1. Introduction

The majority of the world’s population and physical assets are urban based, yet little is known of the ways in which competing visions and manifestations of urbanization affect the social distribution of environmental risk associated with climate change, and the opportunities for new policies to improve human security in coastal zones. Globally, climate perturbations exacerbated by global warming carry important implications for human security, especially in coastal locations. Among the most important of these perturbations is the increased severity of hurricane-force storms. This book investigates social and political capacity, and action taken to adapt to the risks and impacts of hurricanes, drawing on our research from an area that is increasingly at the ‘front line’ of global climate change: the Mexican Caribbean coast (see Figure 1.1) (ESRC grant RES-062-23-0367). It compares the impact of changes in governance regimes, under rapid urbanization, on local adaptive capacity and the actions undertaken by state, non-state and individual actors, against the background of the historical development of the region, focusing on the tourist industry. The book concentrates on the development of social capital and the uses to which this is put under pressure from risk and impacts of extreme climatic events.

We seek to develop a theoretical framework and an empirical evidence base to explore the effect of rapid urbanization, human migration and changes to local governance regimes on the geographical and social distributions of vulnerability, adaptive capacity and risk in highly hazardous coastal regions. Thus the book opens a research frontier on to the linkages between urban processes, the management of climatic extremes and human security, in a socioeconomic context increasingly defined by global tourism.

OBJECTIVES AND RATIONALE

To appreciate fully the complexities surrounding coastal sustainability in areas marked by enormous social, demographic and environmental changes, it is important to develop an understanding of the ways in which
Climate change and human security

Urban governance is changing, in response to both environmental threats and the opportunities and risks presented by rapid social change. The book examines the role of adaptive capacity in extending human security in the face of extreme climatic events, storms, hurricanes and tidal surges associated with the impacts of climate perturbation. It explores how the interlocking processes of urbanization and human security are negotiated by competitive actors, with different visions of urban society, security and governance, which in turn provide distinctive approaches to the management of human insecurity under conditions of extreme environmental risk.

The case that has been chosen to illustrate wider arguments is one of the world’s most rapidly urbanizing coastlines, which is highly exposed to climatic hazard (García Acosta, 2003). This area has been selected because it offers an opportunity to study the interaction of two distinguishable


Figure 1.1 Location of the Mexican Caribbean and towns under study
paradigms for enhancing social resilience and human security. Our project began by posing two alternative models to explain what is happening on the Mexican Caribbean coast. On the one hand, developers and corporate bodies, as well as most agencies within the state government of Quintana Roo, promote the ‘ecological modernization’ model as a route to sustainable development (Janicke, 1990; Hajer, 1993). This involves internalizing environmental risks through technocentric innovation and regulation, for example by building and repairing more robust hotels, surfaced roads and sea defences along the coast. The aim is to generate development opportunities through a demand for building construction, inward investment and employment opportunity in associated trades. This model rests on the use of commercial insurance, the prompt delivery of building materials and political support from local government agencies. It is embedded in a cultural discourse of modernization and a political narrative of a state undergoing neoliberal reform.

The second analytical model that we examined, the ‘endogenous livelihoods’ model, is a more bottom-up strategy, emphasizing strengthening of local communities’ abilities to meet challenges themselves, through social capacity building and self-reliance. Material expressions of this model include a preference for the use of traditional building materials in vulnerable areas, privileging local community labour and resource management practices, and the restoration of diverse forms of livelihood, which minimize both social and ecological risks. This model recognizes the need to live with seasonal ‘cyclonic stress’ in ways that minimize the risk of generating longer-term socio-ecological crisis (Konrad, 1996). The symbols of Mayan identity, maintained through local radio and community-level political and social institutions, provide a meta-narrative for this model of life. They contribute towards a shared identity with which to develop strategies for human security in the face of rapid urbanization and environmental risk, and which shape perception of the alternative, ecological modernization model.

The research for this book did not set these models and their attendant adaptive strategies for human security in opposition. Rather it focused on their interaction and examined opportunities for learning between what are often portrayed as antagonistic systems. It also examined how central government and international interventions respond to, and how they might build upon, both approaches.

