

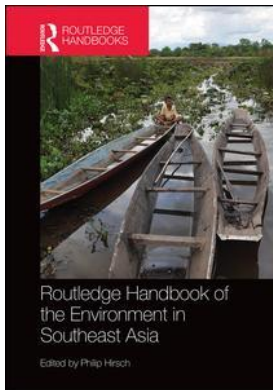
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Philip Hirsch

### **Migration and the environment**

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Rebecca Elmhirst

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## MIGRATION AND THE ENVIRONMENT

*Rebecca Elmhirst***Introduction**

Recent debates about the impact of climate change in Southeast Asia and beyond have refocused attention on the linkages between the environment and migration in the region. ‘Environmental migration’ is becoming a key theme in the climate change research agenda, following pronouncements that future environmental change will lead to mass displacement of populations from locations vulnerable to climate change effects (Myers, 2002; Stern, 2007). In Southeast Asia, the region’s heavily populated deltas and other low-lying coastal areas are identified as particular ‘hot spots’, taking in low-lying metropolitan regions such as Bangkok, metro Manila, Jakarta and its neighbouring cities, Ho Chi Minh City and Hanoi (Asian Development Bank, 2011; Bardsley and Hugo, 2010; McGranahan *et al.*, 2007; Fuchs *et al.*, 2011; World Bank, 2010). Drawing the link between environment and migration by focusing on mass displacement in this way tends to view migration in largely negative terms, seeing mobility as a failure of adaptation to a changing environment. In common with other sedentarist approaches to governance in Southeast Asia, both transborder and internal population mobility is framed as a security issue (Bardsley and Hugo, 2010; see also De Koninck, 2000; Scott, 2009). As this framing is translated into policy, it runs the risk of creating new forms of vulnerability, as strong measures to regulate and limit population movement serve to undermine livelihoods in very specific and frequently unjust ways (Tacoli, 2009; Black *et al.*, 2011).

Attempts to counter discourses of environment-induced migration that have grown up around the climate change research industry have sought to complicate simple causal models that see environmental change as a principal driver of migration, offering more nuanced frameworks of multiple interconnected drivers (for example, Black *et al.*, 2011). This includes approaches that draw attention to the role of migration as an adaptive, resilience-building strategy (Adger *et al.*, 2002; Tacoli, 2009; Dun, 2011) and perspectives that show how the geographies of future environment-induced migration are likely to follow already established migrant networks and relationships (Bardsley and Hugo, 2010; Warner, 2011).

These more nuanced frameworks invite a reconsideration of the multifarious historical and contemporary linkages between migration and the environment in Southeast Asia – a region which has long been characterized by mobility and by local and transnational migration, and

where livelihoods are increasingly conducted on a multi-local basis (Rigg, 2012). Migration, whether caused by displacement or undertaken to improve livelihoods, is shaped by the environment and environmental change in numerous ways across the diverse agro-ecologies of Southeast Asia. An overemphasis on environmental catastrophe and ‘natural hazards’, which is inevitable in climate change-related research, may overlook the ways in which environments in Southeast Asia are themselves socio-political products. Various kinds of environmental governance projects in past and present-day Southeast Asia have created human-induced environmental ‘events’ that set in motion displacements and other forms of mobility. Indeed, Southeast Asia’s development is built on the conjuncture of capital, nature and *mobile* labour, indicating that environments themselves have been produced through migration of various forms, and this process continues as landscapes take shape through migration and migrant practices. The aim of this chapter, therefore, is to explore the multiple links between migration and the environment in Southeast Asia, in part to complicate and contextualize otherwise simplistic framings of environmental crisis and migration in the region, and to reconnect with more sophisticated theorizations of the mutually constituted agencies of society and nature (Oliver-Smith, 2012).

### **Nature’s agency and migration in Southeast Asia**

The role of nature and the environment in shaping societies, politics and economies has a long history in Southeast Asia. Fisher (1966), for example, attributes the region’s human geography to its intrinsic physical character, and, by extension, it is topography, climate and hydrology that have shaped the volume and variety of human mobility in Southeast Asia (see also Reid, 2000). Various iterations of human–ecological relationships have also been linked to migration and mobility, distinguishing upland (swidden) agriculture and lowland irrigated rice cultivation and therefore the ecological underpinnings of state-building, colonial extraction and human mobility (Pelzer, 1945; Geertz, 1963; Boomgaard, 2007). While negative associations with environmental determinism drew many scholars away from such ideas (Glassman, 2005), recent work in political ecology has given new emphasis to the environment, arguing that nature’s materiality has important effects on the world ‘beyond – if not fully outside of – human politics and society’ (Latour, 2005; Robbins, 2012, p. 76).

Historically, human mobility has been an elemental part of life in Southeast Asia, as part of a strategy to manage natural resources in accordance with the flows and cycles of marine, forest and agro-ecosystems. Taking a contextual approach to the entanglements of human and non-human nature (society and nature), migration is part of an assemblage constructed through the interaction of ecologies, technologies, economies and (re)territorializations of political power (Braun, 2006). Mobility is central, for example, to semi-nomadic swidden cultivation systems, where soil fertility is managed through forest clearance, cultivation and extended fallows, coupled with the movement of settlements (Conklin, 1957; Fox *et al.*, 2000). Until the mid-twentieth century, shifting cultivation was (in area terms) the dominant type of agricultural system in Southeast Asia, involving one-third of the region’s territory (Rasul and Thapa, 2003). Mobile cultivation practices enable farmers to make use of a diversity of elevations and microclimates, spreading risk and adapting to change. In the case of the Akha, inhabiting the borderlands between China, Myanmar, Laos and Thailand, Sturgeon refers to the spatial and temporal dynamics of borderland livelihoods as ‘landscape plasticity’, involving cross-border mobilities of various kinds (Sturgeon, 2005, p. 9). In her account, as with others, shifting cultivation involves a range of activities beyond subsistence farming, including wage labour, lowland settled agriculture, and so on as people not only adapt to environmental

changes, but also negotiate markets, development projects and forest policies through mobility practices (Dove, 1999; Cramb *et al.*, 2009).

