Migrant Livelihoods in a Complex Adaptive System: Investigating the Links between Internal Migration, Land Tenure, and Environmental Change in Brong Ahafo, Ghana

DPhil

Jonathan Sward

University of Sussex

September 2016

Statement

I hereby declare that this thesis has not been, and will not be, submitted in whole or in part to another University for the award of any degree.

Signature: …….

Acknowledgements

The topic of this thesis was inspired by working with Prof Richard Black as a research assistant at the University of Sussex in 2011 and 2012, as part of follow-up engagement activities with the World Bank and European Commission in the wake of the publication of the *Foresight Report on Migration and Global Environmental Change* in 2011 (a report which Prof Black chaired). It was during the course of helping to synthesise the report's key messages for particular areas of policy that the need for more research on the relationship between environmental factors at migration destinations first became apparent to me. This forms the central focus of this thesis. The thesis's key research themes and its theoretical focus have been heavily influenced by my supervisors, Prof Dominic Kniveton and Prof James Fairhead. Prof Kniveton's previous work on conceptualising environmental migration in Burkina Faso as a 'complex adaptive system' inspired my own development of this theoretical framework in the thesis. Prof Fairhead's expertise on land issues in West Africa proved invaluable in sharpening the focus of the thesis on land tenure, in particular.

This thesis owes an enormous debt to colleagues in Ghana, in particular those at the Center for Migration Studies at the University of Ghana (Legon), which served as my host institution during field visits in 2013 and 2014. Meetings and discussions with a wide range of colleagues from the University of Ghana, including Prof Mariama Awumbila, Dr Joseph Teye, Prof Samuel Codjoe, Dr Mumuni Abu, Prof Delali Badasu, Prof Joseph Yaro, and Dr Kwadwo Owusu were instrumental in helping me to finalise field research preparations and subsequently interpret initial field research findings. Additionally, Rev Frank Twumasi, the head of the Scholars in Transit NGO in Nkoranza, Brong Ahafo Region, was instrumental in the field research itself, in terms of gaining access to field sites and providing skilled *Twi* interpreters. Additionally, Prof Kwasi Nsiah-Gyabaah of the Anglican University College of Technology in Nkoranza helped to arrange accommodation for me in one of the university's hostels during the period of fieldwork proper in 2014.

More generally, the undertaking of this thesis was made possible by a studentship with the Migrating out of Poverty Research Programme Consortium, an international research partnership whose Secretariat is based at the University of Sussex. Although this thesis does not constitute part of the programme's commissioned research, I have greatly benefitted from being part of this wider research partnership, which is focused on better understanding the relationship between internal and intra-regional migration and poverty reduction in Sub-Saharan Africa and Asia. I'm particularly grateful for the support that Migrating out of Poverty RPC Research Director Dr Priya Deshingkar has provided over the course of the thesis, through numerous collegial discussions about how the research was progressing.

Finally, I am immensely grateful for the opportunity to have conducted research with three migrant communities in Ghana who were gracious in welcoming my presence as an outsider, and for the many friendships I established during the time I was in Brong Ahafo. The migrant farmers I encountered were hard-working and good humoured – despite the significant difficulties many of them were facing. I hope that in some small way this thesis shines a light on their stories, which are often overlooked or simply ignored.

This thesis is dedicated to my loving wife, Anna, and our young daughter, Zoe. Their love and support has made all the difference in helping me through the final phases of completing this work.

Jon Sward

September 2016

Thesis summary

This doctoral thesis analyses the internal migration of farmers from Northern Ghana to Brong Ahafo Region's agricultural frontier, theorizing this mobility as part of a wider 'complex adaptive system' made up of interlinked social and environmental processes. It draws on original qualitative research conducted in three migrant 'settler' communities in Brong Ahafo in 2014 in order to investigate local-level migration trends and histories, the relationship between in-migration and changing land tenure norms, and migrant farmers' perceptions of environmental change at their migration destinations. Each of these research themes provides an entry point for scrutinising the relationship between in-migration and the local 'social-ecological system'. Finally, the thesis introduces a typology of livelihood trajectories among migrant tenant farmers in Brong Ahafo based on research findings at the three case study sites, which accounts for livelihood differentiation among migrants.

This thesis thus makes an original contribution to the literature on the climate-migration nexus and to debates about rural development in Sub-Saharan Africa. In the case of the former, much of the current literature on 'environmental migration' focuses on the extent to which environmental factors influence out-migration from communities of origin, and whether such migration can be thought of as a form of 'adaptation' to environmental change. Debates about rural development, meanwhile, are increasingly preoccupied with understanding rural transformations. This thesis illustrates the need to consider how environmental conditions can affect migrant livelihoods at rural *destinations*, where livelihoods are often highly sensitive to environmental factors, and to account for how in-migration can serve as 'feedback' which contributes to changing social and environmental conditions in such areas. Additionally, the stratified migrant livelihood trajectories encountered at my field sites show the diversity of migrants' agency, which affects their capacity to adapt to climatic and other shocks *in situ* as well as to provide support for kin in Northern Ghana.

Table of Contents

List of Abbreviations

ABM – Agent Based Modelling/Model

CAS – Complex Adaptive Systems

CMS – Center for Migration Studies (University of Ghana, Legon)

DECCMA – Deltas, Vulnerability and Climate Change research project

FAO – Food and Agricultural Organization of the United Nations

GSS – Ghana Statistical Service

IOM – International Organization for Migration

IPCC – Intergovernmental Panel on Climate Change

LDCs – Least Developed Countries

NAPA – National Adaptation Programme of Action

NELM – New Economics of Labour Migration theory

NGO – Non-Governmental Organization

PRSP – Poverty Reduction Strategy Paper

SLA – Sustainable Livelihoods Approach

UNDESA – United Nations Department of Economic and Social Affairs

UNDP – United Nations Development Programme

UNEP – United Nations Environment Programme

UNFCCC – United Nations Framework - Convention on Climate Change

UNRISD – United Nations Research Institute for Social Development

USGS – United States Geological Survey

List of Figures

Chapter 1. Introduction: Understanding migration, land tenure and environmental change in Brong Ahafo, Ghana, as part of a 'complex adaptive system' (CAS)

Section 1.1 Assessing internal migration from Northern Ghana to Brong Ahafo's transition zone as part of a wider social and environmental context

This thesis investigates the phenomenon of migration to rural agricultural frontiers in West Africa through qualitative research in three migrant 'settler' communities in different districts in Brong Ahafo Region, Ghana, which have differing migration histories, landlord-migrant dynamics, and agro-ecological conditions (NB: refer to Section 3.5 for a map of the field site locations). As noted by Van der Geest et al. (2010) and Moller Jensen and Knudsen (2008), internal migration from Northern Ghana to 'agricultural frontiers' in western and central Ghana constitutes a key secondary internal migration pattern in the country, alongside rural-urban migration to cities such as Accra, Kumasi and other growing urban centres. In the case of Brong Ahafo, migrants to rural areas typically engage in rain-fed agriculture of commercial food crops, including maize, cassava, yam, and groundnuts. With no formal claim to farmland under Brong Ahafo's customary land tenure system – which holds that locals with 'first-comer' status have customary access rights to land (Afikorah-Danquah 1997) – migrant farmers from Northern Ghana typically rely on rental or sharecropping agreements with local hosts, including village chiefs, local families, or in some cases other migrants[1].

[1] Note on definition of terms used in thesis: 'migrant', in the thesis, primarily refers to internal migrants within Ghana, especially those who have moved from Ghana's three northernmost regions to Brong Ahafo Region or elsewhere. I define a migrant as someone who has resided for more than three months outside the locality of their birth, following Awumbila et al. (2015). I define 'settler' and 'permanent migrant' as internal migrants who have been resident in their current locality for longer than one year – again typically referring to Northern Ghanaians in Brong Ahafo. 'Second generation' migrants similarly are typically children of Northern Ghanaian migrants who have settled in Brong Ahafo Region. 'Frontier' refers to rural areas in Ghana – especially in Brong Ahafo and Western Region – that have become sites of in-migration from Northern Ghana and other parts of the country in recent decades. These areas are 'frontiers' only in the sense of being recent sites of migrant arrivals. This is consistent with Kopytoff's (1987) oft-cited definition of the 'frontier process', whereby polities in Sub-Saharan Africa have been

This migration trend is relevant to emerging debates about the 'climate-migration nexus', with migrants moving from semi-arid Northern Ghana – an area often characterised as being environmentally marginal – to Brong Ahafo's transition zone, where agro-ecological conditions are generally better, but where farmers' agricultural outputs are nonetheless highly sensitive to environmental change and variability. More broadly, this research also touches on the literature on rural transformations (cf Wolford 2015), which revolves around how to account for and incorporate Sub-Saharan Africa's large rural agrarian population in development efforts. Migration to agricultural frontiers in Ghana intersects with rural development debates on numerous fronts, as migrants are a key source of agricultural labour and are often heavily involved in changing agricultural practices and shifting land use norms at rural destinations. In some cases, as shall be explored in Chapters 4 and Chapter 7, migrants from Northern Ghana also provide significant financial and in-kind support for kin in Northern Ghana, helping to ameliorate poverty levels in their communities of origin. Yet, at the same time migrant farmers from Northern Ghana, in particular, tend to retain a status as 'outsiders' in local customary tenure frameworks at their migration destinations in Brong Ahafo Region, and typically access land through rental or share-cropping agreements, as explored in Chapter 5.

With these issues in mind, the thesis focuses on how recent internal migration to Brong Ahafo Region relates to local social and environmental conditions at migration destinations, including changing social relations to land as well as migrant farmers' experiences of environmental change at destination. It draws on qualitative research carried out in three different districts of Brong Ahafo's 'transition zone' – so-called as it represents a transitional environment between the forest zone of Southern Ghana and the more arid woodland savannah of Northern Ghana. The thesis develops a fresh theoretical perspective, using complex adaptive systems (CAS) theory as a guiding framework to consider how in-migration to Brong Ahafo's transition zone is interrelated to wider social and environmental processes that are occurring in the region. As shall be explained in further detail later in this introductory chapter, and expanded on fully in

---

continually reconstituted through fluctuating host-stranger relations, and migration of break-off factions to new hinterlands, or frontiers.

Chapter 2, CAS theory understands social and environmental conditions to be co-evolving, as individual social agents interact with each other and their surrounding environment. In particular, CAS theory posits that 'small-scale interactions' between agents and their environment can ultimately lead to the emergence of larger patterns and processes, which in turn can change the underlying conditions of what scholars have called the 'human-nature-system' (Rammel et al. 2007: 10) or the 'social-ecological system' (Oliver-Smith 2009).

I argue that applying the CAS theoretical framework to thinking about internal migration, changing land tenure norms, and environmental change in Brong Ahafo can help to understand how these processes are interlinked. Such a framework can provide a 'road map' for research and policy by looking at how multiple, interlinked factors operate across different scales. CAS theory seeks to identify feedbacks that inform human-environment and human-human interactions, thus highlighting 'emergent properties' and non-linear characteristics of the wider system. Using comparative, qualitative research collected in Brong Ahafo in 2014, I present ground-level insights into these processes at three case study sites located across the region, making a tangible link between such small-scale interactions and larger processes that emanate from them. In undertaking this approach, the thesis thus seeks to make a novel contribution to the emerging literature on the 'climate-migration nexus'[2], as well as to debates about rural development in Sub-Saharan Africa. As Carr (2009) notes, the topic of migration to rural agricultural zones is fairly marginalised both among migration researchers and those investigating rural land use changes. This thesis helps to fill this research gap, positioning migration within a series of larger social and environmental processes and transformations, including changing land tenure norms, environmental change, and – more broadly – changing capitalist relations between smallholder producers and markets.

This research topic has broader resonance in terms of its significance to debates about migration, development, and environmental change. Much of the current literature on 'environmental migration' focuses on the extent to which environmental factors

[2] NB: I use this term throughout the thesis to refer to the multiple connections between migration and the environment, following Faist and Schade (2013).

influence people's decisions to leave their communities of origin – and the degree to which this can be thought of as a form of 'adaptation' to changing climatic conditions. In contrast, this thesis investigates how environmental conditions affect migrants at the other end of the migratory chain, in a context where livelihoods are highly sensitive to environmental change, owing – in particular – to farmers' reliance on rain-fed agriculture. The thesis's use of the CAS approach also allows it to make a contribution to recent debates about 'rural transformations' in Sub-Saharan Africa (cf Wolford 2015) by illustrating the ways in which mobile populations from Northern Ghana are embedded in such transformations in rural Brong Ahafo.

More broadly, as a PhD student who is affiliated with the Migrating out of Poverty Research Programme Consortium (RPC)[3], this thesis has been influenced by the key over-arching question of the programme: 'Under what conditions can migration contribute to poverty reduction, or serve as a pathway out of poverty for migrants and their families?' Although this thesis is not part of the Migrating out of Poverty RPC's official programme of research, it seeks to add to the sparse evidence base on the potential linkages between migration and poverty reduction in the context of internal migration within countries in the Global South. Internal migration is much more common than international migration, with one estimate putting the global figure of internal migrants at 740 million, or roughly four times the global estimate of international migrants (UNDP 2009). Yet research on the potential development implications of migration is largely biased towards international flows, with a particular focus on issues such as international remittances and 'brain drain' (i.e. the emigration of skilled professionals from developing countries) (see Skeldon 2010: 4). This thesis makes a contribution to understanding the potential

[3] The Migrating out of Poverty Research Programme Consortium is a research partnership funded by the UK's Department for International Development which has been carrying out research on internal and regional migration in the Global South since 2011, with the project completion scheduled for June 2017. Its Secretariat is based at the University of Sussex (UK), and it has lead partners in five developing regions who have coordinated research of different aspects of migration's potential impact on poverty. The Centre for Migration Studies at the University of Ghana (Legon) is the RPC's lead West African partner, and was my host institution during my doctoral fieldwork, as explained in more detail in Chapter 3. For more information, visit the Migrating out of Poverty website: <http://migratingoutofpoverty.dfid.gov.uk/> [accessed 29 July 2016].

impact that internal migration can have on poverty reduction in the context of flows to rural destinations, in particular.

This introductory chapter of the thesis is structured as follows: Section 1.2 introduces the existing knowledge base on the climate-migration nexus, and discusses in brief how this literature interfaces with rural development debates. Section 1.3 introduces the three central research questions of the thesis. I discuss how each of these research questions links back to wider debates on the climate-migration nexus and rural development – including how the CAS approach relates to the livelihood trajectories of tenant farmers at my case study sites. Section 1.4 concludes by recapping the key points of this opening chapter and discussing the structure of the remainder of the thesis.

Section 1.2 Introducing existing debates on the 'climate-migration nexus' and rural development

This thesis focuses on the relationship between migration to rural destinations in West Africa and evolving social and environmental conditions at such destinations, taking in-migration to Brong Ahafo's 'transition zone' from Northern Ghana as its case study. As mentioned above, its focus diverges fairly substantially from much of the existing literature on the climate-migration nexus in West Africa and elsewhere in the developing world, which has tended to focus on how environmental factors – especially climate shocks or stresses – are related to patterns of out-migration from communities of origin[4]. This section provides a brief overview of this existing literature, which despite its research bias offers important insights for the present study in terms of thinking about how environmental and other factors interact with migration patterns.

It is important to note that the literature on environmental migration has only emerged in earnest since the 1980s. As McLeman et al. (2015) observe, the first wave of research on environmental migration was led primarily by natural scientists, for the benefit of policymakers. They explain:

> These scientists sought to make descriptive and conceptual links between forced migration and environmental changes (not only climate change but also land degradation, deforestation, fisheries decline, biodiversity loss and water scarcity) (McLeman et al. 2015: 7).

This resulted in the emergence of an 'environmental refugee' paradigm (El-Hinnawi 1985), with various scholars and policymakers predicting that 'hundreds of millions' of people would be involuntarily displaced by the mid-21st century due to environmental change, creating new policy and security issues (Myers and Kent 1995; Myers 2001). However, as McLeman et al. (2015) note, the a-theoretical nature of this paradigm – which assumed mass out-migration from areas affected by environmental change – was soon criticised by social scientists as being based on an overly simplistic understanding of how migration

[4] Additionally, Billsborrow (2009) notes other areas of research related to the migration-climate nexus, including a debate about whether migrants or refugees contribute to environmental degradation at their destinations (McGregor 1994; Black and Sessay 1997, Codjoe 2006, van der Geest 2011b, and van der Geest et al. 2015).

processes operate in practice (see for example, Black 2001). As shall be explained in more detail in Chapter 2, this debate, which Morrissey (2012) has summarised as the 'maximalists versus the minimalists', largely pitted natural scientists, who posited a linear relationship between climate change impacts and out-migration from affected areas, against social scientists, who emphasised the more complicated empirical relationship between migration and climate interactions to date as a more apt analogy for viewing future climate-migration interactions.

