could provide a direct shipping route from Europe to Asia).<sup>4</sup>

## Securitizing the environment in Asia

As Ralf Emmers observes in Chapter 23 of this volume, the idea that security should be understood in comprehensive terms has become a feature of regional security debates and is one of the key principles guiding efforts to develop an Association of Southeast Asian Nations (ASEAN) Security Community. The ASEAN Regional Forum (ARF) recognizes ‘the existence of or emergence of some threats to peace in the form of ... non-traditional issues’ that demand a ‘holistic and comprehensive approach’ (see for example ARF 2005a: paras 6 and 22). The 2005 ARF seminar on enhancing cooperation in the field of non-traditional security issues noted that such issues, including environmental degradation, have ‘in varying degrees, posed threats to the stability and development of the Asia Pacific region’ (ARF 2005b). In November 2010, the ARF convened a seminar on the specific security implications of environmental change. Individual governments have also given some attention to environmental threats. China’s 2006 national defence White Paper, for example, observes that security issues related to environmental degradation are becoming more damaging in nature (Information Office of the State Council 2006). The Republic of Korea’s contribution to the ARF’s 2005 *Annual Security Outlook* (ASO), discusses ‘newly emerging non-traditional kinds of threats [including] environmental hazards’ as a ‘challenge to stability in the region’ (ARF 2005c: 73). In the same ASO, both Indonesia and Thailand included environmental matters in their analysis of maritime security (ARF 2005c: 66, 99). In the 2009 *Annual Security Outlook* (the most recent available at time of writing), almost all contributing countries referred to the security challenges that could arise from environmental change and, especially, from climate change (see ARF 2009a).

In the Asia-Pacific, where diplomatic relationships are often still hostage to recent and not-so-recent histories, tensions over environmental degradation and resource depletion (particularly if the result of illegal cross-border activity) can become a proxy for other differences. This ‘multiplier effect’ has also become a central theme in understanding how environmental degradation might be implicated in instability within countries. This version of security anticipates the sources of national and societal insecurity to be internally rather than externally generated. One of the prominent themes in the environmental security literature is that environmental scarcity, disputes between competing users and the inability of communities and governments to deal with the consequences of global problems such as climate change will lead to ‘civil turmoil and outright violence’ (Myers 1989: 24). UN Secretary-General Ban Ki-moon has expressed fears that this could, in turn, (further) weaken the ‘institutional capacity of states to resolve conflict through peaceful and democratic means’ (cited in UN Department of Public Information 2007).

The Asia-Pacific has seen a range of localized tensions over resource and environmental issues, although few of these are likely to result directly in the kind of instability and fragility that the more alarmist versions of the environmental conflict models might anticipate. Nevertheless, in a region that some report as having an already higher than average number of internal armed conflicts and struggles of various kinds (Reilly 2002: 8), the multiplier effect of environmental and resources scarcities and stresses should not be discounted (or, at the very least, more research is required to understand whether claims about increased social violence and instability are valid). Nepal, Indonesia and the Philippines have been labelled by some strategic analysts as countries in which unsustainable resource use, mismanagement and environmental degradation could drive instability and insurgency ‘on a par with ethnic and religious issues’ (Asia Pacific Center for Security Studies 2002). This is particularly so because local environmental stresses are thought to

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be more likely to lead to political and social instability in situations where governments are unable to respond to resource and environmental demands. These issues filter into a traditional state–security model when governments use force or the apparatus of the state to respond to challenges to authority. Extreme vulnerability to environmental degradation and increased reliance on food and energy imports could also affect the geo–strategic balance in the region if that vulnerability becomes a key variable in governments’ loss of political legitimacy or in state collapse or failure.