In equal measure, marine environments are managed through mobility in the case of the Bajau (sea gypsies) around the islands of Indonesia and the southern Philippines, and in the Irrawaddy Delta. Sea nomads include the Moken and Koklen of the Mergui archipelago of Myanmar and the islands of southern Thailand (Ivanoff, 1997), the Orang Suku Laut of the Riau–Lingga archipelago and coastal waters of eastern Sumatra–southern Johor (Chou, 2003), and the Bajau Laut, in the Sulu archipelago of the Philippines, eastern Borneo, Sulawesi and the islands of eastern Indonesia (Djohani, 1996; Sather, 1997). In her study of the Orang Suku Laut, Chou describes the repertoire of ‘material and intellectual technology’ through which this group understands and manages marine biodiversity (Chou, 1997, p. 612). This involves fishing close to villages or embarking on distant voyages to ‘borrowed’ territories, depending on the season for particular marine species. Moving through a network of marine territories allows the Orang Suku Laut to avoid exhausting fish stocks (Chou, 1997).

Nature’s materiality also takes shape through the rhythm of the region’s monsoon climate, which acts as a pulse for both land-based and water-based farming systems in the region’s lowlands. Pronounced seasonality in wet rice cultivation across Southeast Asia’s lowlands equates with changes in labour demand throughout the year, making it necessary for some household members to migrate in search of other labour opportunities, either in other rural areas or in towns and cities (Hugo, 1982; Rigg, 2001). This is a pattern with a long history: in rural Vietnam during the colonial period, as many as two-thirds of the peasantry were involved in circular movement between rural areas during the wet rice transplanting and harvesting seasons (Dang, 1997). As farm labour has become increasingly commoditized since the late 1970s, labour recruitment (and therefore wage labour mobility) continues to be strongly shaped by monsoon-based seasonality, among other factors (Alexander *et al.*, 1991; Spaan, 1999). In agro-aquatic ecosystems, such as Cambodia’s Tonle Sap, the south-west monsoon and the floods that follow are critical to the productivity of agriculture, wetlands and fisheries (Lebel *et al.*, 2011), as are the so-called ‘rice floods’ in the Mekong Delta. Both are strongly linked to seasonal migration to cities and urban centres, as well as to cross-border livelihood-based migration (Lebel *et al.*, 2011; Dun, 2011).

Human migration is also linked to species migration, through a ‘co-evolved entanglement’ of mobile natures and mobile societies (Haraway, 2003). This is perhaps most evident in the forms of migration associated with various cash-crop booms in the colonial and contemporary periods in Southeast Asia. Migration is closely associated with booms in the production of rubber, sugar and tobacco: all three species were introduced from other (sometimes distant) territories, while at the same time Chinese and Tamil indentured workers were brought in to meet the labour demands associated with the cultivation characteristics of these crops (Breman, 1989; Stoler, 1985). In the contemporary period, migrants figure variously in Hall *et al.*’s (2011) discussion of booms in the production of oil palm in Sarawak; cocoa in Sulawesi, Indonesia; shrimp farming in Thailand; and coffee cultivation in Vietnam. While Hall and colleagues’ analysis is framed around the territorializations and exclusions that accompanied the introduction and expansion of commercial cultivation, a conjunction of power, land and species contributes to particular migration patterns and practices. The physical properties of these crops and their cultivation are productive factors in shaping agrarian labour migration and migrant livelihood practices in a number of crop boom frontier regions (Agergaard *et al.*, 2009; Tan, 2000). In this way, as with non-mobile nature, migration in Southeast Asia can be seen as part of a larger entanglement with nature’s agency, suggesting the ‘intimate role of non-humans in constituting human life and experience’ (Robbins, 2012, p. 80).

## Migrants in Southeast Asia's socially produced environments

In Southeast Asia, where mercantilism, colonial and postcolonial development have largely been predicated on natural resource exploitation, the social production of environments through a complex mix of political, economic and social processes has set in motion population displacements and other forms of mobility. Conceptualizing the social production of nature in this way (Castree and Braun, 2001) also signals the role of migration as a factor in producing Southeast Asia's landscapes and socio-environmental conditions through the conjuncture of capital, nature and *mobile* labour.

Prior to the sixteenth century and the arrival of European mercantile interests, migration within Southeast Asia was relatively small-scale and limited geographically (Kaur, 2004). Migration accompanied Chinese and Indian trade links that were based on resource exploitation within the region. Chinese miners came to the tin mines of Bangka and Belitung islands, off the coast of Sumatra, Indonesia, where migrants engaged in some subsistence agriculture (gardens and pigsties – Unger, 1944). In what is now the Indonesian province of West Kalimantan, Hakka-speaking miner farmers arrived from China in the late eighteenth and early nineteenth centuries to mine for gold, converting swamp and swamp forest to wet rice fields along coastal rivers (Cramb *et al.*, 2009). Other scholars have noted the role of Chinese in cultivating sugar in Banten and pepper, tobacco and sugar in Siam in the seventeenth century, while Hainanese migrants from China controlled the coastline of modern Cambodia and parts of southern Vietnam in the nineteenth century, before turning to pepper cultivation, which persisted until the 1960s (Heidhues, 2006).

As European commercial interests became more established in the region, and particularly as an imperial drive took hold, the establishment of colonies and protectorates from the mid-nineteenth century until the early twentieth century was accompanied by relatively large-scale immigration to promote the commercial development of colonial territories. In places that were labour-short – for example, Malaya, Sumatra and Cochinchina – indentured contract labour arrived, particularly from China but also from other colonial territories, to work in the mines and rubber plantations of European colonial entrepreneurs (Kaur, 2004). Although many of these workers left at the end of their contracts, their presence left an indelible mark on the region's landscape and, in some places, ethnic profile (Suryadinata *et al.*, 2003).

This link between the commodification of environments for resource exploitation and migration continues today, through large-scale extractive projects of various kinds, from which the state and corporate firms seek to capture resource rents (Barney, 2012). The rapid expansion of oil palm in many parts of Southeast Asia, arguably the region's most profound environmental transformation, is widely associated with new forms of enclosure, the displacement of small-scale farmers and the arrival of migrant labour gangs brought in from areas of labour surplus (Li, 2011). Characterized as 'accumulation by dispossession' (Glassman, 2006), processes today carry echoes of the region's Green Revolution in the 1970s, where agricultural mechanization and the introduction of improved crop varieties simultaneously transformed agro-ecologies and intensified class differentiation, producing concentrations in land holdings, landlessness and, by extension, migration – processes that were felt particularly in Java and in the Philippines (Hart *et al.*, 1989; Alexander *et al.*, 1991).

Debate over the causes of displacement continues apace in Southeast Asia (Rigg, 2012). In some areas, there is a clear association between the development of commercial crops and the displacement of small-scale farmers. In Sarawak, research has shown how state actors and private companies have acquired large amounts of contested land for oil palm estates, which are largely worked by Indonesian migrants. Local Dayak farmers have found themselves at risk of being

excluded from this process in the wake of changes to government land policy (Hall *et al.*, 2011; Cramb, 2007). In other places, the relationship between migration, migrants, agricultural change and displacement is more nuanced (Hall, 2011).