Reframing development debates as overlapping rather than in opposition, or as linear components of progressive development, draws from co-evolutionary theory (Norgaard, 1994) and offers important scope for understanding the shaping of human security in rapidly urbanizing societies where processes, symbols and systems of the post-modern, modern
and pre-modern coincide and interact. On the Yucatán coast this is played out in the context of widespread poverty (over 50 per cent of urban and 90 per cent of rural populations are unable to meet daily nutritional and welfare needs) and transition from an agricultural to an urban economy linked to tourism potentially redistributing risks of climate perturbation, particularly hurricanes. Hurricane Isidro in 2002 and Hurricane Wilma in 2005 affected over 2 million people and attracted considerable international concern, but most attention was concentrated on the tourist populations, not the rapidly increasing ‘host’ populations of urban areas such as Playa del Carmen and Cancún, and did not situate analyses of risk and loss in ongoing development policy.

Conceptualizing human security in a context of such hybrid urbanization also draws on risk society theory (Beck, 1992). Tourist development is tied to the global economy, and the accompanying environmental problems are complex, suggesting individual anxiety about environmental trends and apparent powerlessness in the face of new environmental threats. But these aspects of ‘wealth ecology’ are paralleled by a ‘poverty ecology’, as migrants and peasant farmers seek to establish themselves against a background of social exclusion and a failure, in some cases, to meet even basic human needs (Guha and Martinez-Alier, 1997).

The interaction of modern urban development and local migrant communities is marked by daily political conflicts over values, manifested through severe material and social conflicts. These are associated with urbanization driven by hotel development: over electricity, water supply and waste disposal, and compounded by conflict with international actors, for example, between Green campaigners, some of whom privilege the security of endangered species and habitats, and the local and migrant populations, who prioritize their own livelihoods and survival.

Our research, by comparing the interaction of two very different models of human security, one prompted by (post-) modernity and the other by adherence to endogenous resource management, seeks to establish whether different visions of risk and human security need to be considered as alternatives or as complements, and begin to theorize the negotiated human security of hybrid urbanization that increasingly characterizes the global South.

The capacity to adapt and enhance specific visions of human security in urban systems is shaped by the character of critical physical, social and economic infrastructure and the overarching governance systems that determine life quality and opportunities for meeting basic needs and human rights (Pelling, 2003). In addition to mapping the institutional structure of overarching governance regimes, the research focused on several case studies located at different points on the coast. Final selection
Introduction

was made in discussion with local partners, but recent research (Redclift, 2004) indicated that several systems, social, economic and physical, were most closely linked to the development of social capacity for adaptation. We intended originally to choose Playa del Carmen, Tulum and Tihusuco as the case study areas. However, as our research developed we saw the need to broaden our analysis to include Cancún itself (discussed in Chapter 4) as well as two small communities that combine tourism with other activities, particularly fishing: Mahahual and Isla Holbox.

Together, these case studies delineated critical aspects of environmental security and adaptation to hazards that lie at the heart of the research: high dependence on vulnerable natural resources, the priority attached to information and communication about hurricane and other risks, and the increasing importance of small-scale entrepreneurship, as one moves along the continuum from agricultural communities to the highly urbanized and modernized social structures of the coast.

The book also investigates emerging forms of governance associated with each human security model. For example, scope for building human security is demonstrated within the endogenous livelihoods model through local Mayan radio and primary school risk-awareness programmes; security is shaped by entrepreneurship and the systems of patronage, which have been adapted to urban coastal development, and which frequently link formal and informal economic sectors; and is contested over water management when tourist developments become dominant stakeholders.

By concentrating on vulnerability in critical systems, we seek to explore the practical implications of major shifts in thinking about the role of the state, which have developed out of the contested ascendancy of neoliberal policy, in Mexico as elsewhere in Latin America (Eakin and Lemos, 2006).

A CONCEPTUAL FRAMEWORK FOR EXPLORING HUMAN SECURITY AND ADAPTATION TO ENVIRONMENTAL RISK

Human Security and Climate Change

Human security focuses on individuals or communities rather than on nation states. The 1994 UNDP Human Development Report stressed the essential properties of the notion of human security: the centrality of people, universality, the interdependence of its components and, importantly for this research, its preventive stance (Bilgin, 2003). Nonetheless, the boundaries of the concept of human security are still vague and somewhat controversial (Page and Redclift, 2002).
Our approach follows the Commission on Human Security in understanding security as protecting the vital core of human life in ways that enhance human freedoms and fulfilment. Consequently, we locate human security within the everyday construction of risk, rather than in the development of international environmental regimes or historical moments. Basic needs and human rights agendas are brought together under human security (Gasper, 2005). A focus on human security identifies risk as a product of inequalities in human development, leading to the uneven accumulation of risk through time, including the consequences of economic globalization (Schipper and Pelling, 2005; O’Brien, 2006).