Relatedly, the past two decades have seen the emergence of a fairly substantial literature on the empirical relationship between migration and environmental factors in the Global South. This includes the *Foresight Report on Migration and Global Environmental Change* (Foresight 2011; referred to for the remainder of this chapter as the *Foresight Report*), which drew on more than 70 working papers from researchers across different social science disciplines and geographical regions. The report concluded that environmental drivers were significant in influencing migration, but that migration was also influenced by overlapping political, economic, social and demographic factors. The *Foresight Report* also noted that under the right conditions, migration can be a potential form of adaptation to climate change, but that in other cases migration does not lead to positive outcomes. Additionally, in some cases the poorest people (particularly, but not exclusively, in developing countries) may lack the financial or other capital they need to migrate away from areas affected by environmental change, potentially creating 'trapped populations' *in situ*. The report built on previous debates about whether 'environmental migration'[5] in the developing world can potentially constitute a form of adaptation to environmental change, as opposed to a form of forced migration (McLeman and Smit, 2006; McLeman and Hunter 2010). Finally, the *Foresight Report* also observed that migrants may be increasingly moving *into* areas affected by environmental change (for implications on this finding in terms of migration to cities, see Adams et al. 2012; Sward

[5] See Dun and Gemenne (2008) on the contested definitions of this term and Kniveton et al. (2009) on the difficulties of trying to create accurate estimates of climate migration, according to varying definitions.

2012). Despite its inclusion in the *Foresight Report*, this remains an under-researched issue, especially with respect to migration to rural destinations in developing countries[6].

The wider debate on the climate-migration nexus has drawn on a number of influential studies conducted in the West African context. As is explained in more detail in Chapter 6, much of the available evidence has focused on migration in the region's drylands, with a number of studies looking at the relationship between drought that affected the region in the 1970s and 1980s and the extent to which this was met with migratory responses (Van Apeldoorn 1981; Mortimore 1989; Findley 1994; Pedersen 1995; de Haan et al. 2002; Hampshire 2002; Afifi 2011). Overall, research on the relationship between migration and environmental factors in West Africa suggests that it is mediated by historical processes and is an existing response to environmental stress among inhabitants of the region. Morrissey observes that:

> …it is clear from empirical accounts that migration is generally an established livelihood strategy that (a) has been shaped by historical processes such as colonial taxes, the slave trade and forced labour schemes … and (b) constitutes a long-standing response to environmental stress in West Africa (Morrissey 2014: 91).

The existing evidence base in the West African region on migration and environmental factors thus points to the fact that the relationship is nonlinear. It is mediated, at least in part, by individual factors and membership in particular social groups and institutions. To cite one particularly influential contribution to the debate, in Burkina Faso Henry et al. (2004a) showed that fewer people migrated out of areas with unfavourable climatic conditions when compared to those with favourable ones, because households in the former were less likely to attain the capital necessary to invest in initial migration costs. In a subsequent study, Henry et al. (2004b) looked at impacts of rainfall stress, land availability, and road access on migration decisions in Burkina Faso. Here, individual factors (including education level, ethnic group membership, livelihood type, and gender)

[6] There is, however, an emerging body of research on this issue in the Amazon. See for example: Richards, et al. (2015), Guedes et al. (2014) and VanWey et al. (2012), which all probe the relationship between migration and land use change in Amazonia's 'frontier' areas.

were found to be much more significant than poor rainfall in determining the likelihood of migration, and also impacted the destination of people's migration.

Thus, in contrast to the aforementioned 'environmental refugee' discourse, which argues that people will be increasingly 'displaced' by anthropogenic climate change, the existing evidence base in West Africa points to a much more complicated picture. Such research suggests that the climate-migration nexus in the region needs to understood as emerging out of an interplay between social and environmental factors. As Morrissey summarises,

> Identifying that migration strategies can change during times of significant environmental stress is really only a smaller piece of a larger phenomenon whereby migration forms a dynamically responsive process to changing socio-economic conditions in the sending and receiving areas (Morrissey 2014: 91).

In this vein, this thesis focuses on how environmental conditions at migration *destinations* may influence migrants' livelihood outcomes there. It explores the climate-migration nexus in the specific context of in-migration to Brong Ahafo's agricultural frontier, with an emphasis on how this migration is sensitive to environmental conditions and social relations with locals. Although migration to rural destinations remains a significant form of mobility in West Africa, it is virtually absent from most policy on migration. For example, Ghana's new National Migration Policy, while acknowledging the fact that migration to Brong Ahafo Region is among the most significant internal migration flows in the country, does not introduce any specific policies with respect to this migration flow (Government of Ghana 2016: 20). Ghana's national development policies are similarly silent on in-migration to agricultural frontiers, despite the potential development implications of such migration in rural areas (see Chapter 8.4). However, as shall be explored in more detail in Section 1.3, migration to agricultural frontiers has important implications for research, theory and policy related to the climate-migration nexus. For example, changing environmental conditions at destination may affect the livelihood trajectories of migrants there, which has implications for theorising the extent to which we can view migration as a potential 'adaptation strategy' in the context of anthropogenic climate change.

Out-migration from Northern Ghana – on both a seasonal and permanent basis – is a common phenomenon. Census data show that all three northern regions of the country (Upper East, Upper West and Northern) are characterised by patterns of out-migration to other regions of the country. In part, this is due to the development challenges that continue to characterise Northern Ghana. As Nyantakyi-Frimpong and Bezner-Kerr (2015: 41) observe, Northern Ghana remains a development 'paradox on virtually every front', with 80 per cent of the population engaged in agriculture, food insecurity and child malnourishment affecting high levels of the population, and poverty rates typically two-to-three times higher than the national average. These factors are exacerbated by a less favourable rainfall regime than central and southern Ghana, as well as a structural scarcity of good-quality farmland (van der Geest 2011a). In short, 'marginal' environmental conditions and spatial poverty overlap in Northern Ghana, providing part of the rationale for an ongoing 'culture of migration'[7] existing in this part of the country, directed at destinations throughout the country.

The available existing research shows that internal migration flows from Northern Ghana to rural locations elsewhere in the country tend to be sensitive to conditions at these destinations. Van der Geest et al. (2010) show that these include environmental factors: The authors looked at the relationship between vegetation cover, migration flows and rainfall data to explore the environmental dimensions of migration from Northern Ghana to other locations in Ghana. Here, out-migration from Ghana's three northern regions was linked to relatively low vegetation cover at origin, while in-migration to central and western Ghana was linked to higher vegetation cover and relatively low population densities. As Morrissey summarises, 'The authors concluded that migration to the central region was undertaken with the aim of attaining 'greener pastures' but noted that this relationship was also shaped by colonial exploitation of the north' (Morrissey 2014: 100).[8]

[7] As shall be explained in more detail in Chapter 4, current north-south migration trends in Ghana also have important colonial and pre-colonial antecedents.

[8] Elsewhere in West Africa, Afifi (2011) showed that in the case of migration linked to environmental factors in Niger, migrant destinations have shifted from Nigeria and Ghana to Cote d'Ivoire and then Libya, following changes in political and economic conditions in these countries

This suggests that we need to pay close attention to social and environmental conditions at both ends of the migratory chain, rather than simply focusing on whether and how environmental conditions may influence people's decisions to leave their communities of origin. With this broader relationship in mind, this thesis looks at how in-migration from Northern Ghana interfaces with social and environmental conditions at migration destinations in Brong Ahafo. I position migration as part of wider complex adaptive system in the region, in order to better understand how migration is sensitive to particular conditions at destination. In Section 1.3, I expand on how the three key research questions of the thesis provide entry points for investigating the wider complex adaptive system at work in Brong Ahafo Region, and migration's place in it. As I illustrate below, these research themes are valuable because they help to illuminate our understanding of the climate-migration nexus, especially with respect to how social and environmental factors are linked to migrants' livelihood trajectories at destination.

– showing that migration is of course also sensitive to changing social factors at various migration destinations.

Section 1.3 Introducing the research questions of the thesis – key entry points for developing CAS theory in the context of migration to Brong Ahafo's transition zone

Each of the three research questions that are the central focus of this doctoral thesis provide a different entry point for thinking about how migration exists within a complex adaptive system in Brong Ahafo, constituted of interactions between different actors (or 'agents'), and between these actors and the local environment. These questions open up a new theoretical space for thinking about the relationship between in-migration, local hosts, and land issues at Brong Ahafo's 'agricultural frontier'. They provide a fresh perspective on the wider climate-migration nexus, by highlighting the sensitivity of migration to particular social and environmental conditions at rural migration destinations in West Africa. These insights are also relevant for thinking through how migration can be better accounted for in debates on rural development – including how mobile populations interface with issues such as customary land tenure institutions, shifts in land use, and environmental change – by identifying migration's role in the emergence of processes of rural change and transformation.

The empirical basis for this thesis is first-hand comparative qualitative data, contextualised by key sources of secondary data on migration and environmental conditions. My doctoral fieldwork consisted of qualitative research in three migrant 'settler' communities in different districts of Brong Ahafo's 'transition zone' in 2014. As shall be outlined in greater depth in Chapter 3, these research sites were chosen owing to their differing local migration histories, land tenure norms and agro-ecological conditions, allowing for a comparative perspective of wider regional changes and processes. The research consisted primarily of semi-structured interviews with migrants from Northern Ghana and other community members, and was augmented by focus group sessions and visits to migrants' farms. I argue that the ground-level interactions captured in my qualitative research at the three case study sites provide new insights on how migration is related to particular environmental and social processes at rural migration destinations in Brong Ahafo.

The research focused on three key sets of thematic questions that each present a specific entry point for thinking about the wider complex adaptive system at work in Brong Ahafo.

This is followed by an analysis of migrant livelihood outcomes at the three research sites in Chapter 7, which considers the role of migrant social networks, land security, and environmental variability in differentiated migrant livelihood trajectories.

1) Localised migration histories and trends (Chapter 4): What are the reasons for migration to Brong Ahafo, from Northern Ghanaian migrants' perspectives, and how do these flows reflect social network linkages? And, relatedly, how do these perspectives relate to social-ecological conditions at migration destinations?
2) The interaction between in-migration and changing land tenure norms (Chapter 5): What are migrants' terms of access to land, and how have these evolved over time in different parts of Brong Ahafo Region? What does this reveal about migrants' (supposedly) marginal place in customary land administration hierarchies?
3) Migrant farmers' perceptions of climate change at destination (Chapter 6): What are migrants' perceptions of environmental change and variability and how do they perceive environmental risks to be affecting their livelihood prospects? Can migrant narratives about environmental change be interpreted as part of their wider social positionality as 'strangers' in Brong Ahafo?

The thesis uses CAS theory (which will be introduced in more depth in Chapter 2) to analyse the qualitative data associated with each of these research questions, in order to develop a better understanding of how social and environmental conditions are 'co-evolving'. I hope to demonstrate that this theoretical approach provides a valuable framework for applying the qualitative findings from my research to thinking about broader changes and transformations related to in-migration, changing land tenure norms and environmental change at the regional and national level. I also draw out unexpected connections between these particular processes and the changing terms of capitalist relations between smallholder African farmers and markets, the emergence of competing claims to land in Ghana including international land investment deals, and shifting population dynamics in the 'transition zone', which until recently has been one of the more sparsely populated areas in Ghana.

In the remainder of this section, I establish the links between these three research questions and key gaps in the existing knowledge base on the climate-migration nexus. I then conclude by noting the myriad interfaces between these questions and broader debates about rural development. These include the differentiated migrant farmer livelihood trajectories evident at my three research sites in Brong Ahafo, and the implications of such diverse livelihood statuses for human-environment interactions, which is the subject of Chapter 7.

1.3.1 The emergence of local-level migration trends

As Carr (2009) notes, the topic of migration to rural agricultural zones is fairly marginalised in academic research on both migration and rural land use changes. Yet in Ghana in particular and West Africa in general such migration processes are a significant form of population mobility. In the case of Ghana, since the 1970s Brong Ahafo Region has emerged as a significant destination for internal migration (Amanor 1994). Internal migrants account for 20 per cent of the region's population, according to the 2010 census, with the majority of these coming from Ghana's three northernmost regions: Upper West, Upper East and Northern. Various studies have investigated different dimensions of this migration trend. Van der Geest (2011b) looks specifically at the establishment of ten Dagaba settler communities in west-central Brong Ahafo, where migrants have come to engage in farming activities, focusing on how the Dagaba have implemented farming practices common in Northern Ghana which are in fact quite 'sustainable' – a response to the common narrative that settler farmers contribute to land degradation. Meanwhile, Abdul-Korah (2007) focuses on 'step-migration' of Dagaba from other Ghanaian locations to Brong Ahafo, highlighting the fact that a number of these migrants initially move to urban destinations in southern Ghana before relocating to Brong Ahafo.

Additionally, Abu et al. (2014: 357) show that a significant proportion of migrant household heads in a study in rural Brong Ahafo (nearly 63 per cent of the two-village sample) said that they intended to move to new locations within five years. This was almost double the number of non-migrant household heads surveyed who intended to move (37 per cent), highlighting the fact that onward mobility is a significant

characteristic of Northern Ghanaian migration to Brong Ahafo. Meanwhile, Tonah (2007), Lognibe (2008) and Yelsang (2013) all highlight how migrants have become directly or indirectly involved in low-level disputes over land ownership and land use[9]. In all these cases, the locally-specific negotiations between migrants and local hosts are evident, with the presence of other demands on, or claims to, land sometimes influencing such negotiations.

Overall, the existing research on migration to Brong Ahafo has tended to focus on specific migrant ethnic groups or migration destinations, and thus lacks the comparative focus of this study. It has, as a result, not been able to adequately explain how in-migration from Northern Ghana has evolved differently at different destinations across the region. My research strives to fill this gap by focusing on the emergence of localised migration histories and trends, with an emphasis on how these differed at destination sites across the region owing to the existence of parallel trans-local social networks, transportation infrastructure, and farming opportunities at particular destinations. In order to draw out these linkages, my qualitative research looked at migrants' reasons for migration to Brong Ahafo, their connections with their communities of origin (including remittances, visits and provision of in-kind support), and their future migration intentions. The qualitative data from my fieldwork was complemented by the 2010 Ghana National Census, which provides improved data on regional and national migration trends in comparison to its previous iterations, including district-level migration flows and trends in terms of migrants' time spent at their current destination.

The results of this empirical strand in the thesis are discussed in depth in Chapter 4, highlighting the heterogeneous nature of migration from Northern Ghana to different parts of the 'transition zone' which is apparently influenced by – in addition to factors encouraging out-migration from the north in general – the sensitivity of migration to

[9] Tonah's (2007) focus is on disagreements between pastoralists and farmers – including migrants – over land use and access near Yeji in the vicinity of Lake Volta, while Lognibe (2008) shows how migrants can be used as leverage in disputes *between* local landlords as leasing lands to migrants is one strategy that is used to keep contested lands occupied on behalf of certain parties. Meanwhile, Yelsang (2013) looks at how migrants sometimes become embroiled in disputes over land use and rental payments *with* local landlords.

particular social or environmental conditions at each case study site, which have been a key element of the local-level ebb and flow of migration patterns over the course of recent decades. Such small-scale interactions between migration and factors at destination allow a first glimpse at the relationship between migration and the wider complex adaptive system in Brong Ahafo, which provides the basis for further analysis and theorisation of this migration trend's interaction(s) with local social and environmental factors.

1.3.2 In-migration and changing land tenure norms

Morrissey has highlighted that the relationship between land tenure and environmental migration is an under-researched aspect of the climate-migration nexus, arguing that researchers need to do a better job of interrogating how land tenure interacts with migration:

> When … findings [on the relationship between migration and climate change] … state that 'land tenure matters'…, the question must surely be asked, how does it matter (what are the mechanisms by which access to land affects mobility in the context of environmental stress) and why do tenure relationships operate in the way that they do? (Morrissey 2012a: 45).