Migration is associated with the production of environments by the state and other forces that influence access to and control of territories (Ribot and Peluso, 2003). In Southeast Asia, processes of territorialization have set in motion various forms of development-induced displacement and mobility, from the gazetting of land for cultivation or conservation through to the construction of hydropower dams and control over waterways.

State-sponsored agricultural resettlement schemes of the kind found in Indonesia, Vietnam and Laos are emblematic of this process of territorialization, involving on the one hand the relocation of people to state-established resettlement sites, and on the other displacements of those found to be 'out of place' (in uplands, in conservation areas, in the way of infrastructure developments), who are then enrolled in the resettlement process. Such schemes are driven by a number of factors. These include efforts to bring environmental and economic integration to upland or peripheral regions (Baird and Shoemaker, 2007), to securitize 'unruly' border areas (as Tirtosudarmo (1995) shows for the Malaysia–Indonesia border in Kalimantan and in West Papua in the 1980s), to facilitate the delivery of services to remote and mobile upland populations (Baird and Shoemaker, 2007) and to remove upland swidden cultivators from fragile watershed environments by relocating them in lowland resettlement sites (Vandergest, 2003; Elmhirst, 1999; 2012). In Indonesia, state-sponsored resettlement has become entwined with corporate interests as transmigration settlements are being established around oil palm investments (Potter, 2012). The neoliberalization of transmigration builds on an earlier pattern of population resettlement to support large-scale commercial agriculture, mimicking in aspiration (if not in reality) the FELDA projects of Malaysia's 1970s export-oriented New Economic Policy (Sutton, 1989; Lie and Lund, 1999).

In Thailand, Indonesia and the Philippines, similar processes of territorialization underpin enclosures for conservation, and have brought in their wake population displacement (Dressler and Roth, 2011; Elmhirst, 2012). State-led conservation through designated parks and protected areas has produced particularly coercive forms of land zoning, regulating how people can use resources or removing them altogether. Roth, for example, describes the conflicts that have accompanied park development in northern Thailand (Roth, 2008), while in Indonesia the designation of protected watersheds in Lampung province continues to prompt the resettlement of thousands of so-called 'forest squatters' (Elmhirst, 2012). In many instances, displacement for conservation is itself complicated by the social and political dynamics of migration. Dressler (2006) describes contrasting ways in which migrants and indigenous people are affected by coercive national park management on Palawan island in the Philippines. In this setting, indigenous swidden cultivation was regarded as a threat to the park, while migrant land-use practices were seen as being more in line with national conservation discourses. This, and the workings of local political networking, enabled migrants to gain access to the park and its management, while indigenous swiddeners were excluded. More recent iterations of displacement for conservation are associated with an intensified process of nature commoditization through carbon markets. McCarthy *et al.* (2012) describe processes of land acquisition associated with enclosures for carbon sequestration – so-called 'green grabs' – that are becoming evident in parts of Indonesia: similar instances of neoliberalized conservation and accompanying displacements are evident in Thailand and the Philippines (Dressler and Roth, 2011).

Displacement and resettlement are also features of the region's many infrastructure projects. The construction of hydropower dams is, on the one hand, associated with the in-migration of labour gangs (sometimes from outside the region, as in the case of Chinese-funded dams in the

Mekong), yet also sets in motion forms of involuntary displacement and resettlement. In Laos, for example, the construction of hydroelectric dams on the tributaries of the Mekong has been an important part of the country's neoliberalization, with hydropower a major contribution to export earnings. Large-scale population displacements have accompanied such projects (Baird and Shoemaker, 2007; Vandergeest, 2003; Hirsch, 2010). The Houay Ho dam, one of ten scheduled for the country's Bolaven Plateau, involved the relocation of 2,500 people from 12 villages to 'planned villages' (Delang and Toro, 2011). The accompanying hardships associated with relocation echo those found in studies of similar displacements across Southeast Asia (Hall *et al.*, 2011), such as those described by Yong in relation to the resettlement of Orang Asli following dam construction in Malaysia (Yong, 2006).

Mobility associated with development-induced displacement is also a feature of Southeast Asia's cities. As 'theatres of accumulation' (Armstrong and McGee, 1985), spectacular high-rise apartments, shopping malls and regional corporate headquarters have been a leitmotif of mega-urbanization in cities such as Jakarta, Bangkok and Manila, as productive agricultural land is given over to urban functions (Douglass, 2010; Firman, 2000). Studies across Southeast Asia document conflicts between agricultural and industrial sectors over environmental services, such as water for irrigation or the contamination of agricultural land by wastewater (Maneepong and Webster, 2008) as urban and peri-urban environments are reterritorialized. For example, research in the Jakarta–Bogor–Tangerang–Bekasi (JABOTABEK) region of Indonesia (Firman, 2009), the CALABARZON region of metropolitan Manila in the Philippines (Kelly, 1998) and the greater Bangkok region (Sajor and Ongsakul, 2007) illustrates the environmental injustices of urban development that lead to displacement of the poor and politically marginalized through such processes. In other settings, urban redevelopment or 'beautification' has involved the reclaiming of public land and conflict over tenure, especially in relation to informal housing (Olds, 2001). Harms (2011) describes aggressive acts of 'accumulation through dispossession' in Vietnam as a form of 'spatial cleansing'. The establishment of the Thu Thiêm New Urban Zone has involved the eviction of 14,000 households, the razing of all built construction and the filling-in of marshes and streams to make way for new office space, luxury high-rise apartments and new public spaces. Similar actions in Phnom Penh (Olds *et al.*, 2002) point to an ongoing social production of urban environments across Southeast Asia that give rise to new (and old) forms of displacement and onward migration, and that illustrate the 'interconnected economic, political, social and ecological processes that together go to form highly uneven and deeply unjust urban landscapes' (Swyngedouw and Heynen, 2003, p. 914).

### **Environment, migration and strategies to improve livelihoods**

In contrast to a narrative of the impact of socially produced environments on migration in Southeast Asia, migration and migrants themselves have also had a hand in producing the region's environments in both rural and urban settings. Migration to the agricultural frontier from densely populated regions elsewhere is associated with forest clearance and, more specifically, with a sequence of intensification to bush- and grass-fallow systems, through to the establishment of continuous cropping, made possible through the introduction of lowland agricultural technologies (Cramb *et al.*, 2009; Pelzer, 1945; De Koninck, 2000). Examples include the movement of Cebuano and other groups into frontier regions of Palawan (Cramb *et al.*, 2009) and Mindanao (Eder, 2006) in the Philippines, the movement of lowland Kinh to Vietnam's Central Highlands (Hardy, 2003) and the movement of lowland Javanese into the uplands of Lampung province, Indonesia (Elmhirst, 2012). In this way, the frontier has played an important role in relieving demographic pressure, either spontaneously or through state-sponsored

resettlement schemes of the kind found in Vietnam and Indonesia (De Koninck, 2000; Tirtosudarmo, 1995; Potter, 2012).