Urbanization, Institutions and Adapting to Multiple Risks

Urban disaster risk is not amenable to technical fixes alone, but is constantly being redefined as changes to urban landscapes and socioeconomic characteristics unfold. We sought in our research to establish, from different actors, what was to be secured: culture, society, individual needs or rights? Different answers generate competing priorities for human security.

Adaptation research has described, categorized and analysed adaptive actions and outputs (Adger et al., 2005) and identified local actors and those institutions that shape their operating environment as being most influential in determining adaptive capacity (Pelling et al., 2007; Grothmann and Patt, 2005). There is also a growing body of work that emphasizes political context, contestation and informal relationships as pathways to social learning (Pelling, 2003; Tompkins, 2005; Pelling and High, 2005).

Despite this work, measures of adaptive capacity continue to be reductionist, perceiving the individual as a rational economic actor or using formulae to disaggregate development indicators collected at the national level to indicate local risk (Pelling, 2006). It is at this point that our research made its chief methodological contribution. A conceptual focus on institutional forms and social relationships and use of a participatory methodology offered ways out of reductionism, allowing an assessment of generic as well as hazard-specific adaptive capacity. If development policy to enhance human security is to move from emergency responses to the amelioration of vulnerabilities, through building resilience, then it is critical to support adaptive capacity at a range of scales from the individual to the household, community and city level (Adger et al., 2005). This is a particular challenge for modernizing coastal regions where diverse but interdependent social groups face multiple hazards, which unfold at different temporal as well as spatial scales (Pelling, 2003).
There is a need to assess adaptive capacity in multi-risk contexts. In response, we used a research framework and methodology that conceptualize adaptive capacity as arising out of individual processes of social learning. These are embedded in social relationships given shape by formal and informal institutions (legislation and cultural norms), and held together by vertical and horizontal ties of social capital expressed through relationships of trust and reciprocity (Pelling and High, 2006).

METHODOLOGY

Four research sites were identified in the region under study, which helped throw light on the wider dimensions of human security in urban coastal locations. These represent exemplars of an urbanization continuum and allow comparison of risk-generating and -mitigating processes associated with modernizing and endogenous development models. The central focus of the research was the growing urban area of Playa del Carmen, which represented the foremost alternative to the kind of tourist-led urbanization established in Cancún. Playa has attracted large numbers of immigrants to its construction and tourist sectors, and many relatively small-scale entrepreneurs, some of them from outside Mexico. It represents the ‘hub’ of the ‘Mayan Riviera’ and has about 300,000 people.

The second site was Tulum, to the south of Playa. Tulum is an important ancestral site for the Maya, and its rapid urbanization is viewed more critically than that of Playa, which was virtually uninhabited in the 1970s. Large-scale capital infrastructure is planned for Tulum, including a new airport and large hotel complexes. The threats of ecological destruction mean that foreign conservation groups have become involved in the political struggles to protect the environment there. Much of the tourist development at the moment takes the form of low-impact ‘cabanas’, on a sand strip that separates the sea from the downtown.

Mahahual was the third site. This was a small fishing village that had begun to develop as a centre for ‘Green’ tourism, whose relative remoteness attracted foreign entrepreneurs in search of a tropical coast very different from high-rise Cancún, or even the rapidly developing Playa del Carmen. However, Mahahual also saw the development of a cruise port, and this, in turn, has attracted day-trippers from the cruise ships, and an associated tourism. Hurricane damage, as we shall see in Chapter 7, forced social conflicts into the open and today the village is faced with new challenges from the waterfront ‘malecon’ that is being constructed.

Isla Holbox originally lay outside our project criteria, in that it lies...
Climate change and human security

just to the west of Cancun, on the Gulf of Mexico coast, rather than the Caribbean. We included Holbox, however, because it has several characteristics that are important in the context of the region as a whole. As described in Chapter 7, Isla Holbox was a fishing community that adapted to new opportunities to exploit, first, lucrative fishing possibilities (notably lobster), and later the domestic tourists who wanted to go on fishing trips. Today in Holbox other tourists come for the beach and the sea, but the local community still exerts some control over the development of the place, profiting from small-scale entrepreneurship and exuding social capital based on strong bonds of kinship and family.