Despite Morrissey's intervention, there remains a significant research gap in empirical knowledge about how land tenure influences the climate-migration nexus – both in terms of migration decisions, as well for migrant outcomes at destination. Customary land tenure is particularly relevant in the case of Ghana, where up to 80 per cent of land is regulated under customary land administration, and traditional authorities have the power to take decisive decisions over land use (Ubink 2009: 52). It is also crucial to note that although customary tenure regimes are often assumed to be relatively static and unchanging, an emerging body of research from Ghana and elsewhere in Sub-Saharan Africa reveals that they are in fact fairly dynamic and locally evolved social institutions, that have changed over time to reflect shifting social relations to land, including the increasing commercial value of much customary land as well as demands for access from a changing array of actors (see, for example, Amanor and Ubink 2008). In Ghana, migrant farmers have often been tenant producers within rural customary tenure frameworks

who have faced constraints to full access to land rights, and in some cases have seen their access rights erode over time (see, for an example from Ghana's Western Region, Boni 2008).

The comparative findings from my research illuminate the ways in which the relationship between in-migration and changing land tenure norms has played out in the three case study communities (see Chapter 5). These ground-level insights show the emergent relationship between migrants from Northern Ghana, local hosts, and changing social perceptions of, and demand for, land. Migrants are 'outsiders' within the region's customary tenure institutions, or traditional land 'stools' as they are referred to in mid-Ghana, which denote historical indigenous areas of land control. Migrants are thus dependent on gaining land access agreements with local hosts – often with village chiefs or local families who have *de facto* 'ownership' rights over specific plots of farmland. Across the three case study communities where I conducted my research, these agreements consisted of a range of rental, sharecropping and other more traditional access arrangements, based on annual 'tributes' of food crops given by migrant cultivators to landlords. The locally specific and evolving nature of the relationship between migrant tenant farmers, local hosts and land access in Brong Ahafo provides fruitful empirical ground for understanding migration within the context of a wider set of changing social and environmental conditions in the region.

At each of the three case study sites, my qualitative research investigated how the conditions of land access for migrant tenant farmers from Northern Ghana to farmland in Brong Ahafo had changed over recent decades. This research question – through its particular focus on migrants' access to farmland – opens up a wider exploration of how these terms of access interface with locally-specific traditional authority over customary lands, changing social perceptions of land's value as a quasi-commodity, and competing claims to farmland in Brong Ahafo from other local, national and international actors. In this context, the small-scale interactions between migrants and local hosts can be conceived of as part of a dynamic process through which land tenure norms are re-affirmed, challenged or strained, in various contexts. Migration – when conceived of as a larger, macro-level process – can potentially affect both the demand for land in specific destination areas and, relatedly, the value that is attached to land. Conversely, changing

terms of land access related to in-migration or other factors may affect would-be migrants' decisions about where to move to within Brong Ahafo's transition zone, or erode existing migrants' terms of access. Thus, this qualitative data provides fresh insights for thinking about an under-researched strand of the climate-migration nexus.

1.3.3 Migrant perceptions of climate change in Brong Ahafo

The third key research question of the thesis focuses on Northern Ghanaian migrants' perceptions of environmental change at the three case study locations in Brong Ahafo. Exploring migrants' perceptions of environmental conditions – including changes over time – provides an opportunity to explore several inter-related topics. On the one hand, it allows for a ground-level view of how environmental conditions are affecting migrant livelihood outcomes at destinations across Brong Ahafo. As mentioned above, this is relevant to the emerging literature on the climate-migration nexus in terms of thinking about how environmental factors influence migration at both ends of the migratory chain. Moreover, as Adger et al. (2013) have argued, perceptions of environmental change are always filtered through cultural understandings of the environment. Thus, migrant perspectives on environmental change can also provide insights into migrant tenant farmers' social positionality in Brong Ahafo.

In this rural context, migrant tenant farmers' livelihoods are extremely sensitive to environmental conditions. All of the farmers who participated in my qualitative research practice rain-fed agriculture, which is typical of smallholders across Brong Ahafo's 'transition zone' where there is a very low level of developed irrigation. Farmers' seasonal production of food crops is thus dependent on adequate rainfall, but is also influenced by a range of other environmental factors, including pests, bushfires, and changes in soil quality. As a result, environmental change presents a significant dynamic which can influence migrant farmers' livelihood trajectories, both on a seasonal basis and also over longer timeframes. In order to investigate this theme, the qualitative research I conducted in the three migrant case study communities queried migrants' perceptions of various environmental factors over recent decades, including changes in rainfall patterns during the major and minor rainy season, shifts in soil fertility, the occurrence

of bushfires and other relevant factors. This strand of the research was also complemented by wider contextual questions about changing crop yields over time, changes in the quality and availability of farmland in the vicinity of the research sites, and other factors.

What emerges through this particular strand of research are rich, first-person narratives detailing migrant tenant farmers' perceptions of the local environment in Brong Ahafo Region. As shall be explored in more depth in Chapter 6, these narratives are framed not only by environmental change, but evidently also by other factors which can potentially cause precariousness for migrant farmers, including shifting market conditions, competing claims to land, and changing land tenure norms. In this context, narratives about environmental change resonate with broader, overlapping forms of exposure to various environmental/non-environmental shocks and stresses. In this way, migrants' perceptions of environmental change can provide insights into the broader make-up of the 'social-ecological system' in Brong Ahafo Region.

Section 1.4 CAS theory and in-migration, land tenure and environmental change in Brong Ahafo: Explaining the structure of the thesis

This thesis – using the CAS theoretical approach as a framework for analysis of comparative qualitative research data on migration, land tenure and environmental change in Brong Ahafo – develops a novel perspective for thinking more broadly about the climate-migration nexus in particular and for understanding how migration to rural frontier areas interfaces with wider questions of rural development, in general. As outlined in Section 1.2, existing debates concerning the climate-migration nexus have often been preoccupied with the ways in which environmental factors – usually shocks or stresses – influence people's decisions to leave their communities of origin. However, following the *Foresight Report*'s key conclusion that migrants are also likely to be moving *into* areas which have a high degree of sensitivity to environmental change (Foresight 2011), this thesis focuses explicitly on the climate-migration nexus in Brong Ahafo's 'transition zone', one of the main rural destinations for internal migration from Northern Ghana, in order to better understand migration and environmental linkages at this migration destination.

As I explained in the Section 1.3, the thesis focuses on three key research themes, which formed the basis of original qualitative research at the three case study sites in different districts of Brong Ahafo Region. These include: (1) accounting for locally specific migration histories in different parts of the region; (2) the relationship between in-migration from Northern Ghana and changing land tenure norms in different parts of Brong Ahafo's 'transition zone'; and (3) migrant perceptions of climate change, and how these are linked to a wider positionality of migrant tenant farmers as 'outsiders' in the region. Each of these research questions provides a different entry point for thinking about the ways in which internal migration from Northern Ghana forms part of a wider complex adaptive system in Brong Ahafo, constituted of co-evolving social and environmental components. In particular, the interactions between migrants, local hosts and the environment at the three case study sites where I conducted my research provide fruitful ground for theorising the relationship between migrant agents and larger social and environmental

changes that are occurring in Brong Ahafo Region, in particular, and in Ghana and West Africa more generally.

With this central focus in mind, the contents of the thesis are as follows:

Chapter 2 outlines the theoretical approach of the thesis. It introduces CAS theory in more detail, and explains its particular utility in terms of thinking about how in-migration, land tenure and environmental change are interlinked. It unpacks a range of theoretical concepts associated with CAS theory, and highlights the recent application of complexity theory in debates about international development. It then outlines existing theoretical approaches to understanding migration, in general, and the climate-migration nexus in particular, highlighting the inherent tension between structure and migrant agency in these debates, and pointing out key interfaces between existing theory and the CAS approach. The chapter then assesses how each of the three key research questions of the thesis provide distinct entry points for conceptualising in-migration to Brong Ahafo as part of a wider complex adaptive system, composed of social and environmental components.

Chapter 3 focuses on the research methodology of the thesis, including the decision to adopt qualitative research methods as the primary data-gathering tool of the thesis, as well as discussing practical steps that were taken as part of the field research in terms of selecting research sites and carrying out the study itself. It discusses the interdisciplinary nature of research on the climate-migration nexus, highlighting the existing research methodologies that have been used to date. With this review of existing research approaches foregrounded, it then explains the research ethics considerations of conducting research with poor migrant populations in rural West Africa, logistical preparations that took place in advance of fieldwork and the selection of the research sites. Finally, it explains the adoption of qualitative methods as part of a broader methodological approach that incorporates CAS theory in order to theorise how in-migration to Brong Ahafo interacts with social and environmental factors at this migration destination.

Chapter 4, the first of three empirical chapters of the thesis, focuses on the local specificities of in-migration trends to different parts of Brong Ahafo's 'transition zone'. It

draws on qualitative data from the three research sites to provide further granularity to district-level data from the 2010 Ghana census. It highlights existing research on internal migration in Ghana, with a particular focus on North-South migration flows, to contextualise the relatively recent emergence of the permanent migration by Northern Ghanaians to Brong Ahafo in a wider national and historical context of population mobility. In presenting original qualitative data from the three case study communities, as well as secondary data from the 2010 national census, the chapter illuminates some of the defining characteristics of this under-researched migration trend. This analysis sets the stage for thinking about the ways in which in-migration can be thought of as a 'feedback' that influences various elements of Brong Ahafo's 'social-ecological system', by illustrating the character of these flows, how they have changed over time, as well as – at the qualitative level – migrants' reasons for moving to Brong Ahafo and the nature of their continued social relations with kin in Northern Ghana.

Chapter 5 focuses on the relationship between in-migration and changing land tenure norms at the three research sites, orienting these local-level changes within broader processes at the national scale in recent decades. The chapter presents a summary of recent debates on customary land tenure in West Africa, especially with respect to the implications of this type of land administration for poor and marginalised populations (including migrants). The chapter then presents empirical findings from the three case study communities, with a particular emphasis on commonalities and differences in land access norms for migrants across the different sites, and how these have evolved over time. The chapter highlights the ways in which migration acts as a 'feedback' on local perceptions of land and its value – with such changes in turn potentially altering the parameters of the relationship between migrants and local hosts. These empirical findings are then positioned within a wider national context, with reference to emerging trends in accumulation and fragmentation of land holdings among various actors in Ghana's post-structural adjustment era.

Chapter 6 assesses migrants' perceptions of environmental change and interprets these as partly framed by migrants' positionality in Brong Ahafo – including their status as relative outsiders in customary land tenure frameworks and the risks posed to migrants by new forms of capitalist relations between African smallholder producers and markets.

The chapter presents empirical findings from the three case study communities, which illustrate migrants' views of environmental change at the local level. It positions narratives of environmental change within a broader cultural positionality of migrant tenant farmers in Brong Ahafo, with respect to engagement with agricultural markets and changing land tenure norms. Overall, the chapter helps to illuminate the ways in which migrant farmers are interacting with the local environment in Brong Ahafo and how these interactions are mediated by a range of social factors, such as evolving relations with local hosts, as well as with global agricultural and land markets.

Chapter 7 consists of a discussion chapter, where the differentiated livelihood trajectories of migrants across the three case study sites are highlighted, and the small-scale interactions between in-migration and local social and environmental factors are considered. The chapter presents a typology of different livelihood trajectories of Northern Ghanaian migrants in Brong Ahafo, which is inspired by the literature on the sustainable livelihoods approach (see Scoones 1998). The chapter then demonstrates the ways in which the differentiated livelihood trajectories of Northern Ghanaian migrant farmers in Brong Ahafo have implications for their interaction with the local complex adaptive system. The chapter illustrates this point by showing the extent to which divergent livelihood trajectories among migrants at the three case study sites are reflected in significant inequalities in terms of migrants' access to land as well as their adaptive approaches to changing environmental conditions in Brong Ahafo. These livelihood cleavages also have implications in terms of the level of financial support that migrants are able to provide for kin in Northern Ghana as well as their future migration intentions.

Chapter 8 concludes with a discussion of the thesis's contribution to the research to the climate-migration nexus and debates on rural development. It summarises the key findings of thesis, before noting its relevance to existing academic debates. These include: (1) the notion that migration can serve as a form of adaptation to climate change; (2) ongoing debates about the relationship between customary land tenure and land access for marginalised groups (including migrants); and (3) the ways in which environmental factors impact migration at destination, with a particular focus on West African agricultural frontier zones. The chapter also discusses the policy relevance of my research,

especially with regard to climate change adaptation policies, national development frameworks and customary land administration in Ghana. It concludes with some final reflections on the thesis's theorisation of internal migration to Brong Ahafo as part of a complex adaptive system.

Chapter 2. Understanding migration from Northern Ghana to Brong Ahafo's transition zone as part of a 'complex adaptive system': A novel theoretical approach

Section 2.1 Introduction: The relevance of complex adaptive systems theory for debates on the climate-migration nexus and rural development

This chapter introduces complex adaptive systems (CAS) theory, the theoretical framework used in this thesis. CAS theory considers human and natural systems to be interconnected and co-evolving, with small-scale interactions between agents and their environment ultimately capable of producing larger patterns and processes. I suggest that this is a useful lens for analysing the 'migration-climate nexus' in the specific case of Brong Ahafo's transition zone, and also for conceptualising key issues related to migration and rural development more generally. This is because CAS theory provides a framework for conceptualising how smaller, ground-level realities are linked to wider social and environmental transformations, thus providing qualitative insights into wider processes of change. Therefore, as will be highlighted in more detail in Chapter 3, qualitative research methods can be usefully integrated into the CAS theoretical approach, as qualitative findings are potentially vital for understanding the relationships that constitute complex adaptive systems.

This chapter is structured as follows: Section 2.2 introduces some of the key theoretical concepts of the CAS framework, which form the basis for using the theory as a mode of analysis. It also acknowledges some of the drawbacks and limitations of using the CAS approach. Section 2.3 considers debates in migration studies about how to understand the relationship between structure and (migrant) agency, and argues that CAS theory provides a useful lens with which to understand this dynamic in the context of the migration-climate nexus, in particular. Section 2.4 focuses on applying CAS theory to migration from Northern Ghana to Brong Ahafo's 'transition zone', by focusing on how the key research questions of the thesis provide entry points for conceptualising Brong Ahafo's complex adaptive system. These include focus on the following locally-grounded processes across the three case study sites: (1) the emergence of locally specific migration histories; (2) the relationship between in-migration and changing land tenure

norms; (3) migrant perceptions of environmental change and how these are related to wider migrant positionalities in Brong Ahafo. Section 2.5 concludes with final thoughts on how this theoretical approach allows the thesis to make a significant original contribution to the literature on the climate-migration nexus as well as to more general debates on rural development in Sub-Saharan Africa.

Section 2.2 Complex adaptive systems theory: Introducing key concepts of the framework

Complex adaptive systems (CAS) theory provides a novel theoretical perspective for understanding how human and environmental systems are inter-connected. The utility of CAS theory is, as Rammel et al. (2007: 11) argue, that it explains how 'adaptations of particular agents or sub-systems [can] initiate cascadic change across…particular hierarchies and could cause qualitative change of the behaviour or structures of the overall CAS'. In particular, therefore, CAS theory focuses on the 'emergent properties' of human and ecological systems. Rather than seeing these systems as 'closed', static, and approaching equilibrium, CAS theory posits that the dynamic interaction between different agents and sub-systems creates a context that is characterised by continued change and evolution. In other words, for CAS theory scholars, the ongoing interactions between agents, social institutions and the surrounding environment defy stasis, even if the complex sets of relations constituting a complex adaptive system at times appear stable, or 'sustainable'.

How have scholars conceptualized CAS theory to date? As Potgieter and Bishop (2001: 1) explain, complex adaptive systems are based on 'complex behaviour that emerges as a result of interactions among system components (or agents) and among system components (or agents) and the environment'. Thus, the study of CAS theory implies considering both the behaviours and actions of agents, as well as analysing the impact of these interactions on the socio-economic and ecological systems of which they form a part. As Rammel and colleagues (2007: 10) note,

> Analysing CAS means to incorporate variability, adaptations, uncertainty and non-linearity while heading for improved understanding of how co-evolutionary processes and dynamic patterns emerge [in human and ecological systems] and interact across hierarchical levels and across different spatial, temporal and social scales'.

CAS theory utilises a series of central concepts in its analysis, including 'diversity', 'hierarchy', 'emergence', 'feedback', and 'starting conditions', which help to concretely frame CAS theory analysis. To those unfamiliar with this framework, these concepts require further unpacking, which I shall undertake in brief below. As Parrot and Lange (2013: 20) observe, complex adaptive systems 'have a *diversity* of components and this

diversity gives rise to heterogeneous responses to the same stimulus'. Because of this, Parrot and Lange (2013: 20) note that '…complex adaptive systems do not exhibit reproducible behaviour, since they do not necessarily ever return to their 'initial' state'. However, despite this 'diversity', complex adaptive systems do not operate in completely random ways, but are rather characterised by hierarchies, meaning that they are composed of 'interacting entities present at one level of organization…whose collective behaviour gives rise to other emergent entities at a higher level' (Parrot and Lange 2013: 21). Thus, the notion of 'emergence' in complex adaptive systems consists of the 'arising of novel and coherent structures, patterns and properties during the process of self-organisation in complex systems' (Goldstein 1999, cited in Burns and Worsely 2015: 26).