As foreshadowed in the introduction, a focus on political instability and social tension constitutes a limited and incomplete approach to environmental security. The human security consequences of environmental degradation need to be assessed with two things in mind. First, for peoples and communities, freedom from want and freedom from harm are as much a measure of regional and global security as freedom from fear. Second, in often complicated ways, human insecurities and social stresses can sometimes be tied up with more conventional interpretations of state and regional security. The environmental externalities of unsustainable development have direct consequences for the security of peoples and communities in the region. It is they who ultimately bear the cost of environmental harm through increased vulnerability, poverty, disease, loss of livelihoods, and food insecurity – sometimes to the extent of malnutrition and starvation.<sup>5</sup> Communities are dislocated by the environmental consequences of development projects. Indigenous peoples are displaced culturally and physically from their land. Environmental decline and resource depletion sustain poverty in Asia where almost one–quarter of the population still lives on less than one US dollar a day, even though absolute poverty has declined. The poor in both urban and rural areas remain the most disadvantaged and impoverished by environmental degradation, pollution and resource depletion because they are the least able to buy their way out of its consequences – a challenge that the ADB refers to as ‘environmental poverty’ (ADB 2007).

## Water security

Most parts of the Asia–Pacific are projected to experience increased water–resource stress as a result of climate change. The Consortium of Non–Traditional Security in Asia reports that since 1950, ‘water availability per capita has already decreased by sixty percent in North Asia and by fifty–five percent in Southeast Asia’ (CNTSA 2008: 3). In the more traditional approach to climate security, vulnerability to water stress and increased drought is anticipated to trigger distributional conflicts and ‘fuel existing conflicts over depleting resources, especially where access to those resources is politicised’ (European Commission 2008: 3) or where there are limited or weak institutional frameworks for the ‘adaptation of water and crisis management systems’ (German Advisory Council 2007: 2). Several countries in the region have a high dependency ratio for renewable water resources (that is, the proportion of their total renewable water resources that originate outside the country’s borders). Transboundary river systems are often moderately or highly affected by fragmentation (that is, the river’s natural flow is interrupted by dams, inter–basin transfers or other forms of water withdrawal) (see UNEP 2008). The UK Ministry of Defence anticipates that in the region’s transboundary river systems, such as the Mekong for example, ‘large–scale farmers [will] ... benefit at the expense of smaller [farmers], ... there will be disruption of fisheries ... [and there is] likely to be increased tension over water resources’ (cited in IISS 2007: 63). Chellaney argues that in South Asia climate change is ‘likely to intensify inter–state and intra–state conflicts ... over water’ (Chellaney 2007: 62).

Yet these are controversial claims. Most serious commentators have rejected the likelihood of ‘water wars’ between countries. Detailed historical studies suggest that interactions over water



resources are more likely to result in cooperative rather than conflict outcomes (see Wolf 2007). Although transboundary water resources present difficult management problems, evidence from Asia (including South Asia) suggests that as water-resource problems increase, governments are usually driven to find cooperative rather than competitive management regimes. Diplomatic tensions over riparian rights and the use of transboundary river systems are another matter. Despite the efforts of the Mekong River Commission, for example, the claims made by Laos and Vietnam that they have the right to exploit the resources of their respective stretches of the Mekong as they see fit (for hydropower and water management) are a source of friction with Cambodia, which falls almost entirely within the river basin and relies heavily on the quality of river flow for irrigation and rice production. States downstream of the People's Republic of China are concerned about the impact of that country's various projects to dredge and dam the upper reaches of the Mekong, which is likely to affect the ecology of the river basin, flood and siltation patterns, salinity and the viability of freshwater fish stocks. Transboundary river pollution – caused by such problems as agricultural run-off, industrial chemical waste and the dumping of mine tailings – has become another source of dispute in Northeast Asia, particularly between Russia and China.

From a human security perspective, water (in)security involves more than tension and the possibility of violent competition among competing users (and uses). UNESCAP calculates that up to 650 million people in Asia and the Pacific do not have reliable access to safe water – and this has very real and immediate consequences for human security (UNESCAP 2006a: 2).<sup>6</sup> Both poor quality water and limited access to water, whether through the overdrafting of water supplies or through drought, can undermine agriculture (which accounts for between 70 and 80 per cent of water use in the region), exacerbate food scarcity and compromise sanitation.<sup>7</sup> For many millions of people, and particularly the poor, this has consequences for nutrition, health and the disease burden and, increasingly, for who lives and who dies.

## Food security

Food insecurity refers to both the shortage of food and vulnerability to high food prices that put food staples out of the reach of the poor. It arises through problems of land degradation and loss of soil fertility caused by deforestation, overuse of chemicals, inefficient irrigation and water-logging, as well as drought and desertification, diversion of food crops into biofuels, market failure and an ineffective and unfair distribution of food, over-capitalization of the global fishing industry and the overexploitation of many of the world's fish stocks, and coastal and river pollution from development that destroys fishery breeding grounds.