Methods

Our research examined the influence of evolving governance regimes and underlying value positions that shape risk management and adaptive capacities. This required three interrelated methodological processes that were applied to each study site:

1. Mapping the institutional architecture that structures negotiation between competing visions of security The institutional architecture of each study area was mapped in two stages. First, the fundamental division of decision-making authority, popular and legal legitimacy and responsibility and access to resources to implement decisions between the state (local, regional and national), civil society and private sector was mapped. Second, and building from this contextual mapping, a more detailed analysis was undertaken of the rules governing the interaction and outcomes of negotiation between competing actors involved in governance regimes. Institutions were analysed for their contribution to local adaptive capacity and action. Management reports, legislation and semi-structured interviews with stakeholders were used to derive data following a methodology developed for comparative analysis of urban governance regimes presented in Pelling (2003).

2. Undertaking local, participatory assessments of critical hazards, vulnerabilities and adaptive capacities In each study site a local area at risk was selected in consultation with local key informants. Each area includes around 500 households requiring participatory hazard, vulnerability and adaptive capacity appraisals. Methods followed the Red Cross Vulnerability and Capacity Assessment methodology that is becoming an international standard enabling international comparability of findings, and with which members of the research team have been involved. This methodology uses participatory appraisal
methods such as group discussion; transect walks, wealth, and hazard ranking.

3. **Exploring the core values, practices or assets that stakeholders aim to make secure, and the influence of social relationships in shaping the adaptive strategies employed by different stakeholders**

   Key stakeholders (leaders of social and environmental organizations, local business associations, local government and influential individuals) from each town were involved in a three-stage process of reflection on climate change, adaptation and development. First, respondents participated in semi-structured interviews devised to draw out organizational and personal aims, ambitions and development visions, challenges and opportunities in meeting these aims that came from structural and internal organizational factors, and ways in which such obstacles could be or had been overcome. This highlighted generic adaptive capacity. Ideas about climate change and local impacts were then discussed and ways in which potential increases in risk and uncertainty associated with climate change might distort capacity and action were then discussed. Second, all respondents were invited to town meetings where a summary of results from individual interviews was presented alongside a more formal account of climate change and future risk for the Yucatan. This provided scope for validation and also a framework for discussion of the root causes in political and organizational, as well as in economic, life that constrained adaptive capacity and development vision. Third, a regional workshop was held in Tulum, with the aim of providing an opportunity for participants to explore vulnerabilities and adaptive capacities between towns. The three-stage methodology also helped to build visibility for the project and relationships with stakeholders (including those not directly involved), and provided a mechanism for dissemination of results.

Life history analysis was also used to construct narratives of individual decision-making histories in the face of past risk and disaster moments. The use of life histories adds a temporal lens to the exploration of urban change and human security. For each study site, around 20 interviewees were drawn from a subsample of local actors and of decision-makers identified through the institutional mapping and hazard, vulnerability and capacity assessments. The aim was to derive data on two themes: first, individual explanations of choices made in the selection of key attributes to protect or expend during adaptation are key data; second, similarly, data were collected on the extent to which individuals instrumentally maintain or build social capital (bonding, bridging and linking ties) to enable adaptive capacity and action. The empirical research enabled us to
develop strong theoretical leads, which are discussed below in the chapters on human security (Chapter 5) and governance (Chapter 6).

STRUCTURE OF THE BOOK

Chapter 2 begins with a review of the literature on coastal urbanization and governance in relation to climate change. We examine how climate change interacts with cities, through both mitigation and adaptation. After reviewing trends in urbanization, the chapter goes on to consider the links between climate science and cities, concentrating on the risks posed by climate change, especially in the form of hurricanes, sea-level rise and increased coastal hazards to both the physical and social environments. Some consideration is given to climate variability as it already affects urban growth, and although focusing on the Americas, the chapter also reviews evidence from other continents. The main thrust of the chapter, however, is an assessment of the way that vulnerability and adaptation to climate change are conceptualized, comparing approaches that place emphasis on social control with those that frame policy alternatives for reducing risk and adopt a ‘pro-poor’ approach. Finally the chapter frames the issue in terms of governance and the response of different social sectors, including the state and civil society groups, to the challenges presented by climate change in coastal areas.

Chapter 3 examines the early development of the Mexican Caribbean coast, a coast that has come to be known as the ‘Mayan Riviera’. It begins by exploring the idea that the coast was once devoid of settlement and at the margins of commerce and trade, and suggests that this is a myth of ‘untouched’ nature, which has served to justify the development of the coast for international tourism. A critical examination of this myth suggests several ways in which political relations have helped determine the consumption of space in order to ensure specific patterns of access and exclusion. The analysis reveals ways in which the economy has been driven by the need to create spaces of consumption in order to attract capital and monetary flows. The key elements in the discourses supporting the process of economic development are the ideas of discovery and modernity, utilized as antidotes to ‘backwardness’ and ‘neglect’. Both the creation of spaces of consumption, and the managing of the consumption of space, are supported today by claims and discourses equating progress with tourist development.