To put these concepts in more real-world terms, Burns and Worsely note – with specific reference to applying complexity thinking to international development initiatives – that '…change is highly context specific and often emanates from tiny interactions, thus small changes can sometimes have a huge impact over time because they shift the dynamics of the system' (Burns and Worsely 2015: 30). Accordingly, the interaction between agents, in response to social and environmental stimuli, can produce change in behaviours or norms, which can alter the entire 'complex adaptive system' over time, in turn changing the state of play for agents themselves. This notion, which consists of a 'feedback' loop, is also central to complexity thinking, in general, and CAS theory, in particular. As Ramalingam (2013: 156) notes, a 'feedback' describes a process by which 'a change in an element or relationship…alters others, which in turn affect the original one'. At the same time, complex adaptive systems also have a high level of sensitivity to their initial 'starting conditions', which often dictate the particular pathways of change or adaptation that are possible within given social and environmental systems (Burns and Worsely 2015: 30).

Importantly, in the case of my thesis, CAS theory provides a unique framework for thinking through how small-scale, micro-level behaviour is both framed by and influences larger social and environmental conditions. In this vein, Rammel and colleagues (2007: 10) argue that, 'CAS theory… [offers] a conceptual framework for applying the insights and data from small-scale analysis to understand larger-scale patterns and processes'. Thus, qualitative, small-scale studies that are analysed using the CAS approach can potentially shed light on larger processes and systems in which individual actors are

embedded. In the case of my research, this involves looking at the small-scale interactions between migrants, their hosts and the environment at three migrant settler communities in different districts of Brong Ahafo Region's 'transition zone'. I argue that applying CAS theoretical analysis to the comparative, qualitative research findings from these research sites can provide empirical insights into broader processes that are occurring across Ghana and West Africa, including patterns of migration to rural agricultural 'frontiers', changing customary land tenure norms, and environmental change and variability, by highlighting the ways in which in-migration acts as a feedback that contributes to the emergence of new forms of 'self-organisation' within the system.

However, there are also significant challenges associated with applying the CAS theoretical framework to empirical phenomena. Firstly, the conceptual flexibility of CAS analysis, which posits that systems are 'open' and likely to be in a state of constant change, makes undertaking a coherent analysis of all the different actors and other relevant social and environmental factors that constitute such a 'system' extremely challenging. Thus, rather than attempting to create an exhaustive account of Brong Ahafo's 'social-ecological system', this thesis utilises the CAS theoretical framework as a useful tool for identifying and analysing certain *key relationships* that result from in-migration to the region, and the 'feedbacks' or 'emergence' that are evident as a result of these particular processes. After exploring some of the key entry points to conceptualising migration and Brong Ahafo's 'social-ecological system' in Chapter 4-6, I attempt to articulate some of the key relationships between migration and Brong Ahafo's 'complex adaptive system' in Chapter 7. With this caveat in mind, I now turn to a discussion of the specific ways that CAS theory can be positioned within existing theories on migration, in general, and on theorisations of the climate-migration nexus, in particular, while also reflecting on how the framework is relevant to recent theorisations of rural development.

Section 2.3 CAS theory, migration theory, and rural development debates – key intersections

As already alluded to above, CAS theory offers an opportunity to conceptualise migration – and migrants' agency – as part of a broader set of co-evolutionary changes in social and environmental systems. My development of CAS theory in order to analyse in-migration to Brong Ahafo is in turn related to a number of recent theoretical debates within migration studies, as well as debates on rural development. In the case of migration studies, trying to conceptualise the relationship between structure and agency in order to explain why and how migration occurs is a key focus of recent theoretical and empirical work. In relation to theory related to the climate-migration nexus, this involves trying to distinguish migrants' agency from environmental and other structural factors. In the case of development theory, meanwhile, Wolford (2015) points out that such debates in Sub-Saharan Africa have re-focused their efforts on accounting for 'rural transformations', including how to integrate the region's large rural population into development efforts. The CAS approach provides a novel perspective for thinking about how migration to rural 'frontier' areas fits into such wider development processes.

2.3.1 Migration studies and debates about structure and agency

The tension between structure and agency reverberates through countless debates across the social sciences, and recent work on migration is no exception to this. Indeed, de Haas has argued that,

> …the central challenge in advancing migration theory [is to] develop conceptual tools that improve… our ability to simultaneously account for structure and agency in understanding and explaining migration (de Haas, 2014: 11).

Arguably, existing theories in migration studies have failed to address the tension between structure and agency adequately. As de Haas (2014: 4) notes, migration studies – as an inter-disciplinary field of enquiry – is arguably under-theorised, with 'grand theories' that provide an over-arching explanation for migration largely being critiqued and discarded in recent years. In parallel, there has been an increased emphasis on the qualitative experiences of distinct migrant groups. This is primarily due to the

shortcomings of existing theories of migration in explaining the empirical accounts of migration that have emerged through recent decades of research. In economics, this includes neo-classical migration theory, which assumes that migrants make rational decisions to move in order to best maximise their income (de Haas 2014: 7), and new economics of labour migration (NELM) theory, which posits that households – particularly in the developing world – choose specific members of the household to migrate in order to optimise household income (Stark 1978; 1991). However, such frameworks often struggle to account for the influence of environmental factors that may constrain or enable migration for some and affect migration's outcomes, as well as non-economic reasons for migration. On the other end of the theoretical spectrum, historic-structural approaches, influenced by Wallerstein's world systems theory, see migration as the result of existing global inequalities, with migration ultimately contributing to greater disequilibria in sending areas, with the benefits of international migration ultimately being felt mainly among elites of developing countries, for example (de Haas 2014: 11). However, this theoretical framework arguably fails to cope with migrant agency in a way that adequately accounts for the myriad empirical examples of migration's resistance to structural constraints in different contexts.

Of particular relevance to this chapter's focus, there have been attempts to apply elements of systems thinking to migration studies in recent years. For example, Bakewell and colleagues (2011) have recently sought to revive the concept of 'migration systems', which they define as social networks of varying size and strength operating across different spatial scales. They argue that,

> Migration systems link people, families and communities over space in what today might be called … translocal communities. This results in a geographical structuring of migration flows that is far from a random state (Bakewell et al. 2011: 5).

Bakewell et al. (2011: 6) are interested in better understanding these systems, especially with regard to how they emerge, what sustains them, and what factors may cause them

to grow or to deteriorate over time[10]. This follows earlier forays into migration systems theory by Mabogunje (1970) and Lee (1966) who argued that migration is not random, but that in fact most migrants move along spatially clustered pathways between particular origins and destinations. Such theories arguably still hold some explanatory power for analysis of internal migration trends in developing countries, as I shall explore in Chapter 4.

While an in-depth review of the extensive ethnographic literature on the lived experience of migrants in various contexts is well beyond the scope of this chapter, it is worth highlighting in the present discussion of theoretical innovation regarding structure and agency Biao's 'multi-scalar ethnography' approach, which he uses to focus on the internal migration of Chinese workers to Beijing, with the goal of identifying key intersections between migrants and the state. His assertion is that as one shifts between different scalar perspectives analytically, it is possible to learn new lessons about the wider (social and governmental) systems at work, as well as the conditions in which social change is occurring. As Biao explains,

> Multi-scalar ethnography delineates how movements are constituted at different scales (smooth flows at one level can be disruptions or encapsulations at another), how migrants' scale-making projects intersect with states' scale management, and how we can locate multiple sites analytically. In doing so, multi-scalar ethnography enables an explanation of why some mobility is more consequential than others (Biao 2013: 282).

In essence, Biao's formulation of multi-scalar ethnography focuses on how migration is embedded in larger (social) processes, and on the need to identify key intersections between migration and relevant institutions[11].

However, while theoretical formulations such as 'multi-scalar ethnography' and 'migration systems' theory attempt to positon migrant agency within wider social

---

[10] Relatedly, see Bakewell and Jolivet on migration 'feedback processes', which they define as 'social mechanisms that link migration experiences across time and space' (Bakewell and Jolivet 2015: 1).

[11] This is loosely related to Tsing's (2005) more general anthropological theoretical construct of 'friction', which involves making connections between 'the ethnographic present' and larger national and global processes.

contexts, they don't incorporate a focus on environmental factors, as is the case with the CAS approach. Nevertheless, such theorisations of migration do provide fruitful ground for thinking about the relationship between migrant agency and how it interacts with different structures across multiple scales, or levels of analysis. This focus is also a potential application of CAS theory, when applied to social phenomena such as migration.

2.3.2 The climate-migration nexus and the potential contribution of complexity research

Recent scholarship on migration and climate change has also grappled with the relationship between structure and agency in the case of how to understand the relationship between migration and environmental shocks and stresses. This has been particularly evident in debates about the potential for anthropogenic climate change to create widespread displacement. As highlighted in Chapter 1, this debate has been summed up by Morrissey (2012) as the 'maximalists versus the minimalists'. The maximalists argue that environmental change will have a deterministic influence on human mobility in future decades. For example, a group of scholars who come from natural science disciplines (see especially Myers and Kent 1995) have claimed that climate change will cause widespread forced displacement in affected geographical regions, creating 'hundreds of millions' of 'climate refugees' by 2050. The notion of 'climate refugees' has subsequently been taken up by a number of policymakers and NGOs (Conisbee and Simms 2003; Action Aid International 2007; Christian Aid 2007; Stern 2007).

On the other side of the debate, 'minimalists' argue that migration decisions are in practice often influenced by a wide range of environmental and non-environmental factors. For example, the *Foresight Report on Migration and Global Environmental Change* (Foresight 2011; referred to for the remainder of this chapter as the *Foresight Report*) – a major global research initiative – argued that environmental drivers are just one potential factor that can result in people migrating, with social, political, demographic, and economic factors also serving as key drivers of migration (see Black et al. 2011). The report also argued that migration can act – under the right circumstances – as a form of 'adaptation' to climate change. The report is one of a host of recent studies

on how to conceptualise 'environmental migration' within a wider range of other drivers (see also Dun and Gemenne 2008; Hugo 2008; Perch et al. 2008; Warner et al. 2009; Renaud et al. 2011, IPCC 2014).

Significantly, both the 'maximalist' and the 'minimalist' approaches assess the relationship between environmental change and human agency from different starting assumptions: The maximalists' 'displacement' narrative assumes that people will essentially be powerless in the face of most climate change impacts – and will have little choice but to migrate – while the response of the 'minimalists' is that this ignores individual migrants' agency, and misunderstands the factors that tend to lead to migration, which they argue cannot be reduced to environmental determinism. In this vein, the *Foresight Report* (Foresight 2011) emphasizes the varying agency of different types of would-be migrants, pointing out that while under the right conditions migration can act as an 'adaptation' to climate change, in other cases people without adequate social or financial capital may become 'trapped populations' in the face of environmental change[12]. Other recent work on the climate-migration nexus has also attempted to account for the relative success of migration as an adaptation strategy for different individuals or households. For example, Afifi et al. (2016) note that a recent study that includes household survey data from eight countries (Ghana, Tanzania, Guatemala, Peru, Bangladesh, India, Thailand and Vietnam) suggests that across all these geographical locations, some households were well positioned to use migration as a means to improve their situation in the event that rainfall variability (e.g. floods, droughts, etc.) affected their food security. Other households, however, lacked the capital to pursue migration as a livelihood strategy. In other cases, households that pursued migration ended up with worse livelihood outcomes than they had experienced before migration.

This recent literature builds on a number of previous arguments that migration should be considered as a potential adaptation to climate change. For example, Barnett and Webber argued that, 'Migration is a tried and true development strategy, and it can do

[12] For more on the 'trapped populations' concept, refer to Black and Collyer (2014) on populations 'trapped' during times of crisis, and Black et al. (2013) on involuntary immobility in the face of extreme events.

much to increase the capacity of communities to adapt to climate change' (Barnett and Webber 2009: 2). Similarly, Tacoli stressed that, '…mobility and migration are key responses to environmental and non-environmental transformations and pressures. They should therefore be a central element of strategies of adaptation to climate change' (Tacoli 2009: 513). McLeman and Hunter (2010), meanwhile, examine a number of historical analogues to examine migration's potential as a form of adaptation to environmental change, drawing on a range of empirical examples including dry season migration in the West African Sahel, population displacement from hurricanes in the Caribbean, and 1930s drought-related migration in the US Great Plains[13]. They observed, based on these comparative examples, that*:*

> Ultimately, environmental factors interact with socioeconomic, cultural, and political processes to shape migration decision-making. Temporally, a wide variety of migration patterns are revealed, ranging from short-term, temporary environmentally related migration to permanent relocation resultant of, for example, natural disasters (McLeman and Hunter 2010: 457).

McLeman and Hunter (2010: 57) conclude that 'existing research strongly suggests that environmentally influenced migration is closely linked with adaptive capacity', and that the complexities of the relationship between environmental change and migration make assessing the potential for migration to act as an adaptation contingent on other factors, including policy interventions that mitigate the causes of and risks associated with anthropogenic climate change.

However, approaches that have advocated for viewing migration as a potential form of adaptation to climate change have not been without their critics. For example, Felli and Castree (2012) argue that the *Foresight Report* (Foresight 2011) was largely silent on role of neoliberal markets, and that its arguments about migration and adaptation could led to yet another 'neoliberal fix' in the face of climate change, whereby migrants are viewed as potentially 'adaptable subjects' who essentially become viewed as surplus labour for neoliberal markets. This points to the need to critically assess how 'environmental migration' is framed with respect to larger structural forces. As Ransan-Cooper et al.

---

[13] See also McLeman et al. (2008) for a more in-depth study on 1930s drought-related migration in the Great Plains of the US.

(2015) observe, different sub-groupings of the literature on 'environmental migration' variously depict environmental migrants as 'victims' (cf Myers 1995), 'security threats' (Myers 2005; Bettini 2013), potentially 'adaptive agents' (Warner et al. 2009; Foresight 2011), or 'political agents' (Marino 2009). While Ransan-Cooper et al. (2015) highlight the fact that each of these different framings suggests the need for a different set of policy responses to environmental migration, it is also significant to note from the point of view of this chapter's focus, that each of these framings of environmental migration also reflects diverse interpretations of the relationship between migrant agency and the over-arching set of social and environmental structures in which this agency is embedded.

Additionally, while the *Foresight Report* highlights key dynamics that influence migration decisions, it arguably fails to fully account for the potential for non-linear patterns of migration to emerge as a result of interactions between different 'drivers' of migration, instead presenting fairly linear future environmental migration scenarios based on trends in governance, global economy and climate change trajectories (Foresight 2011: 63). However, the report did highlight – to a degree – the existence of a complex relationship existing between drivers at different levels and migrant agency, even if it did not account for the emergence of non-linear patterns in such relationships. Herein lies the potential 'added value' of CAS theory, in particular, and complexity research in general, to better understanding the climate-migration nexus. A focus on small-scale interactions, which illuminates how social and environmental systems are interconnected, can help to elucidate in more precise ways how migration is embedded in wider social and ecological processes. This may help to explain both when and how migration is likely to occur, and whether it is likely to produce fruitful returns for migrants, as well as their communities of origin and destination in specific migration contexts.

It is important to note that some scholars have already used CAS theory to conduct research on the 'migration-climate' nexus. For example, Kniveton et al. (2012) suggest that the nexus between migration and climate change in Burkina Faso is, itself, a 'complex adaptive system', with non-linear patterns of migration emerging as a result of the interplay between environmental, social and other factors. Using life history data, the main finding from their agent-based model (ABM) is that potential scenarios for climate-change related migration are linked to rates of population growth. In a context that is

generally characterised by reduced long-distance migration and increased short-distance migration in response to rainfall reduction, their model found an emergent relationship in the event of higher population growth rates, which saw migration decrease irrespective of whether the climate got wetter or drier. Thus, they concluded, 'climate-change-related migration is likely to be highly nonlinear and the extent of this nonlinearity is dependent on population growth' (Kniveton et al. 2012: 444). This is one example of how the CAS theoretical approach can be used to try to understand the relationship between migration and the environment as being part of a larger 'complex adaptive system' constituted of simultaneously co-evolving and dynamic properties[14].