Migrants seeking to better their livelihoods have been blamed for rapid deforestation in some parts of Southeast Asia, although there is a growing recognition that it is the role of large-scale capital that sets these practices in motion (Sunderlin *et al.*, 2001). A lack of land for second-generation migrants and absence of local off-farm work can also trigger onward frontier migration, patterns of which are strongly shaped by kin and friendship networks (Hein and Faust, 2010). Beyond a simple demographic equation, research has described the ways in which migrants can disrupt local forms of natural resource management and customary conservation practices (Witasari *et al.*, 2006). As community-based conservation in forest frontiers has attempted to build on notions of custom and territorial attachment, frontier migrants may be excluded and/or demonized (Li, 2002a; Elmhirst, 2012), and become embroiled in ethnicized conflicts over natural resources (Hein and Faust, 2010).

Migrants have also contributed to the commoditization of frontier environments, through what Hall has referred to as ‘smallholder land grabs’, usually associated with crop booms of one sort or other (Hall, 2011). Examples include migrants’ acquisition of land for cocoa production in Sulawesi (Li, 2002b; Hein and Faust, 2010), for rubber in Kalimantan (Peluso, 2009), for coffee in Vietnam (Hardy, 2003; Winkels, 2008) and Indonesia (Potter, 2008) and for shrimp production in Thailand (Hall, 2011). The environmental transformation of Vietnam’s Central Highlands is associated with the arrival of lowland Kinh migrants who took advantage of a combination of Doi Moi reforms and kinship networks to establish themselves as coffee farmers, doubling the region’s population between 1976 and 1989 (De Koninck, 2000; Hardy, 2003). These previously sparsely populated hills of forest and swidden became a promised land for lowlanders, as the land-use practices of ethnic minorities gave way to intensive coffee production (Hardy, 2003; Tan, 2000). In Sulawesi’s Lore Lindu region, the migrant cocoa boom has prompted further mobility as second-generation migrants move onward to other agricultural frontiers, as cocoa lands command prohibitively high prices and as there is a shortage of local off-farm work (Hein and Faust, 2010; see also Li, 2002b).

Urban and transnational migration has also brought with it environmental changes. On the one hand, permanent migration – or, at least, a permanent withdrawal from agriculture-based livelihoods – has led some to note abandonment or under-cultivation of land in some parts of Southeast Asia where alternatives to farming are relatively well paid and secure, for example in parts of Thailand (Rigg, 2001) and Negri Sembilan in Malaysia (Kato, 1994). Cramb *et al.* (2009) suggest that the complex agro-ecological landscapes associated with swidden cultivation may be disappearing in parts of Southeast Asia, as temporary and permanent out-migration (for work or for education) reduces the size of the local labour force, particularly at key times of high labour demand (planting and harvesting, when many children work in the fields). Responses to this may be varied, but include reductions in the area cleared for cultivation, by forgoing production for a season or two or by introducing high-value cash crops such as rubber or cocoa into swidden systems (Li, 2002b; Cramb *et al.*, 2009).

Elsewhere, rural attachments remain strong and migrant remittances have played a part in transforming environments. In the Philippines, the adoption of cash crops is widely associated with the availability of capital from migrant wages, producing ‘remittance landscapes’ in some parts of the country (McKay, 2005). In central Laos, early evidence suggests youth remittances are contributing to the privatization of upland swiddens and the introduction of rubber cash-cropping (Barney, 2012).

Finally, migration has been an important factor in the production of new kinds of human-induced landscapes on the edges of cities, where peri-urban development is marked by the



presence of export-oriented factories, migrant workers and commercial investment (malls and the like), and where households are characterized by their extensive links to rural areas (see chapter 16 in this volume and McGee, 1995; Sajor and Ongsakul, 2007; Hirsch, 2009). Firman's study of the Jakarta–Bandung Region (JBR), an extensive multi-centred peri-urban region, describes the continued importance of migration into the region, where the 2001 census noted the arrival of 1.35 million migrants largely from other parts of Java (Firman, 2009). Migrants are drawn to factories in the JBR (Silvey and Elmhirst, 2003), while others enter informal-sector occupations (street vending, garbage-picking). The unplanned and somewhat chaotic form taken by peri-urban development here, as well as in other parts of Southeast Asia, has also prompted more 'everyday' forms of mobility through a rapid increase in relatively long-distance commuting between urban centres, which is increasingly a feature of peri-urban landscapes (Firman, 2009; see also Resurreccion and Khanh, 2007 for Hanoi).

Southeast Asia's mobility revolution (Rigg, 2012), along with the prevalence of increasingly multi-local and multi-sectoral livelihoods associated with local and transnational migration, is also altering the social production of environments in Southeast Asia, as labour mobility alters the salience of resource access in both rural and urban livelihoods. Peluso's recent work in the teak forests of East Java documents how better links between forest villages and nearby cities have facilitated circular migration and reduced villagers' dependency on the forests as a source of livelihood. Livelihood diversification through circular migration has altered the terms on which teak forest access is negotiated, while the state's monopoly on teak production is weakened as migrant income enables villagers to grow teak as a smallholder cash crop. Peluso suggests that changing household spatialities and the mobilities of labour, trees and capital are 'transforming hegemonic relations in the political forests of Java' (Peluso, 2011, p. 817). This signals an important aspect of migration in relation to the power dynamics of socially produced environments: the 'fugitive nature' of migration and mobility has the potential to frustrate appropriation by the state and other powerful actors in a manner similar to that described by Scott, where state subjects attempt to place themselves out of range to avoid corvee labour and taxes, or being drawn into conscription, struggles over secession and religious dissent (Scott, 2009, p. 326).