As a whole, Asia has become a net importer rather than exporter of food. Land degradation is now so widespread that more than one-third of the population in Asia (and this includes Central and South Asia) lives in areas vulnerable to drought and desertification (UNEP 1999: 96). India is estimated to have come close to exhausting the productive potential of agricultural land. The potential for expansion of China's productive land is also limited. The unpredictability of wet and dry seasons as a result of climate change is already having an impact on agriculture, with harvests being disrupted, rural incomes dropping, and hunger and malnutrition increasing (especially among children). The State Meteorological Administration in China has calculated that global warming could cause China's grain harvest to fall by 5–10 per cent, with a food shortfall of 100 million metric tons by 2030 – a serious problem in a country that is already losing farmland to deserts and has little capacity to increase arable land (Anonymous 2007c). The Western Central Pacific maritime zone is thought to be under less pressure than fisheries elsewhere in the world, although fish stocks still remain vulnerable to overexploitation. The development of fish farming

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(aquaculture) to compensate for loss of marine and riverine fisheries has been pursued with such vigour that Asian countries now dominate world production. However, the environmental costs have been substantial: ‘destruction of mangrove forests, conversion of wetland habitats, introduction of exotic species, increased use of chemicals ... degradation of water quality, and discharge of nutrients and other wastes’ as well as the loss of breeding grounds for wild fish stocks (UNEP 2001: 28).

A more traditional version of environmental security worries about food scarcity as a geopolitical multiplier in situations where food-exporting countries become net food importers or are generally made more vulnerable to global markets and to the security of trade routes. Efforts to scale down geopolitics to the domestic or local level have recognized that food scarcity heightens poverty, but have perceived this as a trigger for domestic grievances and social disruptions. Thus the UN’s High Level Task Force (HLTF) on global food security has argued that ‘[r]ising food prices bring the threat of unrest and political instability. This threat is particularly acute in countries in conflict or post-conflict situations where political and social institutions are fragile and less able to provide the rapid response which can calm social panic’ (United Nations 2008: 3). Attention is therefore paid to food security ‘hotspots’: those countries where not just food shortages but also food conflict is a possibility. In Asia, according to UNESCAP, those countries include Burma, Cambodia, North Korea, Indonesia, Laos, Mongolia, the Philippines, Thailand, Timor-Leste and Vietnam (UNESCAP 2009: 29).

But as the HLTF also observed, ‘the vast majority of the world’s hungry continues to suffer in silence. In placating the dangerous, there is the risk that the peaceable hungry are overlooked’ (United Nations 2008: 3). This distinction between those who are the ‘dangerous hungry’ and those who are the ‘peaceable hungry’ is itself a problem from a human security perspective, even as it recognizes that many are entirely marginalized from global concerns about those who suffer and are most insecure. Projected reduction in crop yields, particularly in key cereal crops, and a decline in the availability of fish protein will result in malnutrition, an increased disease burden, and in some cases starvation for many of the region’s most disadvantaged. An extra 130 million people in Asia are anticipated to be at risk of hunger in the face of food scarcity. Indeed, the 2010 Asia and the Pacific Regional Food Security Partnership Framework confirmed that ‘Asia is home to the largest number of poor and undernourished’ in the world (ADB 2010c: 1).<sup>8</sup>

## Climate change

The challenges of food and water (in)security are inextricably linked to the problem that features prominently in most current versions of environmental insecurity – climate change. The Intergovernmental Panel on Climate Change (IPCC) reports a worrying litany of likely climate-change impacts for the Asia-Pacific.<sup>9</sup> These include a decline in crop yield, an increase in climate-induced disease, unpredictable rainfall, an increased risk of hunger and water resource scarcity, an increase in the number and severity of glacier melt-related floods, significant loss of coastal ecosystems, many millions of people in coastal communities at high risk from flooding, and an increased risk of extinction for many species of fauna and flora.<sup>10</sup>

Climate change is likely to interact with other socio-economic and political stresses in complicated ways. The International Institute for Strategic Studies, in its 2007 Strategic Survey, summarized the security consequences of climate change in the following way:

The security dimension will come increasingly to the forefront as countries begin to see falls in available resources and economic vitality, increased stress on their armed forces, greater

instability in regions of strategic import, increases in ethnic rivalries, and a widening gap between rich and poor

(*IISS 2007: 68*)

Conflict and instability is thought more likely in conditions where people face a contraction of livelihood choices, and where governments face increased demands on critical social infrastructure such as health systems, the overstretch of societies' adaptive capacities, and the growth of a politics of resentment in situations of ecological marginalization where unequal access to resources is politicized or where resource scarcities feed into existing tensions between ethnic, religious or other identity groups. Many countries in the Asia-Pacific fit this 'profile' and are thus assumed to be more vulnerable to internal conflict and unrest sparked by the environmental, economic and social impacts of climate change.

The non-governmental organization International Alert (IA) has identified 46 countries – home to 2.7 billion people – in which it anticipates that 'the effects of climate change interacting with economic, social and political problems will create a high risk of violent conflict' (Smith and Vivekananda 2007: 3). It lists another 56 countries – home to 1.2 billion people worldwide – in which 'the institutions of government will have great difficulty taking the strain of climate change on top of all their other current challenges' (Smith and Vivekananda 2007: 3). Burma, Indonesia and the Philippines are the three countries in the Asia-Pacific thought most likely to fall into the first category. Cambodia, Laos, North Korea, Thailand and Timor-Leste are included in the second. While IA suggests that the 'risk of armed conflict may not be so immediate' in the second category, they also argue that 'the interaction of climate change and other factors creates a high risk of political instability, with potential violent conflict a distinct risk in the longer term' (Smith and Vivekananda 2007: 3). Among those 'other factors' that are assumed to influence social tensions, climate change-induced migrations and internal displacements – in some cases of many millions of people – features prominently in public debate. The Report of the IPCC's Working Group II suggests that climate-related disruptions of human populations are likely both within states and across national borders, with sudden sharp spikes in rural to urban migration in some countries (IPCC 2007: 488). The Center for Strategic and International Studies in Washington DC has suggested that 'large-scale migrations of people – both inside nations and across existing national borders' is 'perhaps the most worrisome [of] problems associated with rising temperatures and sea levels ... [that] could easily trigger major security concerns and spike regional tension' (Campbell *et al.* 2007: 8). Yet as Preston *et al.* point out, very little is known about how climate change will interact with other migration pressures and incentives (Preston *et al.* 2006: 49).

Climate change will have a fundamental impact on the survival and also the livelihoods of millions of people in the region. Of the ten countries in the world most imperilled by climate change in terms of the number of people likely to be affected, six are in the Asia-Pacific region: China, Vietnam, Indonesia, Japan, Thailand and the Philippines (Gray 2007). The IPCC notes that 'projected climate change-related exposures are likely to affect the health status of millions of people, particularly those with low adaptive capacity' through increases in malnutrition, greater frequency of death, injury and disease from heatwaves and other disasters of nature, an increased disease burden including diarrhoea, cardio-respiratory illness, and infectious diseases (IPCC 2007: 12). Climate change will create further economic uncertainties and not just for the region's poorest, although they are likely to be the least resilient and least able to adapt, at least in the short-term. In conditions of economic weakness (the term used by IA), the range of income possibilities is narrowed and the state is also deprived of resources with which to meet people's needs (Smith and Vivekananda 2007: 3). In Southeast Asia, for example, more than 300 million

people live on incomes that fall below US\$2 per day (more than 40 per cent of the region's population).<sup>11</sup>

Climate change will almost certainly undermine or slow progress towards the achievement of the Millennium Development Goals, including those that aim at reducing poverty and achieving sustainable development, by the 2015 target deadline.<sup>12</sup> Poverty, in turn, exacerbates climate insecurities. In a region where subsistence lifestyles constitute a significant proportion of human livelihoods, the poor in rural areas in particular will be disadvantaged and impoverished by climate change. Marginal incomes provide little or no safety net against health burdens, food insecurity, flooding and drought, or other impacts of climate change. As noted earlier in this chapter, those who are economically marginalized are also the least able to pursue adaptive strategies and the least able to buy their way out of the impacts of environmental degradation, including climate change.