A number of other studies have employed a theoretical (and indeed methodological) approach that accounts for migration's place within a wider 'social-ecological system'. Drees and Liehr (2015) use a 'Bayesian belief networks' approach to look at how different motives for migration (education, family reunification, employment, and visits) interact in different ways with environmental factors, looking at two case study areas in Senegal and Mali. They found that socio-economic factors were in general more significant than environmental ones for influencing migration, but that large climatic events had the potential to shift migration patterns substantially, affecting migration motives, duration, and destination (Drees and Liehr 2015: 337). Similarly, Martin et al. (2014) developed a 'behaviour model' to explain the relationship between migration and environmental factors in Bangladesh. They note:

> We find that villagers in areas particularly affected by increasing climatic stresses and shocks are diversifying their traditional livelihood strategies by migrating. .... Although the migrants' primary motivation is better income, in effect, migration becomes an effective form of adaptation (Martin et al. 2014: 85).

Meanwhile, attempts to consider migration and environmental change within the context of 'social-ecological systems' have been undertaken by Oliver-Smith (2009) and Renaud et al. (2011). Oliver-Smith considers the interplay between society, nature and migration in the case of displacement caused by Hurricane Mitch in Honduras, noting that in this

[14] Other attempts to conceptualise the relationship between environmental factors and migration using the ABM approach include Smith (2014) for Tanzania and Kniveton et al. (2012) for African drylands.

context people's vulnerability was 'related to international economic policy, development economics, demography, agricultural policy, land use, and environmental degradation' (Oliver-Smith 2009: 23). Renaud et al. (2011) meanwhile, explore people's differing positionalities within the 'social-ecological system' in terms of assessing the role of the environment in out-migration, as well as people's relative adaptive and/or coping capacities.

2.3.3 Complex adaptive systems theory and rural development debates

As Wolford notes, there has been a renewed focus on rural transformations in development efforts in recent years:

> After a brief period in the 1980s and 1990s when development efforts moved away from the rural to focus more exclusively on urban development, informal labour and the growth of slums, global manufacturing networks, and fiscal adjustment (Barrett, Carter, and Timmer 2010; Staatz and Eicher 1998), the question of rural transformations (or what is sometimes referred to as the "agrarian question") has reasserted itself with a vengeance (Wolford 2015: 224).

The agrarian question (see, for example, Bernstein 2004) refers to the persistence of Sub-Saharan Africa's large rural, agrarian population, and the ways in which it is integrated into development efforts, however conceived. As Wolford (2015) observes, this ultimately involves debates about how to best 'develop' rural lands, which are often imagined as somehow empty or under-utilised.

Complexity research is relevant to such development debates in that it can help to explain how such change takes place via interactions between social actors and rural environments. As Burns and Worsley (2015) observe, although most development planning conceptualises change as emerging through a linear series of events, in practice change often happens as the result of complex interactions between different actors, leading to specific 'feedbacks' or 'emergence' occurring. This change is often non-linear, and – as discussed in Section 2.2 – reflects small-scale interactions which ultimately result in the emergence of particular patterns and often diverge quite sharply from development planning or narratives about how change will proceed. Understanding the nature of the 'nested hierarchies' which drive rural change is thus highly relevant in

thinking about debates about rural development. In this vein, Ramalingam (2013) points out a number of relevant examples of how complexity can be a useful tool for designing aid efforts in a context of social and environmental change.

The set of issues that are the focus of those linking complexity theory and development are closely related to a number of other theoretical and conceptual contributions made to development debates in recent years. For example, the 'pathways approach' (see Leach et al. 2010) focuses on how projects and concepts around 'sustainability' need to take into account dynamics, complexity, uncertainty, and differing narratives and value-based aims that are informing rapid change across inter-connected environments, societies, economies and fragmented forms governance. It posits that there are multiple 'pathways' to sustainability, which variously reflect dominant and marginalised perspectives on sustainability, poverty reduction and social justice. Accordingly, this approach attempts to understand change as emerging through a set of interactions across a number of different scales, where different actors have divergent perspectives on the same set of issues or problems. In a similar vein, Scoones (2004) advocates applying 'non-equilibrium thinking' to an analysis of rural livelihoods in the context of climate change. He cites the particular example of Southern African pastoralists, who, in response to inherently unpredictable weather patterns, 'have…developed an array of strategies to allow them to live with this uncertainty' (Scoones 2004: 114). An analysis of how such strategies to deal with uncertainty are mediated by wider social and ecological changes is also essential, Scoones argues, citing how Southern African pastoralists' capacity to deal with climate shocks has changed over time due to series of overlapping factors:

> …the food crisis that struck the region in 2002-2003 was by any standards severe. Yet the climatic trigger for crop failure and livestock death was far smaller than in droughts of 1991-92 and certainly 1982-84. The resilience of the livelihood system had been lost… climate impacts interacted with health conditions (especially HIV/AIDS impacts), asset levels (availability of land, livestock, healthy labour), economic factors (consequences of structural adjustment) and governance questions (Scoones 2004: 117).

Such theoretical interventions, while not developing CAS theory, in particular, attempt to account for a similar set of issues, in terms of scrutinising how social and environmental

factors are inter-related and how changes in these relations can result in dramatic changes for social actors.

Section 2.4 Migration to Brong Ahafo's 'agricultural frontier': Key entry points for CAS theory analysis

As highlighted in Section 2.3, CAS theory is based on the notion that 'complex behaviour…emerges as a result of interactions among system components (or agents) and among system components (or agents) and the environment' (Potgieter and Bishop, 2001: 1). With regard to the larger discussion of CAS theory undertaken earlier in this chapter, I argue that it is possible to conceptualise migration to Brong Ahafo as part of a wider complex adaptive system at different levels of analysis. For example, at the level of individuals, migrants act as 'agents', with both their behaviour and their interactions with local hosts and the environment forming part of the 'small scale interactions' through which larger processes emerge. At a more 'macro' level, migration itself is an example of a larger process, or structure – particularly in Ghana where North-South migration trends have been a deeply rooted structural feature of the country's demographic make-up since the colonial period (as explained in Chapter 4). It also has the potential to be a 'feedback' in CAS theory parlance, which changes particular relationships within the wider complex adaptive system. Alternatively, other 'feedbacks' within the complex adaptive system in receiving areas can have a big impact on migration processes, causing established flows to accelerate, stagnate or become re-directed to new destinations.

This section looks at the key research questions investigated by this thesis, which also serve as key entry points for thinking about migration as part of a complex adaptive system in Brong Ahafo comprised of co-evolving social and environmental factors. In particular, my focus here is on:

(1) Local-level insights into migration from Northern Ghana to Brong Ahafo Region, with comparative qualitative research at case study sites investigating migrants' reasons for coming to Brong Ahafo, their ongoing connections with their communities of origin, and their future migration intentions (see Chapter 4). These insights from the local level are complemented by use of district-level census data, in order to investigate whether the 'small scale interactions' that have resulted in migration occurring to particular locations in Brong Ahafo are also reflected in district-level migration trends.

(2) The relationship between in-migration and changing land tenure norms in Brong Ahafo Region, with qualitative research across the three case study sites focusing on what land tenure arrangements exist between migrants and local hosts, and how these have changed over recent decades (see Chapter 5). This strand of the research thus investigates changing social relations to land that are occurring in Brong Ahafo and elsewhere in Ghana.

(3) Northern Ghanaian migrant farmers' perceptions of climate change, which provide insights into how environmental change is impacting on migrant livelihoods at destinations in mid-Ghana as well as a window into understanding the particular positionality of migrants within the wider complex adaptive system in Brong Ahafo (see Chapter 6).

The remainder of this section will provide an overview of the theoretical relevance of CAS theory for each of these research questions, linking them to the ways in which migration can be usefully thought of as forming as part of an evolving 'human-nature system' in Brong Ahafo. Ultimately, each of these research questions examines interactions occurring within the three case study sites, with the goal of understanding how the actions of particular agents within this grounded analysis are linked to processes that form part of the wider CAS – including 'feedbacks', 'emergence', and 'nested hierarchies'. This in turn provides new insights for thinking about the links between in-migration and wider social and environmental transformations that are occurring in Brong Ahafo, in particular, and Ghana and West Africa, more generally. Identifying such linkages has important implications for theorising the climate-migration nexus in Ghana, and also has general relevance for debates about rural development.

2.4.1 Migration as a 'feedback' within Brong Ahafo's complex adaptive system

Research on migration to agricultural frontiers, in particular, can provide an insightful perspective into the wider 'complex adaptive system' that constitutes societal and ecological interactions, or what Rammel et al. (2007: 10) have referred to as the 'human-nature system'. In the case of Brong Ahafo, this type of migration occurs as the result of a wider set of inter-connections and relationships, including relatively attractive (to

migrants) social and ecological conditions at migration destinations in the region, as well as more spatially diffuse factors such as trans-local migrant social networks, transport infrastructure and varying access to local and national agricultural markets. Chapter 4 of this thesis unpacks the relationship between migration to Brong Ahafo from Northern Ghana and the wider 'human-nature system' in Brong Ahafo. It focuses on:

(1) The relationship between migration and shifting conditions at migrant destinations, including evolving local customary tenure norms, changing land use patterns, and the emergence of trans-local social networks;
(2) How small-scale interactions at the local level between migrants and such conditions (or 'feedbacks') can inform a better understanding of wider meso- and macro-level migration trends that emerge in household and survey data.

In order to answer these questions, the chapter conducts an analysis across different scales, based on first-hand qualitative data collected in three migrant 'settler' communities in Brong Ahafo Region, as well as relevant secondary data, including census data, that helps to illustrate migration patterns and their interaction with other key elements of the system. The goal of this analysis, using CAS theory as its guiding principle, is to unpick the relationship between structure and agency in order to gain a better understanding of migration to the this particular 'agricultural frontier' since the 1970s. Migrants' own narratives about their reasons for migration, their ongoing connections with their communities of origin in Northern Ghana and their future migration intentions help to draw out the links between migration to Brong Ahafo and evolving social and environmental conditions at particular destinations. At the same time, analysis of how migration is occurring to Brong Ahafo Region at a 'macro-level' opens up a theoretical space for thinking about how this emergent pattern itself represents a 'feedback' which may alter aspects of the 'complex adaptive system' across the region.

2.4.2 Migration and land tenure: CAS theory as a lens for understanding evolving social relations to land

Within the context of the wider set of relationships between migration and the 'human-nature system' in Brong Ahafo, Chapter 5 highlights changing land tenure norms as a key 'feedback' potentially affecting both the direction and volume of migration flows, as well as the livelihood trajectories for migrants at destinations across Brong Ahafo's 'agricultural frontier'. As Morrissey (2012a: 45) has noted in reference to environmental migration in particular, the relationship between migration and land tenure has been relatively neglected in recent research, even though land tenure conditions are likely to have significant implications for migrants at both origin and destination. In mid-Ghana, Afikorah-Danquah (1997) notes that there are often over-lapping claims to land that is under customary tenure, with chiefs being the ultimate custodians of the land under their jurisdiction, while local families pass down user rights to specific plots of land from one generation to the next.

As outsiders within local customary tenure regimes in Brong Ahafo, however, migrant farmers from Northern Ghana are typically reliant on agreements with local 'hosts' – such as village chiefs or local families – in order to gain access to farmland. The thesis investigates how migrants access land under customary tenure regimes across the three case study sites, and how these arrangements have changed over recent decades, reflecting shifts in localised land tenure norms. This particular research question teases out numerous small-scale interactions between agents – both migrant and local – and the environment across the three sites, with landlord-migrant relations often being mediated by factors such as competing claims to land, the locally specific nature of customary chieftaincy in each area, and the varying quality of agro-ecological conditions across the three sites. Unpicking these linkages helps to illuminate the ways in which migration itself may serve as a 'feedback' which contributes to changing social perceptions of land at migration destinations in Brong Ahafo, with continued in-migration being one factor that is altering the perceived value of, and demand for, farmland at sites across the region. Equally, changing land tenure norms also have the potential to act as a negative 'feedback' in terms of the ongoing migration of Northern Ghanaian farmers to

Brong Ahafo, as rising land rental costs in some areas are introducing a financial barrier to participation in agricultural production that did not exist to the same extent for previous generations of migrant farmers.

2.4.3 CAS theory, in-migration and environmental variability: Understanding exposure to climate change for migrants at 'agricultural frontiers'

This thesis also seeks to investigate the relationship between migration and environmental change at agricultural frontiers, which is the central topic of Chapter 6. Much of the existing research base on migration and environmental change in West Africa has focused on the role of environmental factors in contributing to *out-migration* from environmentally marginal areas, with migratory responses to drought that affected parts of the West African Sahel in the 1970 and 1980s being the most prominent example cited in this literature (Morrissey 2014). However, as the *Foresight Report* (Foresight 2011) highlighted, it is also the case the migrants are increasingly likely to be moving *into* areas that experience significant environmental stresses or shocks, and this thesis considers this possibility in the specific context of migration to rural agricultural frontiers.

My qualitative research investigated perceptions of environmental change among migrant tenant farmers across the three Brong Ahafo case study communities. In Chapter 6, I position these narratives within the context of available secondary data on rainfall in Brong Ahafo, as well as historical accounts of changing environmental conditions in mid-Ghana, including historical rainfall variability and patterns of deforestation/reforestation over recent centuries. In terms of providing an entry point for CAS theoretical analysis, migrants' perceptions of environmental change in Brong Ahafo provide first-hand accounts of how environmental factors – such as rainfall variability, bushfires, and declining soil fertility – are impacting migrant livelihoods across the region, illustrating how changing environmental conditions represent a type of 'feedback' that can affect the notion of Brong Ahafo as a destination characterised by 'greener pastures' (i.e. better farming opportunities). Migrant perceptions of environmental change also help to reveal migrants' positionality within Brong Ahafo's wider 'complex adaptive system', because, as Adger et al. (2013) observe, perceptions of environmental change are ultimately

filtered through broader *cultural* understandings of the environment, thus reflecting particular subjectivities. Thus, this research question provides an entry point for thinking about how migration and environmental change interface with wider changes happening in Brong Ahafo's rural agricultural frontier, including changing land tenure norms, environmental change, and – not insignificantly – shifts in relations between agricultural markets and smallholder producers.

Section 2.5 Conclusion: CAS theory, migration to agricultural frontiers, and the relevance of the thesis's theoretical framework to existing academic debates

This chapter has introduced complex adaptive systems theory, and explained why it is a useful tool for investigating how migration from Northern Ghana to Brong Ahafo's transition zone is interlinked with other co-evolving social and ecological changes. Section 2.2 introduced the basic tenets of CAS theory, which posits human and ecological 'systems' to be mutually informed and simultaneously co-evolving, with small-scale interactions between agents and their environment ultimately resulting in larger patterns and processes. Section 2.3 discussed the tension between structure and agency in migration studies theory, in general, and theoretical understandings of the climate-migration nexus, in particular, and explained why CAS theory is a useful framework for understanding how migrant agency is embedded in larger social and environmental processes or structures. It also highlighted key intersections between CAS theory and rural development debates. Section 2.4 introduced the key research questions of the thesis, namely: (1) accounting for the emergence of localised patterns of in-migration across Brong Ahafo Region, (2) the relationship between such in-migration and changing land tenure norms, and (3) migrant perceptions of climate change at their respective destinations. It explained the ways in which each of these research questions provides an entry point for applying CAS theory, by demonstrating how interactions between migrants, hosts, and the environment at particular locations in Brong Ahafo can be conceptualised as part of a wider, co-evolving 'complex adaptive system'.

An in-depth discussion of each of each of these research questions is undertaken in Chapters 4-6, with Chapter 7 then synthesizing findings across the three empirical chapters in order to unpick the wider relationship between migrant livelihoods and the 'human-nature system' in Brong Ahafo. I emphasise that the theoretical focus on small-scale interactions between migrants, hosts and the environment at the three case study sites provides fertile ground for thinking about how migration to rural agricultural frontiers is linked to wider social and environmental changes. As already explained in Section 2.2, this approach makes a valuable contribution to the emerging literature on the climate-migration nexus, by adding rich perspective on how environmental

conditions at migration destinations affect migrant livelihoods. It shows that, theoretically, it is important to pay attention to environmental conditions at the 'destination' end of the migratory chain, but also to evaluate migrants' attempts to access better livelihood prospects for themselves via migration in the context of overlapping environmental and social 'feedbacks'. In the particular instance of Northern Ghanaian migration to Brong Ahafo, these include not only environmental change but also changing land tenure norms and other factors, which help to frame migrants' positionalities at their respective destinations within the region.