### Environmental hazards and migration in Southeast Asia

Migration is also linked to the various environmental hazards that characterize much of Southeast Asia. In parts of the region, there is relatively frequent exposure to major environmental hazards that include both slow-onset stresses, such as lengthening dry seasons and drought, soil fertility decline and saline intrusion of agricultural land, and short-term shocks, including earthquakes, volcanic activity, typhoons, floods and tidal or storm surges. In the case of slow-onset environmental hazards, migration and multi-local livelihood strategies have long been an important resilience-building strategy through which those affected spread risk across a range of environments (Adger *et al.*, 2002; Dun, 2011). In the context of extreme soil fertility decline that is evident in some of Indonesia's transmigration resettlement schemes, circular migration is a key factor in enabling those resettled to maintain livelihoods in very difficult circumstances (Leinbach and Watkins, 1998), just as multi-local livelihood strategies are among responses to environmental degradation in North East Thailand (Mills, 2005). In this sense, migration is seen not as a failure to adapt, but as a form of resilience-building in the face of environmental hazard (Tacoli, 2009; Black *et al.*, 2011).

Environmental 'shocks', by contrast, are often accompanied by major population displacement. In 2011, more than 4.7 million people were displaced by environmental hazards, including

floods, tropical storms, earthquakes and volcanic eruptions in Southeast Asia. Particularly hard-hit were Thailand, the Philippines and Myanmar, while earthquake and volcanic hazards brought displacement in seismically active areas of Indonesia (particularly West Sumatra and parts of Java) (Norwegian Refugee Council, 2012). While the focus for relief agencies is often on tackling the forced relocation of affected populations, as seen in Thailand in 2011 and in Aceh following the Asian tsunami, migration is often a strategy deployed by those affected as they seek to build resilience to disaster. Those affected may draw on migrant networks, either receiving transfers from rural areas or having the opportunity to move elsewhere as recovery gets under way (Adger *et al.*, 2002). Others suggest that a lack of capacity to migrate is what puts people at risk in the face of rapid-onset hazards (Black *et al.*, 2013). The social marginalization of migrants contributes to their vulnerability to hazards of this kind, especially where a lack of tenure security and, importantly, citizenship rights curtails capacity to 'return home' or to utilize migrant networks. News reports following the extreme flooding in Thailand in late 2011 suggested that international migrants from Myanmar, Cambodia and Laos were particularly hard-hit as the factories employing them were forced to close because of the flooding in and around peri-urban Ayutthaya, Pathum Thani and Nakorn Pathom provinces. At the same time, their precarious legal status dissuaded them from accessing shelter and other forms of help from the Thai authorities, marking them out as a particularly vulnerable group (Phongsathorn, 2012). Similar patterns have been noted for 'hidden' migrants such as domestic workers, who faced particular hardship following severe flooding in the Indonesian city of Semarang in central Java (Marfai *et al.*, 2008).

Environmental hazards may also have rather specific impacts on migrants in other ways. In urban and peri-urban coastal areas of Southeast Asia, insecure migrants often end up inhabiting insecure spaces, such as those parts of the city most prone to flooding (Dun, 2011; Lebel *et al.*, 2011). The settlement patterns of migrants generally reflect the cost of rent compared to the very low wages they are able to command, and this may expose them to further vulnerabilities that are produced as city governments seek to engineer away environmental hazards, sometimes in unjust ways. The redistribution of risk from wealthier parts of cities and into poorer areas (generally inhabited by migrants) has been noted in relation to the management of flood waters in Bangkok (Phongsathorn, 2012) and in other parts of Thailand, where some areas are earmarked for protection (areas of expensive urban real estate and industrial parks) at the expense of poor or largely agricultural areas (Lebel *et al.*, 2009; 2011). Moreover, post-disaster reconstruction efforts can have a damaging effect on peoples' capacity for mobility, as noted by Samuels in her study of a newly built neighbourhood in Aceh following the devastating tsunami (Samuels, 2012). Here, limited physical mobility caused by the isolated nature of the relocation village restricted work opportunities for low-income households, and had a particularly marked impact on women, whose lack of mobility was directly associated with new forms of gendered social exclusion.

In each of the cases described here, migration (and mobility) is embedded in complex ways in the socio-political dynamics that underpin both exposure to environmental hazards and the institutional responses that anticipate or follow such events. This exceeds any simple linear relationship between environmental hazards (as a driver) and displacement (as a response). In Southeast Asia, where lives are especially marked by mobility and multi-locality, this is particularly the case, highlighting a need to recognize environmental hazards as socio-natural assemblages into which human mobility is interwoven.

## Conclusion

This chapter has considered the multifarious ways in which migration and human mobility link with environmental questions in Southeast Asia, in part to complicate dominant discourses

associated with climate change that have, until recently, tended to offer a simple characterization of migration as a failure to adapt to environmental shocks or stresses. Viewed through a series of conceptual lenses that attend to the social production of environments or the mutuality of human and non-human nature, the importance of migration vis-à-vis the environment in Southeast Asia comes into focus more clearly. Not only have histories of migration and migrant practices shaped the region's environments, but also environments and, in particular, configurations of power in relation to environments continue to produce new forms of migration, mobility and displacement. While there is certainly a need to temper prevailing views of migration as a 'problem' associated with declining environmental security, a more critical reading of the environment-migration nexus is also necessary to rein in simplistic renderings of migration as a panacea for tackling environment-development problems where this means eliding underlying socio-political causes. In this rapidly changing region, the link between migration and the environment needs to be understood within a wider global political economic and regional context marked by uneven geographies of marketization, neoliberalism and intensified interconnections between people and places. Querying the mutual constitution of migration and the environment offers another pathway towards tackling the region's myriad social and environmental injustices.