### **Concluding thoughts: addressing the regional challenges of environmental security**

The main purpose of this chapter has been to set out some of the key issues and themes that help to define the security challenges presented by environmental degradation. This final section provides some brief thoughts on the broad trend of appropriate responses. It should be clear that traditional security responses, based primarily on military capacity, arms modernization and security sector reform, are likely to be inadequate and inappropriate for responding to environmental degradation as a non-traditional security challenge. Going to war over scarce resources is strategically ineffective for resources that are shared and held in common. Pursuing military solutions to cross-border environmental incursions – for example to prevent activities in another country that have environmental consequences elsewhere, or to prevent illegal environmental or resource activity – is likely to exacerbate regional instability rather than enhance national security. While the more extreme of the responses to predictions about environmentally induced migration have advocated the use of military force and the application of 'fortress' models to protect borders (usually for Western countries against those from the more environmentally disadvantaged countries), this too is likely to increase instability and uncertainty, and to continue to penalize those who are already most vulnerable. In any case, it is a strategy that responds to outcomes and consequences rather than addressing and seeking to prevent the causes of environmental disadvantage and vulnerability.

Many governments in the region have begun to use military capacity in a different kind of environmental security capacity. In some cases, this involves deploying serving personnel in a semi-constabulary border-control role, against timber traffickers for example or wildlife poachers.<sup>13</sup> Naval capacity is seen to be a useful 'last resort' against illegal fishers although such strategies are more effective if they are part of a more comprehensive response strategy that also includes advance intelligence, economic incentives and disincentives, and education about alternative livelihoods. Military forces have also been used extensively in response to natural environmental disasters such as flooding and extreme weather events.

The most effective responses will be those that focus on *preventing* conflict and instability; on minimizing pollution, environmental degradation and resource scarcity; and on building the necessary capacity to support those who are most affected by the human insecurities of environmental change. This also means addressing fundamental problems of poverty and inequality. The human security aspects of environmental change are tied to the challenges of social (in)equality that in turn can feed into more explicit social grievances. The problem is not merely that the poor

are affected by most of the environmental problems, but that they are affected disproportionately. As Simon Tay has pointed out, overcoming poverty and social inequality can help to build the conditions for peace and stability, even in situations where there is no immediate or clear threat of violence (Tay 1997: 121). Some of these strategies are already in place, but their implementation in the region remains uneven and often ineffective.

The key steps to building security in the Asia-Pacific region have relied very much on cooperation and dialogue to build trust among parties. The strategies to do this have included confidence-building measures and preventive diplomacy, strategies that are equally applicable to managing tensions and instabilities that might arise from resource scarcity and environmental degradation. Nevertheless, these approaches under institutions such as the ASEAN Regional Forum have not gone very far. Proposals for regional early warning units or risk reduction centres as part of the region's security architecture have generally not been well advanced, although they could make an important contribution to identifying and responding to the range of non-traditional insecurities that environmental degradation can bring.<sup>14</sup>

Governments in the region, with the support of regional organizations, also need to be addressing the causes of environmental degradation that may exacerbate regional instabilities, social stresses, economic disruption and human insecurities. This is about building resilience, reducing risk and managing vulnerability. Some environmental problems, such as air and water pollution, are potentially reversible whereas others such as land degradation and the loss of biodiversity are not. As many of the regional reports note, most governments have adopted a suite of initiatives on sustainable development and environmental degradation. Yet, as noted in the Southeast Asian subregional report for the World Summit on Sustainable Development, these 'var[y] markedly from country to country' (Task Force 2001: 201). There are a range of obstacles to successful environmental policymaking and implementation. UNESCAP suggests that the 'principal environmental challenge ... [is] policy reform and its effective implementation in both cross-sectoral and sectoral issues,' arguing that there is a scarcity of 'prudent and sensible economic policies with adequate safeguards for environmental protection at the national level' (UNESCAP 2000: 10). UNEP takes a more wide-ranging approach, drawing attention to 'inadequate implementation, enforcement and monitoring, a lack of capacity, expertise, know-how and coordination among different government agencies ... insufficient public participation, environmental awareness and education ... [and a] lack of integration of environmental and economic policies' (UNEP 2007: 215). Regional initiatives have been unable, Simon Tay argues, to make up for the omissions of national systems (Tay 1998: 205). Financial and technological assistance from developed countries to support capacity-building in the areas of mitigation and adaptation have been inadequate to help countries in the region overcome environmental challenges.