Another advantage of adopting CAS theory as an explanatory framework is that beyond making a specific contribution to better understanding the climate-migration nexus in instances of migration to agricultural frontiers in Ghana and elsewhere, it also provides a firm theoretical footing for contributing to broader debates on rural development. As Wolford (2015) has noted, debates about 'rural transformations' in in Sub-Saharan Africa have re-emerged in recent years, including how to reconcile the region's large rural population with development efforts. As Wolford (2015) observes, this concern ultimately dovetails with how best to 'develop' Sub-Saharan Africa's rural lands. The CAS approach adopted in this thesis provides an opportunity to evaluate rural transformations that are occurring in Brong Ahafo's 'transition zone', and to explore how migratory populations are interconnected with changing claims to, and uses of, rural lands, on the one hand, and changing agricultural production trends, on the other.

Chapter 3. Complex adaptive systems theory and qualitative data: Methodological reasons for seeking out 'small-scale interactions'

Section 3.1 Introduction: Methodological considerations of using complex adaptive systems theory to study the climate-migration nexus

The use of complexity theory spans a broad spectrum of academic disciplines, ranging from the natural sciences to the social sciences. As a result, the methodological approaches that are associated with the work on CAS theory reflect its diverse application. Similarly, migration studies is also a field of enquiry that spans the social science disciplines, incorporating a variety of distinct qualitative and quantitative methodological approaches. In light of this, this chapter explains the rationale for the particular methodological approach undertaken in this thesis in order to investigate migration from Northern Ghana to Brong Ahafo as part of a complex adaptive system. It also discusses how the novel approach of this thesis relates to previous methodological approaches used in the study of the climate-migration nexus, as well as explaining practical steps that were taken during the period of the field research itself.

This thesis uses as its primary source material comparative qualitative data collected in three migrant 'settler' communities composed of Northern Ghanaian internal migrant farmers in Brong Ahafo Region, Ghana. Added to this, the thesis utilises key forms of available secondary data, including the 2010 Ghana Population and Housing Census data, in order to conduct fresh analysis of migration patterns between Northern Ghana and Brong Ahafo and assess related social and environmental factors. In this chapter, I provide the rationale for utilising these particular research methods, in light of the wider methodology undertaken in the thesis, which attempts to position small-scale interactions evident at case study sites in Brong Ahafo within a wider complex adaptive system. The comparative, qualitative data that I collected as part of my field research provides rich empirical detail on in-migration trends, changing land tenure norms, migrant farmers' perceptions of environmental change, and migrants' variable livelihood 'trajectories.' I then contextualise this data with existing data and debates on migration, customary land administration, and environmental change.

This chapter is structured as follows: Section 3.2 considers existing methodological approaches that have been used to conduct research on the climate-migration nexus to date. Section 3.3 then explains the rationale for adopting a qualitative approach as the main method of the thesis, including how this fits in with the thesis's development of the CAS theory framework, while also making use of available quantitative data on internal migration in Ghana. Subsequently, Section 3.4 discusses the research ethics considerations of conducting research with potentially vulnerable internal migrant populations in West Africa. Finally, in Section 3.5, the chapter addresses the practical steps that were pursued during the course of fieldwork in order to select three comparative field-sites in different parts of the Brong Ahafo's 'transition zone', and explains how the field research itself was conducted. It also provides critical reflections on the research process, and explains the approach to data analysis undertaken following the completion of fieldwork. Section 3.6 concludes with a summary of how the thesis's methodological approach fits into current approaches to research on the climate-migration nexus.

Section 3.2 Existing methodological approaches to the climate-migration nexus

As already described in Chapter 1, the majority of the recent research that has been conducted on the climate-migration nexus has focused on how environmental factors influence out-migration from particular communities or regions. The goal of this thesis departs from this research focus, at it is explicitly focuses on the climate-migration nexus at one of Ghana's main rural migration *destinations* for internal migrants from Northern Ghana: Brong Ahafo Region's transition zone. Despite this key difference, an appraisal of existing methodological approaches to the climate-migration nexus was nonetheless undertaken in the course of settling on the methodological approach of my fieldwork. Overall, the research methods that have been used to explore the relationship between migration and the environment are diverse, incorporating elements from across the social science disciplines. A review of the research methodologies used to date was useful in both clarifying the methodology of this thesis, and also positioning it within the wider body of work that has emerged on the climate-migration nexus in recent decades.

In general, research on migration encounters a number of practical challenges, owing to the difficulty of interrogating human mobility due to its inherently dynamic character. As Berriane and de Haas observe,

> …rather than a temporary or permanent movement from one particular origin to one particular, fixed destination, migration is a phenomenon in constant flux, in which migrants continuously circulate and regularly change plans according to changing circumstances (Berriane and de Haas 2012: 12).

Historically, migration studies has emerged as an inter-disciplinary field of empirical enquiry. As Castles notes, this presents a further set of challenges related to research methodologies often being rooted in diverse disciplinary training, with different approaches often reflecting, 'very different definitions of knowledge and the assumptions on how to obtain it' (Castles 2012: 17). In a similar vein, Castles makes a key distinction between research methods and research methodology. These are, he argues, closely related but not inter-changeable: '*Methods* are specific techniques used to collect and analyse information or data. … *Methodology*, by contrast, is about the underlying logic of research' (Castles 2012: 18; emphasis mine). Thus, different research methods can be

thought of as supporting, or reinforcing, distinct methodological approaches within the field of migration studies.

With these generalities regarding migration studies, in general, foregrounded, it is worth considering the methodological approaches that have been utilised in the study of environmental migration to date. In recent years, research on 'environmental migration' has been dominated by trying to account for the ways in which environmental factors impact on past or future migration flows, with past relationships sometimes seen as forming a suggestive analogue for future migration flows due to anthropogenic climate change. As Piguet (2010: 517) argues, there are at least six different methodological approaches that have been commonly adopted for research on the climate-migration nexus, with respect to trying to disaggregate environmental factors from other reasons for migration. These include: (1) Ecological inference based on area characteristics, which attempts to reconstruct individual behaviour from group-level data (i.e. matching out-migration rates with the occurrence of various ecological events); (2) individual sample surveys, consisting of longitudinal or panel data that can gather detailed information on migration histories or trends; (3) time series analyses, which measures the degree of correlation between environmental changes and migration over a given time period; (4) multi-level analysis, which combines ecological data (including, for example, satellite imagery) with individual data from household surveys and, in certain cases, time series data; (5) agent-based modelling, where life-histories or other data detailing past trends can be used to predict future interactions between migration, the environment and other factors; and (6) qualitative and ethnographic methods, which capture ground-level relationships between individuals or communities and environmental conditions.

These different methodological approaches reflect the inter-disciplinary nature of migration studies as a field of enquiry. In terms of the strengths and weaknesses of the above methods, these are primarily rooted in whether they utilize qualitative or quantitative forms of data, and the trade-offs these imply. In the case of ecological inference based on area characteristics, for example, this adopts an approach based on macro-data analysis. In the West African context, important examples of this approach include van der Geest (2011b), who used this approach to look at the role of the environment in North-South internal migration in Ghana, and Henry et al. (2004a) who

applied this approach in the case of migration in Burkina Faso. However, matching macro-data on migration trends and ecological events – despite illustrating broad correlations between environmental factors and mobility trends – has significant drawbacks. It is difficult to disaggregate migration trends among different sub-groups of migrants and non-migrants using such an approach, and there is also the problem of 'ecological fallacy', as noted by Piguet, whereby 'correlations measured at the aggregate level might not hold true at the individual level' (Piguet 2010: 519).

Individual sample surveys represent a relatively more precise instrument for unpicking the specific reasons for migration and, to a lesser extent, their relation to environmental conditions. In the case of West African research, a widely-cited study by Findley (1994) utilised panel data consisting of two rounds of individual sample surveys from a pool of over 7,000 individuals and 300 households that were conducted in 1982 and 1989 – before and after a significant drought affected the country. Thus, this survey data provided valuable insights into how the drought had influenced migration patterns, with the study finding that there was no increase in international migration in response to the drought, but that there was increased internal migration to areas which had relatively more abundant food production. However, this example notwithstanding, the main weakness of such surveys, for Piguet (2010: 519), is that 'environmental change is only very incompletely captured', creating challenges where there is not sufficient secondary data on environmental conditions to draw upon.

Time series analysis, meanwhile, shows the broad relationship between migration – as it appears in census or other large-scale data – and environmental characteristics. For example – as discussed in Chapter 1 – van der Geest et al. (2010) show that for Ghana, there is a pattern of people moving to areas in the central and western part of the country that have comparatively high vegetation cover and low population density – reflecting migration to rural areas for the purpose of farming. However, despite the general usefulness of this method, it fails to show how migration trends evolve over time (Piguet 2010: 520). By comparison, multi-level analysis and agent-based modelling (ABM) can potentially offer a more comprehensive analysis of climate-migration interactions, as they attempt to incorporate both macro-level data with individual-level actions. Henry et al. (2004b) applied a multi-level approach to migration in the case of Burkina Faso,

collecting over 3,900 individual migration histories and environmental data at the community level from 600 places of origin. They found that people from drier areas were more likely to engage in both temporary and permanent migration to *rural* areas, but that short-term moves to distant destinations increased with rainfall deficits. Meanwhile, ABM has advantages over other approaches in that it can incorporate into its model the heterogeneous responses of different agents to environmental stimuli, as well as accounting for the relationship between different actors and particular feedback loops. However, in both these cases, the analysis is only as accurate as the data imputed. As Piguet (2010: 520) notes, multi-level analysis may extrapolate environmental effects observed at the district or regional level to migrant communities of origin in an imperfect way, while agent based modelling, though a promising approach, relies on constructing an accurate model of migrants' – or potential migrants' – decision-making processes, which we currently have a fairly limited understanding of.

Finally, in the case of qualitative research, the drawbacks are obvious and fairly well-documented. In short, while such studies can provide rich insights into particular case studies, it is often difficult to theorise how qualitative data collected from specific sites is relevant to larger trends or processes. Nevertheless, Piguet notes of qualitative research that,

> …such studies offer invaluable insights into people's attitude toward, and their perception and representation of, climate change in general and the migration option in particular; a central dimension if one wants to gather a coherent and complete theory of migration related to environmental change (Piguet 2010: 521-522).

I would argue that this final point is essential in terms of the utility of qualitative research, and a central reason why I chose to use qualitative methods as the main tool for data gathering for my research, a topic I will cover in Section 3.3 below.

However, it is worth noting that in recent years a number of major projects that have investigated the climate-migration nexus have sought to undertake interdisciplinary methodological approaches. For example, the *Foresight Report on Migration and Global Environmental Change* (Foresight 2011) mentioned in Chapters 1 and 2 commissioned 70 working papers from researchers across a variety of disciplines on various elements of

the climate-migration nexus. The Where the Rain Falls project – a multi-country research initiative that included research in Northern Ghana, as well as other locations in Sub-Saharan Africa, Asia, and Latin America, sought to utilise multiple methodological approaches in order to triangulate data, including household surveys, life histories and agent-based modelling (Where the Rain Falls 2012). Similarly, the Deltas, Vulnerability and Climate Change (DECCMA) project, which is researching the relationship between migration and climate change in river deltas in Sub-Saharan Africa and South Asia – including in Ghana's Volta River Delta – uses a variety of methodological approaches, including survey, participatory research and economic methods (DECCMA 2016). This reflects a consensus in migration studies more broadly that attempts to better understand migration patterns benefit from incorporating interdisciplinary approaches, which capture perspectives on migration at different levels of analysis, ranging from the level of individual characteristics in areas of out-migration, up to the emergence of national and international-level trends revealed by quantitative data.

Section 3.3 Rationale for undertaking comparative qualitative research in three communities: How qualitative data and complex adaptive systems theory intersect

As discussed in finer detail in Chapter 2, CAS theory posits that social and environmental systems are co-evolving, and that interactions between different agents and their environment ultimately result in larger patterns and processes. Thus, despite the fact that this theory is concerned with explaining larger social and environmental processes, its understanding of how such patterns emerge offers a potential marriage with qualitative methodological approaches. Indeed, Rammel et al. (2007: 10) argue that, 'CAS theory… [offers] a conceptual framework for applying the insights and data from small-scale analysis to understand larger-scale patterns and processes'. Thus, qualitative, small-scale studies that employ the CAS theoretical approach can potentially shed light on larger processes and systems in which individual agents are embedded – and can also illuminate particular relationships that are emerging between agents and the environment that are influencing larger trends. In adopting complex adaptive systems theory as the underlying theoretical approach of this thesis, the challenge I was subsequently faced with in forging the thesis's methodological approach involved how to choose methods that would adequately capture the small-scale interactions occurring between migrants, local hosts and the environment in Brong Ahafo Region.

After evaluating various recent approaches to research on the climate-migration nexus discussed in Section 3.2, I ultimately opted to base my research primarily around qualitative interviews conducted at three migrant 'settler' communities in Brong Ahafo with a purposively selected cross-section of each case study community's Northern Ghanaian migrants – as well as key 'locals' – in order to gain qualitative insights into migration histories, changing land tenure norms and local perceptions of environmental change. Importantly, the qualitative interviews were structured along key themes, in order to provide insights into the three key research questions of thesis, as introduced in Chapter 1: (1) local-level migration patterns, (2) the relationship between in-migration and changing land tenure norms; and (3) migrant perceptions of environmental change at migration destinations in Brong Ahafo. The interviews also collected data on migrant

livelihood outcomes, including the size of their land holdings, data on their recent harvests, and their sources of off-farm income.

A key element of choosing to conduct qualitative research on the three key research themes of the thesis was that each of these areas could be complemented by either key secondary sources of data, or existing literature from Ghana or West Africa that could help position the qualitative data collected within wider trends and patterns, thus allowing for further theorisation using the CAS framework. In the case of qualitative data collected on local-level migration histories, these are complemented by data from the 2010 Ghana national census, which provides new district-level data on migrant populations from Northern Ghana, including a new question added to this version of the census on the number of years that migrants have been in their current location. In the case of the thematic strand on how in-migration and changing land tenure norms are co-evolving at the three research sites, this is complemented by a large literature on customary land tenure norms in Ghana, in particular, and West Africa, in general, that allows for these qualitative insights to be positioned in a wider regional and national context. In the case of the third key research strand of the thesis, migrant perceptions of climate change, this is complemented by secondary environmental data available for Brong Ahafo, including analysis of changing rainfall patterns over recent decades and changes in forest cover. Thus, while the primary research method for the thesis is qualitative in its orientation, the research themes that were pursued using this method were purposively chosen in order to maximise the potential for linking the qualitative insights derived from the fieldwork with larger processes and patterns related to migration, changing land tenure norms, and environmental variability in Brong Ahafo.

The choice of qualitative research methods was also based on a pragmatic decision-making approach that took into consideration my previous training and strengths as a researcher as well as the limitations of the types of data collection that were realistically achievable due to the inherent financial and time constraints of doctoral research. In the case of the former, this methodological approach built on my previous training in ethnographic methods at both undergraduate and MA-level, as well as utilising the

interviewing skills I had previously acquired while working as a newspaper journalist[15]. Thus, conducting semi-structured, first-person interviews played to my existing strengths as a researcher, and proved to be a practical way of interrogating small-scale interactions between migrants, local hosts and the environment. Furthermore, while I initially considered adopting an inter-disciplinary methodology that 'triangulated' different sources of data (i.e. interviews, household surveys and focus group discussions), I ultimately decided not to use this approach. In the case of household surveys, I lacked the financial resources to conduct a representative survey, which meant that the information gathered using this method would be both laborious and of limited added value. Meanwhile, focus group discussions conducted during a preliminary research visit to Brong Ahafo often turned up similar information to semi-structured interviews, and were much more labour-intensive to conduct.

Thus, the methodology for this thesis was crafted through careful consideration of previous methodological approaches to research on the climate-migration nexus and by taking a strategic approach to collecting comparative, qualitative data at three field sites across Brong Ahafo Region that could be matched with available data on migration and environmental change, as well as existing research on changing land tenure norms. The use of qualitative research methods was thus based on a wider methodological approach which sought to interrogate a series of small-scale interactions between migrant farmers, local intermediaries, land access, and environmental change in Brong Ahafo, as conceptualised as part of a wider 'complex adaptive system'. The approach allowed me to make the most of the relatively limited research time and funds available to me as a doctoral student (in comparison to recent large-scale research projects on climate migration, for example), while also playing to my existing training and strengths as a qualitative researcher.

---

[15] Before pursuing my doctorate at the Univrsity of Sussex, I earned a MA Honours (undergraduate) degree in Social Anthropology from the University of St Andrews, Scotland, and an MA in the Anthropology of Conflict, Violence and Conciliation from Sussex, both of which included a focus on ethnographic methods. From 2006-2007 I worked as a news reporter for *The New Mexican* newspaper in the United States, a daily newspaper with a circulation of 30,000.