## References

- Adger, W. N., Kelly, P. M. and Winkels, A. (2002) 'Migration, remittances, livelihood trajectories and social resilience', *Ambio*, vol 31, pp. 358–366.
- Agergaard, J., Fold, N. and Gough, K. V. (2009) 'Global-local interactions: Socio-economic and spatial dynamics in Vietnam's coffee frontier', *Geographical Journal*, vol 175, no 2, pp. 133–145.
- Alexander, P., White, B. and Boomgaard, P. (eds) (1991) *In the Shadow of Agriculture: Non-Farm Activities in the Javanese Economy, Past and Present*, Royal Tropical Institute, Amsterdam.
- Armstrong, W. and McGee, T. G. (1985) *Theatres of Accumulation: Studies in Asian and Latin American Urbanization*, Methuen, London.
- Asian Development Bank (2011) *Climate Change and Migration in Asia and the Pacific*, Asian Development Bank, Manila.
- Baird, I. and Shoemaker, B. (2007) 'Unsettling experiences: Internal resettlement and international aid agencies in Laos', *Development and Change*, vol 38, no 5, pp. 865–888.
- Bardsley, D. K. and Hugo, G. J. (2010) 'Migration and climate change: Examining thresholds of change to guide effective adaptation decision-making', *Population and Environment*, vol 32, pp. 238–262.
- Barney, K. (2012) 'Land, livelihoods and remittances: A political ecology of youth outmigration across the Lao-Thai Mekong border', *Critical Asian Studies*, vol 44, no 1, pp. 57–84.
- Black, R., Arnell, N. W., Adger, W. N., Thomas, D. and Geddes, A. (2013) 'Migration, immobility and displacement outcomes following extreme events', *Environmental Science and Policy*, vol 27, supp 1, pp. S32–S43.
- Black, R., Adger, W. N., Arnell, N. W., Dercon, S., Geddes, A. and Thomas, D. S. G. (2011) 'The effect of environmental change on human migration', *Global Environmental Change*, vol 21, supp 1, pp. S3–S11.
- Boomgaard, P. (ed.) (2007) *A World of Water: Rain, Rivers and Seas in Southeast Asian Histories*, KITLV Press, Leiden.
- Braun, B. (2006) 'Environmental issues: Global natures in the spaces of assemblage', *Progress in Human Geography*, vol 30, no 5, pp. 644–654.
- Breman, J. (1989) *Taming the Coolie Beast*, Oxford University Press, New York.
- Castree, N. and Braun, B. (eds) (2001) *Social Nature: Theory, Practice and Politics*, Blackwell, Oxford.
- Chou, C. (1997) 'Contesting the tenure of territoriality: The Orang Suku Laut', *Bijdragen Tot De Taal-, Land- en Volkenkunde*, vol 153, no 4, pp. 605–629.
- Chou, C. (2003) *Indonesian Sea Nomads: Money, Magic and Fear of the Orang Suku Laut*, RoutledgeCurzon, London.
- Conklin, H. C. (1957) *Hanunoo Agriculture: A Report on an Integral System of Shifting Cultivation in the Philippines*, Food and Agriculture Organization of the United Nations, Rome.

- Cramb, R. (2007) *Land and Longhouse: Agrarian Transformation in the Uplands of Sarawak*, NIAS Press, Copenhagen.
- Cramb, R., Colfer, C. J. P., Dressler, W., Laungaramsri, P., Le, Q. T., Mulyoutami, E., Peluso, N. L. and Wadley, R. L. (2009) 'Swidden transformations and rural livelihoods in Southeast Asia', *Human Ecology*, vol 37, pp. 323–346.
- Dang, N. A. (1997) 'The role of rural-to-urban migration in the cause of rural development', *Sociological Review*, vol 60, no 4, pp. 15–19.
- De Koninck, R. (2000) 'The theory and practice of frontier development: Vietnam's contribution', *Asia Pacific Viewpoint*, vol 41, no 1, pp. 7–21.
- Delang, C. O. and Toro, M. (2011) 'Hydropower-induced displacement and resettlement in the Lao PDR', *South East Asia Research*, vol 19, no 3, pp. 567–594.
- Djohani, R. H. (1996) 'The Bajau: Future park managers in Indonesia', in M. J. Parnwell and R. L. Bryant (eds) *Environmental Change in Southeast Asia: People, Politics, and Sustainable Development*, Routledge, London, pp. 249–257.
- Douglass, M. (2010) 'Globalization, mega-projects and the environment: Urban form and water in Jakarta', *Environment and Urbanization Asia*, vol 1, no 1, pp. 45–65.
- Dove, M. R. (1999) 'Representations of the "other" by others', in T. M. Li (ed.) *Transforming the Indonesian Uplands: Marginality, Power and Production*, Harwood Academic Publishers, Amsterdam, pp. 203–230.
- Dressler, W. (2006) 'Co-opting conservation: Migrant resource control and access to national park management in the Philippine uplands', *Development and Change*, vol 37, no 2, pp. 401–426.
- Dressler, W. and Roth, R. (2011) 'The good, the bad, and the contradictory: Neoliberal conservation governance in rural Southeast Asia', *World Development*, vol 39, no 5, pp. 851–862.
- Dun, O. (2011) 'Migration and displacement triggered by floods in the Mekong Delta', *International Migration*, vol 49, supp S1, pp. e200–e223, doi: 10.1111/j.1468-2435.2010.00646.x.
- Eder, J. F. (2006) 'Land use and economic change in the post-frontier upland Philippines', *Land Degradation and Development*, vol 17, pp. 149–158.
- Elmhirst, R. (1999) 'Space, identity politics and resource control in Indonesia's transmigration programme', *Political Geography*, vol 18, pp. 813–835.
- Elmhirst, R. (2012) 'Displacement, resettlement and multi-local livelihoods: Positioning migrant legitimacy in Indonesia', *Critical Asian Studies*, vol 44, no 1, pp. 131–152.
- Firman, T. (2000) 'Rural to urban land conversion in Indonesia during boom and bust periods', *Land Use Policy*, vol 17, pp. 13–20.
- Firman, T. (2009) 'The continuity and change in mega-urbanization in Indonesia: A survey of Jakarta-Bandung Region (JBR) development', *Habitat International*, vol 33, pp. 327–339.
- Fisher, C. A. (1966) *South-east Asia: A Social, Economic and Political Geography*, Methuen and E. P. Dutton, London and New York.
- Fox, J., Dao Minh Truong, Rambo, A. T., Nghiem Phuong Tuyen, Le Trong Cuc and Leisz, S. (2000) 'Shifting cultivation: A new old paradigm for managing tropical forests', *BioScience*, vol 50, no 6, pp. 521–528.
- Fuchs, R., Conran, M. and Louis, E. (2011) 'Climate change and Asia's coastal urban cities: Can they meet the challenge?', *Environment and Urbanization Asia*, vol 2, no 1, pp. 13–28.
- Geertz, C. (1963) *Agricultural Involvement: The Processes of Ecological Change in Indonesia*, Cambridge University Press, Cambridge.
- Glassman, J. (2005) 'On the borders of Southeast Asia: Cold War geography and the construction of the other', *Political Geography*, vol 24, pp. 784–807.
- Glassman, J. (2006) 'Primitive accumulation, accumulation by dispossession, accumulation by "extra-economic" means', *Progress in Human Geography*, vol 30, no 5, pp. 608–625.
- Hall, D. (2011) 'Where the streets are paved with prawns: Crop booms and migration in Southeast Asia', *Critical Asian Studies*, vol 4, no 4, pp. 507–530.
- Hall, D., Hirsch, P. and Li, T. M. (2011) *Powers of Exclusion: Land Dilemmas in Southeast Asia*, University of Hawaii Press, Honolulu.
- Haraway, D. (2003) *The Companion Species Manifesto: Dogs, People, and Significant Otherness*, Prickly Paradigm Press, Chicago.
- Hardy, A. (2003) *Red Hills: Migrants and the State in the Highlands of Vietnam*, NIAS Press, Copenhagen.
- Harms, E. (2011) 'Beauty as control in the new Saigon: Eviction, new urban zones, and atomised dissent in a Southeast Asian city', *American Ethnologist*, vol 39, no 4, pp. 735–750.
- Hart, G., Turton, A. and White, B. (eds) (1989) *Agrarian Transformations: Local Processes and the State in Southeast Asia*, University of California Press, Berkeley.