The themes and problems identified in this chapter show that environmental degradation and resource scarcity are likely to be important challenges to regional stability, not because they will result in interstate conflict but because of their impact on social tensions, stress and the possibility of violence within states and communities, on government capacity, authority and legitimacy, on economic vitality and on human security and vulnerability. Despite claims in regional security statements that environmental degradation and resource scarcity should be taken seriously as a challenge to national, regional and human security, the development of security architecture and security policy rarely takes such concerns into account. Making these connections more explicit may well bring a heightened 'degree or urgency' to the implementation of policies designed to address environmental mitigation and adaptation and, if implemented appropriately, enhance both human and regional security.

## Notes

- 1 The extent of these environmental problems is regularly outlined in reports prepared by individual countries and by regional organizations. ASEAN, for example, has produced four *State of the Environment* reports. The Asian Development Bank also produces regular reports on the environmental and development challenges facing the region (the 2010 report was in production at time of writing), as does the United Nations Environment Programme in its *Global Environment Outlook* series.
- 2 Between 1995 and 2002, industrial production in Asia grew by almost 40 per cent, compared with a world industrial growth rate of 23 per cent;
- 3 Homer-Dixon was at pains to be clear that in his view environmental scarcity *alone* would not lead to violence and that where environment-related violence did occur it was the result of complex economic, political and social factors (1999: 178).
- 4 The Canadian government considers the Northwest Passage to be part of Canadian internal waters, whereas other governments (including the United States and the European Union) consider the passage to be an international strait.
- 5 Mortality rates from ambient and indoor air pollution, along with the incidence of chronic respiratory illness, are increasing. Solid waste and effluent pollution of water leads to health problems ranging from diarrhoea and dysentery to cholera and typhoid. Dirty water and poor sanitation result in more than half a million infant deaths a year in the region.
- 6 Other reports put the figure higher, closer to 700 million (The Asia Society 2009: 7).
- 7 The problem for human security comes not just from water scarcity. An increase in precipitation and more frequent floods is likely to result in 'degraded water quality and [an increase in] water-borne infectious diseases such as dermatosis, cardiovascular disease and gastrointestinal disease' (Wong Poh Poh 2008: 5).
- 8 The Asia and the Pacific Regional Food Security Partnership Framework was adopted on 9 July 2010 by the Asian Development Bank, the Food and Agricultural Organization, and the International Fund for Agricultural Development.
- 9 The economic costs will be high: a doubling of atmospheric carbon dioxide is estimated to cost the ASEAN countries between 2.1 per cent and 8.6 per cent of GDP, much higher than the world estimates of 1.4 per cent to 1.9 per cent (ASEAN Secretariat 2002: 40).
- 10 Despite claims that China is now one of the world's leading polluters, the region's *per capita* contributions to carbon dioxide (CO<sub>2</sub>) emissions remain low compared with world contributions. Averaged across all countries, Southeast Asia's *per capita* contributions to CO<sub>2</sub> emissions, for example, amount to about 1.5 tonnes per person compared with an average developing-country contribution of about 2.1 tonnes and an OECD emission rate of about 10.9 tonnes *per capita* a year (ASEAN Secretariat 2002: 40). Nevertheless, emissions are growing substantially.
- 11 On 2005 figures, about 93 million (18.8 per cent) of people in Southeast Asia lived below the US\$1.25-a-day poverty line, and 221 million (44 per cent) below the US\$2-a-day poverty line (ADB 2009b: 53).
- 12 For more, see United Nations Millennium Campaign (n.d.) and UN ESCAP/ADB 2007.
- 13 In a speech on ASEAN's Security Community in 2004, Rodolfo Severino (by then no longer ASEAN secretary-general) pointed out that ASEAN 'may have to confront ... sensitive realities [such] as the involvement of some national security agencies in ... environmental destruction' (2004: 12). His focus in this comment was on maritime security but it applies more broadly.
- 14 Where they do exist, they often focus on quite sector-specific aspects. For example, APEC's Industrial Science and Technology Working Group is providing assistance for the development of an early warning system on high-impact climate changes.