Section 3.4 Research ethics considerations of doing fieldwork with migrants in rural West Africa

There are a number of research ethics considerations that involve doing research with internal migrant communities in West Africa. In general, under the University of Sussex research ethics framework, research with internal migrants in the Global South has been increasingly interpreted as being potentially 'high risk', owing to the potential vulnerability of research participants, as many internal migrants are living in poverty and may be prone to abuse or maltreatment at the hands of authorities or locals at their migration destinations[16]. In my own research ethics application that preceded the field research for this thesis, I too made the judgement that the research was 'high risk' due to the potential vulnerability of my would-be research participants. The rationale behind this was several-fold. The study involved research with internal migrants from Northern Ghana, who are of different ethnic groups than natives of Brong Ahafo. These migrants have a relatively marginal place in the region's customary land tenure system, which is controlled by local chiefs (see Chapter 5 for further details). More broadly, in West Africa, there are numerous historical examples of conflicts over land that have had ethnic dimensions. For example, in neighbouring Cote d'Ivoire, anti-immigrant xenophobia against Burkinabe cocoa farmers who had established cocoa plantations in the country was one of the elements that contributed to civil war in the 2000s (see Berry 2008). In Ghana's Northern Region, meanwhile, a long-running chieftaincy dispute between different ethnic groups, including the Dagomba, Konkomba and Gonja, over which groups had customary authority over land led to the outbreak of the so-called 'Guinea Fowl War' in the 1990s, resulting in between 2,000 and 25,000 deaths and over 100,000 displaced, according to wide-ranging estimates (Oelbaum 2010).

In the course of preparing my research ethics application, and in preparing for fieldwork itself, I took a number of steps to try to mitigate potential risks to the research

[16] For example, research projects that have been conducted by Migrating out of Poverty Research Programme Consortium (which has a secretariat based at the University of Sussex), and approved by the University of Sussex Research Ethics committee, have generally been classed as 'high risk' since 2013.

participants – i.e. primarily Northern Ghanaian internal migrants – who were to be the subject of my research. In addition to conducting a wide-ranging literature review on internal migration in Ghana in general and migration to Brong Ahafo in particular, I also reached out to researchers who had experience of working in the region[17]. This included valuable first-hand knowledge of the region shared by Dr Kees van der Geest (who is based at United Nations University in Bonn), who had worked with internal migrants in Brong Ahafo as part of his PhD research in the 2000s. He reassured me prior to my fieldwork that internal migrant communities in Brong Ahafo typically have relatively amicable relationships with their host communities. This is in part due to the fact that migrants contribute to increased food availability through the share-cropping arrangements they enter into with 'locals' or pay annual rent for access to farmland. He also indicated that there was evidence that many migrant farmers from Northern Ghana were actually doing quite well for themselves in Brong Ahafo, with their success in producing cash crops for local food markets helping to re-invigorate local interest in farming more generally (which is a profession which lacks prestige in Brong Ahafo, and across many Sub-Saharan African countries, especially amongst youth).

Although this first-hand knowledge was reassuring, my methodological approach was nonetheless carefully tailored to avoid a specific focus on inter-ethnic relations or tensions in the case study sites where I was to be conducting research. As discussed in Chapter 1, the key research questions that were the focus of my qualitative research consisted of understanding localised migration patterns, the relationship between migration and changing land tenure norms, and migrants' perceptions of environmental change. While the research took an interest in the livelihood trajectories of migrants, and involved interviews with both migrants and non-migrants, my interviews did not directly ask either group about sensitive topics such as inter-ethnic tensions, native-settler disagreements, or other potentially sensitive issues that might have inflamed any local

[17] In addition to Dr van der Geest, I also had useful consultations about internal migration in Brong Ahafo Region prior to fieldwork with colleagues at the Center for Migration Studies at the University of Ghana (Legon), including Prof Mariama Awumbila, Dr Joseph Teye, Prof Delali Badasu, and Prof Joseph Yaro. I also gleaned valuable insights on migration in the region from Nauja Kleist from the Danish Institute for International Studies, who has studied the repatriation of migrants from North Africa to Brong Ahafo.

tensions that were simmering under the surface. Although this somewhat limited the scope of the research (see Chapter 8.2.1 for more on this), I considered this methodological approach necessary in order to avoid emphasising the role of ethnic difference in the issues that I was researching, which could have potentially exacerbated any community tensions that existed. Additionally, the names of both the research sites and the research participants are withheld in this thesis to protect the anonymity of research participants, owing to the 'high risk' nature of this fieldwork, as per the University of Sussex's research ethics guidelines[18]. These steps helped to ameliorate any potential risks to research participants during the research itself, and to subsequently protect the identity of those who had been interviewed after the research had been concluded and subsequently published in this PhD thesis and elsewhere.

[18] NB: While the interview data presented in Chapters 4-6 refers to specific case study communities and interview numbers, copies of transcribed interviews have not been included in the appendices of this thesis, as it was adjudged that doing so could increase the potential for research participants' anonymity to be compomised.

Section 3.5 Fieldwork: Selection of research sites and practical steps associated with carrying out the field research

The main period of data-gathering for the thesis took place between February and May 2014. However, there were a number of preliminary steps that were taken to prepare for this data collection period in advance. During the summer of 2013, I applied for ethical approval of the field research from the University of Sussex research ethics committee. It was in the course of this application that an initial research plan for my field research was developed. I determined that I would undertake an initial visit to Brong Ahafo Region in the autumn of 2013, and that this preliminary visit would be the basis for finalising the location of three field sites in different districts of Brong Ahafo, as well as helping to finalise the questionnaire to be used for qualitative interviews during the period of fieldwork proper. During the summer of 2013 I also undertook ten sessions of language training in *Twi* – the most commonly-spoken Akan language dialect in Ghana and the local *lingua franca* in Brong Ahafo that is spoken among Northern Ghanaian migrants and their local hosts, who are primarily of the Bono ethnic group[19]. These language lessons were pursued on a one-on-one basis with Dr Kwadwo Osei-Nyami at the School of Oriental and African Studies (SOAS) in London, who is a member of the English faculty at SOAS and as a native Ghanaian is fully-fluent in *Twi* and has extensive experience of teaching the language to new learners. Although this language training was not sufficient for me to gain a high enough level of language proficiency to conduct qualitative interviews without an interpreter during the field research, it did enable me to better interact with research subjects and to have a general understanding of what was being said in the course of each interview as it was taking place. It also gave me a general understanding of many of the local idioms that are commonly used in *Twi*. This language training eventually provided a firm grounding from which to explore labels applied to migrants in Brong Ahafo, which is one feature of host-stranger relations in the region (see Chapter 4.2.1 for a more in-depth discussion of this). For example, 'settler' communities in Brong Ahafo

[19] This differs in some parts of the region: For example in Pru District, where one of the three 'final' field sites was located, the predominant local ethnic group is Chumburu. However, in this conext *Twi* remains the most commonly spoken language.

where where Northern Ghanaian migrants constituted the majority population were referred to in *Twi* as *atukɔ tenafoɔ akuraa* (which literally translates as 'refugee village'), highlighting migrants' perceived status as 'strangers'.

The research sites themselves were selected after a preliminary visit to Brong Ahafo in November 2013, when I was hosted by the Centre for Migration Studies (CMS) at the University of Ghana, Legon.[20] CMS faculty members Prof Mariama Awumbila and Dr Joseph Teye were particularly instrumental in advising on logistical aspects of the research project prior to fieldwork, with Dr Teye also providing introductions to research contacts in Brong Ahafo Region that proved fruitful for both the preliminary field visit as well as the period of fieldwork itself in spring 2014. During the first field visit to Brong Ahafo, I was based in Nkoranza, a market town in central Brong Ahafo with a population of over 20,000. From this location, I conducted day trips to a number of potential field-sites, assisted by Rev. Frank Twumasi, the head of local migration NGO Scholars in Transit, which works primarily with Ghanaian migrants who have been returned to Brong Ahafo Region by IOM from North Africa and Europe. In total, I visited seven migrant 'settler' communities in Brong Ahafo during this first fact-finding trip, including two in Nkoranza South District, two in Wenchi Municipal District, two in Techiman Municipal District and one in Kintampo District. During these day trips, I was able to establish a preliminary profile of each potential field site, including its size and date of settlement, the specific composition of its migrant population, the type of land tenure arrangements that were common between migrants and local hosts, and the main commercial food crops that were grown by local tenant farmers.

Based on the information gathered in the preliminary field visit to Brong Ahafo, I identified three fieldwork sites in different districts of Brong Ahafo Region – Nkoranza South, Wenchi Municipal and Pru (NB: hereafter referred to jointly as 'case study communities'). These sites were chosen on the basis of the three sites possessing

[20] This trip was partly funded by the Migrating out of Poverty Research Programme Consortium, of which both the University of Sussex and the University of Ghana's Center for Migration Studies (CMS) are members. In addition to visiting potential fieldsites in Brong Ahafo, I also conducted a two-day workshop in Accra with CMS faculty and students on writing effective policy briefings.

contrasting migration histories (in terms of 'source' locations in Northern Ghana and timescales of migration), local land tenure norms, and ecological conditions, including variable rainfall, soil quality, etc. (see Fig 3.1). This was done in order to maximise the research's focus on how migration from Northern Ghana has interacted in differing ways with social-ecological conditions at destinations across Brong Ahafo Region, while also highlighting potential similarities across heterogeneous 'settler' communities. While I was unable to visit Pru District during the initial visit to Brong Ahafo in autumn 2013 due to short-term illness, but I decided to add a research site in this district on the basis that it is relatively more arid than the rest of the region, and tends to attract more migrants from Northern Region, as opposed to the other two sites, which mainly received migrants from Upper West Region (in the case of Wenchi Municipal District case study site) and Upper East Region (in the case of the Nkoranza South case study site). These local differences are elaborated on at length in Chapter 4.3.

Fig 3.1 Fieldwork sites
(all locations approximate; created by author using ArcMap)

The qualitative research itself was subsequently undertaken in the first half of 2014. In all cases, community access was gained through initial meetings with local chiefs secured through local gatekeepers. As already alluded to above, the research consisted primarily of individual, semi-structured interviews (typically lasting between 45-90 minutes) were conducted in *Twi*, and were translated during each interview by interpreters provided by Scholars in Transit. The number of migrant interviews conducted at each site was as follows: Nkoranza N = 27, Wenchi N = 34, and Pru N = 60. In Nkoranza, individual migrant interviews were supplemented by focus group discussions with migrants. More interviews were conducted with migrants in Pru owning to the larger number of different ethnic groups residing in this site, in an attempt to try to get varied perspectives within each group. Semi-structured interviews were supplemented at all three sites by visits to local farms. While migrant research participants were not randomly selected to ensure that interviews were representative, care was taken to ensure that they did reflect a cross section of Northern Ghanaian migrant ethnic groups living in each community, as well as different age groupings, genders, and wealth categories. Key non-migrant members of each community—including local village chiefs, landlords, and local farmers—were also identified and interviewed to provide additional local perspectives on migration and related issues[21]. The names of research sites and research participants are withheld in this thesis to protect their anonymity, owing to the 'high-risk' nature of this fieldwork, which took place with relatively at-risk internal migrants, according to University of Sussex research ethics guidelines.

The interview questionnaire itself – which provided the basis for the semi-structured interviews – contained questions that covered the three key research themes of the thesis as well as migrant livelihood outcomes. After explaining the purpose of the

[21] In the case of the Nkoranza case study site, interviews were also conducted with some of the earlier waves of migrant settlers to the community, when it was a cocoa-producing area. These migrants mainly hailed from Volta and Ashanti Regions, and moved to the area for the purpose of establishing cocoa farms. Such a population of internal migrants did not exist at the other research sites, owning to the particular nature of this site's local migration history. As Amanor (2007: 38) notes, there has historically been significant social differentiation between migrants who moved from more central regions to establish cocoa plantations, and those from Northern Ghana, Mali and Burkina Faso, who primarily served as temporary labourers or sharecroppers in such contexts.

research to interview subjects and obtaining consent, interviewees were asked questions about their personal characteristics, their migration histories, their farming activities and land tenure arrangements, their perceptions of environmental change, and their livelihood status and assets (see Appendix 1 for the schedule of questions used to guide qualitative interviews during my fieldwork). The interviews were translated by interpreters, with responses transcribed by hand by myself as the subsequent question was being asked to interview subjects. The semi-structured nature of the interviews allowed for particular avenues to be explored further in cases where particularly relevant details related to the research themes emerged during interviews. Extracts from a number of the interviews are highlighted in the empirical chapters of the thesis (Chapters 4-6), while a synthesis of qualitative data gathered in the interviews, particularly with respect to livelihood trajectories, forms the basis for Chapter 7.

3.5.1 Critical reflection on fieldwork and data analysis

Throughout the period of field research, I was forced to grapple with my positionality as a white researcher working in a West African context where my status as a foreigner was obvious. Even while working through skilled local intermediaries, the power asymmetries of my interactions with local research participants had to be continually confronted and negotiated. Two of the three communities had experienced previous engagement with researchers from national universities, and a number of people who participated in the research – or who simply witnessed me and my research assistants in the community – openly asked me what benefit the research would bring to the community. As a PhD researcher with limited financial resources and little influence in local or national policy decision-making processes, I struggled to answer these questions, other than to say that I hoped the research would help to raise the profile of internal migration and put it on different policy agendas, which continues to be an aim of mine as I progress with the publication and dissemination of my doctoral research.

On a personal level, I eventually embraced my positionality as a light-skinned outsider. When I was seen in the streets of Nkoranza, or during fieldwork, many locals would call out '*Akwasi 'Broni*'. This is a local short-hand for 'white man': *Akwasi* is the Akan name

given to boys who born on Sunday (and thus reflects the area's history of contact with white missionaries), and *Obroni* means white man or foreigner in *Twi*. I calculated that I was born on a Friday – and that my Akan name was thus Kofi. When I encountered cries of 'Kwasi 'Broni', I was able to correct locals that it was actually 'Kofi Broni', as I was Friday-born. This helped me to quickly establish rapport with locals and migrants during fieldwork by showing that I had a basic level of cultural literacy, and I became known by this name exclusively in one of the field sites. Although, in line with research ethics, I was unable to provide any remuneration in return for participating in interviews, I did make a one-off contribution after fieldwork had concluded to a local primary school in one of the sites, in order to help them buy new materials for the coming academic year. These small interactions helped to diffuse the general tension that existed between myself as white researcher and research participants who were keen to know what I was doing in their communities and what my intentions were.

Beyond the challenges associated with my positionality as a researcher, there were also significant logistical challenges involved in carrying out the research. In all cases, I was undertaking day trips to the research sites, which required travelling with interpreters in gruelling conditions on public transport. Interviews often had to be conducted on market days when farmers where taking 'rest days' from the field, which meant that days spent interviewing were extremely long and physically exhausting. I did not have the resources to undertake a census of each settlement and randomly select participants. Although care was taken to snowball interviews in a way that accounted for all migrant ethnic groups present in each site, across gender, generational groupings, and including different wealth groups, the nature of this approach meant that the research was not wholly representative of the communities where it was conducted. All these factors need to be considered in reflecting critically on the nature of the qualitative data presented in this thesis, in terms of its limitations of capturing wider processes of in-migration from Northern Ghana to Brong Ahafo Region. Beyond this, I was also reliant on translators to conduct interviews, meaning that while I was present and could control the flow of each semi-structured interview, this process nevertheless risked important nuances potentially being partially lost in translation.

Subsequent to the fieldwork itself, all interviews were transcribed from my field notebooks into word processed documents. This allowed for each interview to be analysed in spreadsheets, which accounted for migrants' gender, their reasons for migration and future migration intentions, time spent in the community, farming outcomes, non-farm employment, and other key areas of interest discussed in the empirical chapters of this thesis (refer to Chapters 4-7). Research analysis of the qualitative data proceeded as an iterative process, beginning with key themes identified during the process of conducting interviews, continuing during interview transcription, and culminating in the research analysis proper. The confluence between the qualitative data collected as part of my fieldwork, available secondary data, and the existing literature on the 'migration-climate nexus' is the space in which I developed a theory in this thesis of in-migration to Brong Ahafo as part of a 'complex-adaptive system'. The process of transcribing the interviews, as well as further analysis of migrants' personal migration histories, land tenure arrangements, perceptions of environmental change and livelihood outcomes formed the key empirical basis for the CAS theorisation put forward in this thesis.