- Heidhues, M. S. (2006) 'Chinese settlements in rural Southeast Asia: Unwritten histories', in J. Gerber and L. Guang (eds) *Agriculture and Rural Connections in the Pacific, 1500–1900*, Ashgate, Aldershot, pp. 159–178.
- Hein, J. and Faust, H. (2010) *Frontier Migration as a Response to Environmental Change: A Case Study from Central Sulawesi, Indonesia*, STORMA Discussion Paper Series, Social and Economic Dynamics in Rainforest Margins, 31 July.
- Hirsch, P. (2009) 'Revisiting frontiers as transitional spaces in Thailand', *Geographical Journal*, vol 175, pp. 124–132.
- Hirsch, P. (2010) 'The changing political dynamics of dam building on the Mekong', *Water Alternatives*, vol 3, no 2, pp. 312–323.
- Hugo, G. (1982) 'Circular migration in Indonesia', *Population and Development Review*, vol 8, no 1, pp. 59–83.
- Ivanoff, J. (1997) *Moken: Sea Gypsies of the Andaman Sea, Post-war Chronicles*, White Lotus, Bangkok.
- Kato, T. (1994) 'The emergence of abandoned paddy fields in Negri Sembilan, Malaysia', *Journal of South-east Asian Studies*, vol 32, no 2, pp. 145–72.
- Kaur, A. (2004) 'Crossing frontiers: Race, migration and border control in Southeast Asia', *International Journal on Multicultural Societies*, vol 6, no 2, pp. 202–223.
- Kelly, F. P. (1998) 'The politics of urban–rural relations: Land use conversion in the Philippines', *Environment and Urbanization*, vol 10, no 1, pp. 33–54.
- Latour, B. (2005) *Reassembling the Social: An Introduction to Actor-Network Theory*, Oxford University Press, Oxford.
- Lebel, L., Manuta, J. B. and Garden, P. (2011) 'Institutional traps and vulnerability to changes in climate and flood regimes in Thailand', *Regional Environmental Change*, vol 11, pp. 45–58.
- Lebel L., Sinh, B. T., Garden, P., Seng, S., Tuan, L. A. and Truc, D. V. (2009) 'The promise of flood protection: Dykes and dams, drains and diversions', in F. Molle, T. Foran and J. Käkönen (eds) *Contested Waterscapes in the Mekong Region*, Earthscan, London, pp. 283–306.
- Leinbach, T. R. and Watkins, J. (1998) 'Remittances and circulation behaviour in the livelihood process: Transmigrant families in southern Sumatra, Indonesia', *Economic Geography*, vol 74, no 1, pp. 45–63.
- Li, T. M. (2002a) 'Ethnic cleansing, recursive knowledge, and the dilemmas of sedentarism', *International Journal of Social Science*, vol 54, pp. 361–371.
- Li, T. M. (2002b) 'Local histories, global markets: Cocoa and class in upland Sulawesi', *Development and Change*, vol 33, pp. 415–437.
- Li, T. M. (2011) 'Centering labor in the land grab debate', *Journal of Peasant Studies*, vol 38, no 2, pp. 281–298.
- Lie, M. and Lund, R. (1999) 'Globalisation, place and gender', *AI and Society*, vol 13, nos 1–2, pp. 107–123.
- McCarthy, J. F., Vel, J. A. C. and Affif, S. (2012) 'Trajectories of land acquisition and enclosure: Development schemes, virtual land grabs, and green acquisitions in Indonesia's Outer Islands', *Journal of Peasant Studies*, vol 39, no 2, pp. 521–549.
- McGee, T. (1995) 'Retrofitting the emerging mega-urban regions of ASEAN: An overview', in T. G. McGee and I. Robinson (eds) *The Mega-Urban Regions of Southeast Asia*, University of British Columbia Press, Vancouver, pp. 3–26.
- McGranahan, G., Baulk, D. and Arnarson, B. (2007) 'The rising tide: Assessing the risks of climate change and human settlements in low elevation coastal zones', *Environment and Urbanization*, vol 19, pp. 17–37.
- McKay, D. (2005) 'Reading remittance landscapes: Female migration and agricultural transition in the Philippines', *Geografisk Tidsskrift, Danish Journal of Geography*, vol 105, no 1, pp. 89–99.
- Maneepong, C. and Webster, D. (2008) 'Governance responses to emerging peri-urbanisation issues at the global-local nexus: The case of Ayutthaya, Thailand', *International Development Planning Review*, vol 30, no 2, pp. 133–154.
- Marfai, M. A., King, L., Sartohadi, J., Sudrajat, S., Budiani, S. R. and Yulianto, F. (2008) 'The impact of tidal flooding on a coastal community in Semarang, Indonesia', *Environmentalist*, vol 28, pp. 237–248.
- Mills, M. B. (2005) 'Engendering discourses of displacement: Contesting mobility and marginality in rural Thailand', *Ethnography*, vol 6, no 3, pp. 385–419.
- Myers, N. (2002) 'Environmental refugees: A growing phenomenon of the 21st century', *Philosophical Transactions of the Royal Society London, Biological Science Series B*, vol 357, no 1420, pp. 609–613.
- Norwegian Refugee Council (2012) *People Displaced by Natural Hazard-Induced Disasters: Global Estimates 2011*, Norwegian Refugee Council – Internal Displacement Monitoring Centre, Oslo,