Chapter 4 explores the historical antecedents to mass tourism by examining the way in which key elements in the way tourism developed represent constructions on the road to modernity. Taking the example
of Thomas Cook in the nineteenth and early twentieth centuries, we can view the development of mass tourism as the outcome of a series of conjunctures – the existence (for the first time) of ‘leisure time’ for large numbers of people, changes in transport technologies that made previously unthought-of mobility possible, and the development of consumer tastes based on foreign travel. The chapter goes on to examine the pivotal role of Anita Brenner and Frances Toor in the changing relationship between the USA and Mexico, and the creation of the Mexican tourist industry in the 1920s and 1930s. It views the development of mass tourism in the 1970s and 1980s as the outcome of an alliance of interest between the Mexican state and fractions of Mexican capital, in some cases allied with international interests, which were formulated much earlier. Cancun and the ‘Mayan Riviera’ are presented as both part of the ‘national plan’ for development and as elements in a growing alternative – a ‘pre-emptive strike’ at creating the image of an ‘eco-friendly’ development, or ecotourism consistent with sustainable development in the zone.

Chapter 5 examines the systems of public security that are available on the Mexican Caribbean. In the context of a weak civil society, the role of the state is paramount, and the development process, by concentrating power in the hands of a hegemonic coalition of public and private interests, has enabled it to effectively assume control of human security. The policy discourse suggests that phenomena such as hurricanes and tropical storms are exogenous to societies, and thus place the local population in a dependent position from which they exercise little control. The dominant model of urban development is reinforced and legitimized, and the system of civil protection (SINAPROC) is synonymous with the patronage-based political system, which is reinforced by the infrastructural reconstruction that follows hurricane events. Governance structures allow for a restricted set of coping strategies for adapting to climate change. These strategies depend upon the existence of exogenous resources – from global financial markets and insurance companies – which can be rapidly accessed. Our research revealed the existence of an alternative development vision, based on small-scale entrepreneurship and a greater commitment to environmental goals, which places more emphasis on grass-roots activity and preparedness, and which questions the ‘mass tourism’ model, in the belief that not all environmental costs can be ‘externalized’. However, this model is less important than that of the hegemonic structures of private and state capital and the governing system of civil protection.

Chapter 6 takes up some of these issues but focuses on the ‘power spheres’ themselves, rather than on their outcome for human security. We argue that conventional approaches to the challenges represented by climate change are not enough. First, they take existing power relations
Climate change and human security

for granted, and thus might prejudice alternative policy approaches; and second, effective adaptation to climate change might require social transformations that are impossible under the governing political structures. In Chapter 6 we link the theoretical understanding of ‘power spheres’ with the specific formations of power and economic interests that have developed in Quintana Roo.

Much of the analysis thus far has sought to link overarching models, credited with heuristic value, to the specific development of the coast of Quintana Roo. In Chapter 7 we explore the implications of these changes, and the adequacy of these models, for two similar coastal communities where we conducted ethnographic research and life-histories: Isla Holbox and Mahahual. The discussion moves on to the ‘lived experiences’ of coastal populations that have found themselves ‘in the eye of the storm’. Although these communities are in some respects similar, in that both evolved from fishing communities and have suffered from the immediate impact of hurricanes, close attention suggests that they have taken different paths in the face of climate-induced changes. Holbox has utilized family-based strategies to take a stake in tourist development, complementing the evolving fishing economy with ‘whale watching’ for international tourists. Meanwhile in Mahahual the absence of strong social capital has impeded a united approach to redevelopment after the effects of Hurricane Dean. In both communities the ‘alternative’ model of development held by tourist pioneers and small-scale entrepreneurs from outside the region has played an important part, without in any way replacing (or threatening) the dominant capital-intensive development path.

In the final chapter (Chapter 8) the analysis of climate change and its connections with human security and local governance on the Mexican Caribbean coast is considered in terms of its contribution to the wider picture. It is argued that regional studies, provided they are informed by robust theoretical models and convincing empirical evidence, have a major role to play in the larger debate about responding to the most urgent challenge of the twenty-first century.

REFERENCES

Eakin, H. and M.C. Lemos (2006), ‘Adaptation and the state: Latin America and
the challenge of capacity-building under globalization’, *Global Environmental Change*, 16 (1), 7–18.