- www.internal-displacement.org/assets/publications/2012/2012-global-estimates-2011-global-en.pdf, accessed 27 April 2016.
- Olds, K. (2001) *Globalization and Urban Change: Capital, Culture and Pacific Rim Mega-Projects*, Oxford University Press, Oxford.
- Olds, K., Bunnell, T. and Leckie, S. (2002) 'Forced evictions in tropical cities: An introduction', *Singapore Journal of Tropical Geography*, vol 23, pp. 247–251.
- Oliver-Smith, A. (2012) 'Debating environmental migration: Society, nature and population displacement in climate change', *Journal of International Development*, vol 24, pp. 1058–1070.
- Peluso, N. L. (2009) 'Rubber erasures, rubber producing rights: Making racialized territories in West Kalimantan, Indonesia', *Development and Change*, vol 40, no 1, pp. 47–80.
- Peluso, N. L. (2011) 'Emergent forest and private land regimes in Java', *Journal of Peasant Studies*, vol 38, no 4, pp. 811–836.
- Pelzer, K. (1945) *Pioneer Settlement in the Asiatic Tropics: Studies in Land Utilization and Agricultural Colonization in Southeastern Asia*, American Geographical Association, Washington, DC.
- Phongsathorn, P. (2012) 'Environment and migration: The 2011 floods in Thailand', in F. Gemenne, P. Brucker and D. Ionesco (eds) *The State of Environmental Migration*, Institute for Sustainable Development and International Relations and International Organization for Migration, Paris, pp. 13–23.
- Potter, L. (2008) 'Production of people and nature, rice, and coffee: The Semendo people in South Sumatra and Lampung', in J. Nevins and N. L. Peluso (eds) *Taking Southeast Asia to Market: Commodities, Nature, and People in the Neoliberal Age*, Cornell University Press, Ithaca, New York, pp. 176–90.
- Potter, L. (2012) 'New transmigration "paradigm" in Indonesia: Examples from Kalimantan', *Asia Pacific Viewpoint*, vol 53, no 3, pp. 272–289.
- Rasul, G. and Thapa, G. B. (2003) 'Shifting cultivation in the mountains of South and Southeast Asia: Regional patterns and factors influencing the change', *Land Degradation and Development*, vol 14, pp. 495–508.
- Reid, A. (2000) *Charting the Shape of Early Modern Southeast Asia*, Silksworm Books, Chiang Mai.
- Resurreccion, B. P. and Khanh, H. T. V. (2007) 'Able to come and go: Reproducing gender in female rural–urban migration in the Red River Delta', *Population, Space and Place*, vol 13, pp. 211–224.
- Ribot, J. and Peluso, N. L. (2003) 'A theory of access', *Rural Sociology*, vol 68, no 2, pp. 153–181.
- Rigg, J. (2001) *More Than the Soil: Rural Change in Southeast Asia*, Pearson Education, Harlow.
- Rigg, J. (2012) *Unplanned Development: Tracking Change in South-East Asia*, Zed Books, London.
- Robbins, P. (2012) *Political Ecology*, 2nd ed., Wiley-Blackwell, London.
- Roth, R. (2008) "'Fixing" the forest: The spatiality of conservation conflict in Thailand', *Annals of the Association of American Geographers*, vol 98, no 2, pp. 373–391.
- Sajor, E. and Ongsakul, R. (2007) 'Mixed land use and equity in water governance in peri-urban Bangkok', *International Journal of Urban and Regional Research*, vol 31, no 4, pp. 782–801.
- Samuels, A. (2012) 'Moving from Great Love: Gendered mobilities in a post-tsunami relocation neighborhood in Aceh, Indonesia', *International Journal of Urban and Regional Research*, vol 36, no 4, pp. 742–756.
- Sather, C. A. (1997) *The Bajau Laut: Adaptation, History and Fate in a Maritime Fishing Society of South-eastern Sabah*, Oxford University Press, Kuala Lumpur.
- Scott, J. C. (2009) *The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia*, Yale University Press, New Haven, Connecticut.
- Silvey, R. and Elmhirst, R. (2003) 'Engendering social capital: Women workers and rural–urban networks in Indonesia', *World Development*, vol 31, no 5, pp. 865–879.
- Spaan, E. (1999) 'Labour circulation and socio-economic transformation: The case of East Java, Indonesia', PhD thesis, University of Groningen.
- Stern, N. (2007) *The Economics of Climate Change: The Stern Review*, Cambridge University Press, Cambridge.
- Stoler, A. L. (1985) *Capitalism and Confrontation in Sumatra's Plantation Belt, 1870–1979*, Yale University Press, New Haven, Connecticut.
- Sturgeon, J. C. (2005) *Border Landscapes: The Politics of Akha Land Use in China and Thailand*, University of Washington Press, Seattle.
- Sunderlin, W. D., Angelsen, A., Resusudarmo, D. P., Dermawan, A. and Rianto, E. (2001) 'Economic crisis, small farmer well-being, and forest cover change in Indonesia', *World Development*, vol 29, no 5, pp. 767–782.
- Suryadinata, L., Arifin, E. N. and Ananta, A. (2003) *Indonesia's Population: Ethnicity and Religion in a Changing Political Landscape*, ISEAS, Singapore.

- Sutton, K. (1989) 'Malaysia's FELDA land settlement model in time and space', *Geoforum*, vol 20, no 3, pp. 339–354.
- Swyngedouw, E. and Heynen, N. C. (2003) 'Urban political ecology, justice and the politics of scale', *Antipode*, vol 35, pp. 898–918.
- Tacoli, C. (2009) 'Crisis or adaptation? Migration and climate change in a context of high mobility', *Environment and Urbanization*, vol 21, no 2, pp. 513–525.
- Tan, S. B. (2000) 'Coffee frontiers in the Central Highlands of Vietnam', *Asia Pacific Viewpoint*, vol 41, no 1, pp. 51–67.
- Tirtosudarmo, R. (1995) 'The political demography of national integration and its policy implications for a sustainable development in Indonesia', *Indonesian Quarterly*, vol 23, pp. 369–383.
- Unger, L. (1944) 'The Chinese in Southeast Asia', *Geographical Review*, vol 34, no 2, pp. 196–217.
- Vandergeest, P. (2003) 'Land to some tillers: Development-induced displacement in Laos', *International Social Science Journal*, vol 175, pp. 47–56.
- Warner, K. (2011) 'Global environmental change and migration: Governance challenges', *Global Environmental Change*, vol 20, pp. 402–413.
- Winkels, A. (2008) 'Rural in-migration and global trade: Managing the risks of coffee farming in the Central Highlands of Vietnam', *Mountain Research and Development*, vol 28, no 1, pp. 32–40.
- Witasari, A., Beilin, R., Batterbury, S. and Nettle, R. (2006) 'How does social capital matter in managing protected forest? A case of Indonesia', paper presented at the 11th Biennial Conference on Common Property, *Survival of the Commons: Mounting Challenges and New Realities*, Bali, 19–23 June.
- World Bank (2010) *World Development Report 2010: Development and Climate Change*, World Bank, Washington, DC.
- Yong, C. (2006) 'Autonomy re-constituted: Social and gendered implications of dam resettlement on the Orang Asli of Peninsular Malaysia', *Gender, Technology and Development*, vol 10, no 1, pp. 77–99.

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