Section 3.6 Conclusion: Qualitative research and the CAS framework – an innovative methodological approach to researching the climate-migration nexus

This chapter has explained the rationale for adopting qualitative research methods – in particular semi-structured interviews with migrants and locals – as the main tool for gathering data for this thesis. As explained in Section 3.3, this particular research method resonates with the larger research methodology of the thesis, which seeks to better understand the small-scale interactions between migrants, local hosts and the environment in Brong Ahafo Region, especially related to the emergence of local-level migration trends in recent decades, the evolution of locally-specific land tenure norms, and migrants' perceptions of environmental change. Additionally, the thesis also seeks to understand the range of livelihood trajectories for migrants in these contexts, and how these trajectories interact with different facets of the region's 'social-ecological system'. As discussed in Section 3.3, the qualitative interviews that were conducted during the field research for this thesis also targeted these specific themes in part because key sources of secondary data or comparative research are available in each of these areas, which helped to contextualise my qualitative data within wider social and environmental processes occurring in Brong Ahafo Region, as well as in the larger national and West African context.

The qualitative research approach adopted in the field research phase of my PhD, when combined with the use of CAS theory, provides a novel perspective for theorising new frontiers of the climate-migration nexus, with a particular focus on how environmental conditions are also important to migrant livelihood outcomes at rural destinations, in this case focusing on Brong Ahafo's 'agricultural frontier'. As already highlighted in Section 3.2, much of the research on the climate-migration nexus focuses on the other end of the migratory chain, in particular by trying to disentangle the ways in which environmental factors may influence out-migration from particular communities or areas. This study represents a departure from this, although it nevertheless bears some similarities to other methodological approaches discussed earlier in this chapter. In particular, approaches such as agent-based modelling and multi-level studies try to account for both individual agency and larger structures within their methodological frameworks. This is

also the goal of my methodological approach, with CAS theory providing the conceptual framework through which insights from my qualitative research can shed light on connections between the individual- and local-level realities and the emergence of meso- and macro-level patterns and changes.

Thus, while the research methodology of this thesis borrows significantly from previous methodological approaches that have been used to conceptualise the relationship between migration and environmental change, it ultimately tackles a different set of questions, in that it orients its empirical focus towards how migrants interact with local hosts and environmental factors at destination. In undertaking a research project that was designed to collect comparative qualitative research findings across three case study communities inhabited by migrant farmers from Northern Ghana in different districts of Brong Ahafo, the methodology embraced a pragmatic approach that made the best use of my prior research training in ethnographic methods and my existing skills as an interviewer, as well as acknowledging the financial and time-scale limitations of conducting research as a doctoral researcher. In the case of this latter point, some research methodologies – including collecting original quantitative data on a representative scale – were deemed to be beyond the scope of the thesis.

Chapter 4: Moving to 'greener pastures'? Examining the complex relationship between migration and co-evolving social and ecological factors at migration destinations in Brong Ahafo

Section 4.1 Introduction: Interrogating local-level migration trends from Northern Ghana to Brong Ahafo's transition zone as part of a complex adaptive system

The aim of this chapter[22] is to position the recent trend of internal migration of tenant farmers from Northern Ghana to Brong Ahafo Region's 'transition zone' within a broader 'complex adaptive system' made up of a series of evolving relationships between social actors and the environment. As mentioned in Chapter 2, using CAS theory to assess this migration trend enables us to appreciate the relationship between migration and shifting conditions at migrant destinations, including evolving local customary tenure norms, changing land use patterns, and the emergence of trans-local social networks; and how small-scale interactions at the local level between migrants and such conditions (or 'feedbacks') can inform wider meso- and macro-level migration trends that emerge in household and survey data. With these relationships foregrounded, this chapter explores the following questions: What are the reasons for migration to Brong Ahafo, from Northern Ghanaian migrants' perspectives, and how do these flows reflect social network linkages? And, relatedly, how do these perspectives relate to social-ecological conditions at migration destinations?

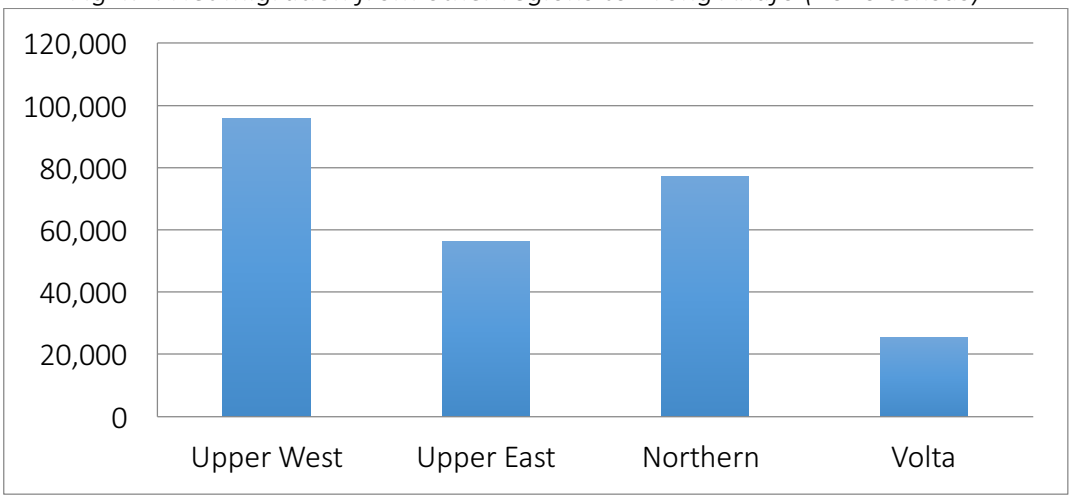
In this context, the CAS framework helps to explain why, notwithstanding the existence of large-scale 'drivers' of out-migration from Northern Ghana, including relatively high poverty rates, a comparative lack of infrastructure and a structural scarcity of arable farmland (see van der Geest 2011), out-migration has not occurred *en masse*. I suggest that in addition to such structural factors in Northern Ghana that would seem to encourage migration, the CAS theoretical approach illustrates that migration is also highly sensitive to both social and environmental factors at migration destinations, including

[22] An earlier version of this thesis chapter was published as an Migrating out of Poverty RPC working paper: see Sward (2016).

how these factors change over time. Positioning in-migration within this wider 'social-ecological system' at migration destinations helps to explain the frequent occurrence of non-linear migration trends across both temporal and spatial scales.

This chapter takes as its case study the relatively recent phenomenon of increased permanent migration from Northern Ghana to the mid-Ghanaian region of Brong Ahafo. This internal migration trend, though less voluminous than migration from Northern Ghana to urban centres such as Accra and Kumasi, is nonetheless important: Internal migrants now account for around 20 per cent of Brong Ahafo's population, according to the 2010 Ghana Population and Housing Census, with the majority of these coming from Northern Ghana (see Fig 4.1).

Fig 4.1: Net migration from other regions to Brong Ahafo (2010 census)[23]



Northern Ghanaian migrants in Brong Ahafo are typically engaged in tenant farming, and often live in 'settler communities' which have been established across the region with increasing regularity since it became a key source of domestic food production in the 1970s (Amanor 1994: 34). These migrant tenant farmers usually practice smallholder, rain-fed agriculture of commercial food crops including maize, yam, cassava, groundnuts, and other crops. They typically access plots of land through local landlords via rental or sharecropping arrangements[24]. This migration trend forms one of a number of examples

[23] Author's calculations, based on GSS 2013.

[24] Land tenure norms vary across Brong Ahafo, as does land quality and availability. Refer to Chapter 5 for a full discussion of this topic.

in Ghana of migration to 'agricultural frontiers', a form of mobility that has historically influenced shifts in cocoa production areas (see Amanor 1994), for example. Although this type of internal migration is relatively marginalised in both policy discourse and academic research in comparison to rural-urban migration, it has important implications for agricultural production for both domestic and international markets.

This chapter undertakes an analysis of migration from Northern Ghana to Brong Ahafo. At different scales, distinct aspects of the relationship between migration and relevant social and environmental dynamics are evident. At the regional and district-level, census trends provide insights into how in-migration has been changing the demographic make-up of Brong Ahafo in recent decades, potentially serving as a 'feedback' that affects both social relations and environmental conditions in migration destination areas. Community-level migration histories, meanwhile, reveal the ways in which migration has evolved in response to specific local social and environmental conditions, while individual migrants' narratives of their migration help to account for migrant actors' agency within these flows. By conducting analysis across these different scales, the chapter attempts to identify key intersections between in-migration and social and environmental factors at the three case study communities included in the study.

This chapter is structured as follows: Section 4.2 looks at the emergence of the recent internal migration trend of Northern Ghanaians to Brong Ahafo in national and historical context, and explores host-stranger relationships that have resulted from this mobility. Section 4.3 presents potted histories of the three case study districts and undertakes a district-level analysis of in-migration trends, in order to draw out the distinct characteristics of these meso-level migrations flows. Section 4.4 then presents qualitative findings from the three case study communities, outlining each case study community's local migration history. Section 4.5 turns to the individual perspectives of migrants, including their reasons for moving to Brong Ahafo and their ongoing connections with relatives in Northern Ghana. Section 4.6 concludes the chapter by analysing how the local-level emergence of migration patterns helps to clearly define how 'north-south' migration flows in Ghana are constituted – and the multiple ways in which they can be thought of as part of a 'complex adaptive system'. This closing discussion sets the stage

for further analysis of how migration interacts with other aspects of Brong Ahafo's 'social-ecological system' in Chapters 5-7 of this thesis.

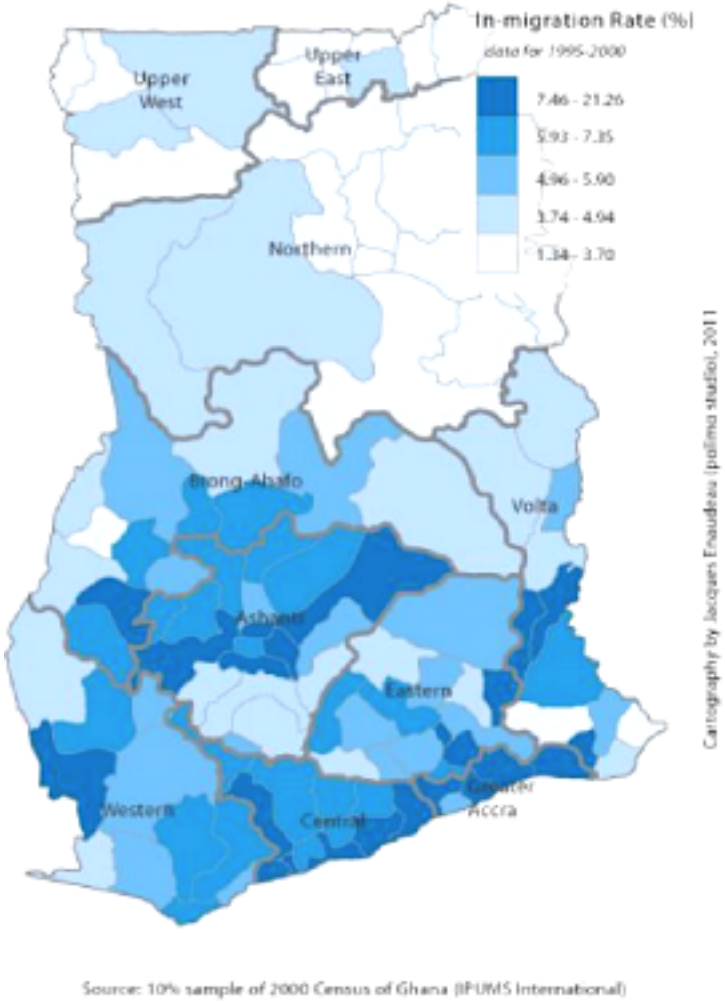
Section 4.2 Migration from Northern Ghana to Brong Ahafo in national and historical context

Data from Ghana's national census shows a clear trend of continued out-migration from the country's three northern regions – Upper West, Upper East and Northern – to areas in southern Ghana (see Fig 4.2), in particular to urban areas including Accra and Kumasi, as well as to agricultural frontiers. In the case of this latter trend, van der Geest et al. (2010) investigated how Northern Ghanaian migration flows captured in census data relate to population density and vegetation cover, demonstrating that in-migration to central and western Ghana, in particular, was – on aggregate – linked to destinations with higher vegetation cover and relatively low population densities. This study confirms that much of this movement is being undertaken by migrant tenant farmers from Northern Ghana to 'agricultural frontiers' in other parts of Ghana in order to gain access to farmland. Relatedly, Moller-Jensen and Knudsen note that beyond the significant urban growth that is occurring in Accra and Kumasi, many of the fastest growing areas in Ghana are rural areas 'that have very high relative growth due to the national movement of farming activities, thereby acquiring the status of frontier areas' (Moller-Jensen and Knudsen 2008: 319). They observe that one of the primary motivating factors of this migration appears to be access to farmland – for cocoa production in the case of Western Region, or food crop production in the case of Brong Ahafo Region.

As already noted above, Amanor (1994: 34) observes that the substantial migration from Ghana's three northern regions to Brong Ahafo since the 1970s has coincided with the region's emergence as one of the country's primary food production areas. However, while this particular trend can be said to be 'new' in some sense, it is at least partly related to previous migratory movements from Northern Ghana to southern Ghanaian destinations for the purposes of agricultural production and/or labour. For example, Amanor (1994: 41) notes that in pre-colonial times, slaves from what is present-day Northern Ghana made up much of the agricultural workforce in mid-Ghana under the Ashanti and other imperial states that emerged beginning in the sixteenth and seventeenth centuries. While the British colonial period saw the eventual abolition of slave labour in 1908 (Austin 2006: 201), the British imposed a taxation regime in the Northern Territories (which constitute present-day Northern Ghana), the main goal of

which was to encourage northern men to migrate seasonally for work in the gold mines and agricultural plantations of southern Ghana (Amanor 1994: 44).

Fig 4.2 National in-migration rates in Ghana (2000 census)[25]



As Austin (2006: 203-204) notes, northern migrants gained considerable autonomy in the wake of the abolition of slave labour, with commercially successful northern sharecroppers being commonplace in cocoa farming operations in Ashanti Region, for example. Despite this fact, migrant farmers from the north remained relatively marginalised, owing to the fact that they only rarely gained permanent land-ownership rights, meaning that their livelihoods were contingent on continued access to land via locals who claimed customary ownership over the areas they used for cocoa production based on 'first settler' narratives (Austin 2006: 206). As Amanor notes, there was also

[25] Reprinted with permission from Castaldo et al. (2012).

significant social differentiation among migrants from different parts of Ghana during the colonial period as, for example, wealthy cocoa farmers from Ashanti Region who migrated to acquire new lands for farming in Brong Ahafo and Western Region in the 1940s 'were worlds apart from the annual labourers who migrated from northern Ghana, Upper Volta (now Burkina Faso), Niger and Mali' (Amanor 2007: 37). The scale of the latter flows was highly significant: An estimated 200,000 Northern Ghanaian migrants moved for seasonal labour on Ghana's cocoa plantations in 1954, for example (Anarfi et al. 2003: 14).

Earlier patterns of migration set the stage for ongoing out-migration southwards from Northern Ghana in the postcolonial era, following independence in 1957. Clearly, there is an underlying economic rationale for much of this out-migration. For example, Marchetta (2013) cites household data to suggest that migration is often a strategy adopted by relatively poor households in the north, who do not have the capital to pursue off-farm ventures *in situ*. Relatedly, recent household data collected in four communities in the Upper West Region shows that seasonal migration is now more common during the rainy season (Rademacher-Schulz et al. 2014), suggesting that many migrants are foregoing agricultural work in pursuit of potentially more lucrative – but also riskier – artisanal gold mining (known in Ghana as *galamsey*). Recent studies have also considered the specific cultural dimensions of migration among a number of northern groups including the Dagaba (van der Geest 2011b), the Frafra (Sow et al. 2014), and the Kassena (or Grusi) (Awedoba and Hahn 2014). These studies reveal that the economic rationale for migration is typically linked to the production of both personal and family prestige or status, which is achieved through material improvements that are expected to come from migration. Meanwhile, in the case of the Northern Region in particular, conflict is clearly an important additional dimension of population mobility: As Olebaum (2010: 2) notes, an estimated 200,000 people were displaced during the 1990s by the so-called 'Guinea Fowl War', the most recent manifestation of a long-running dispute in the region over land access and customary land ownership, in particular among the Konkomba and their neighbours the Gonja and Dagomba.

As already mentioned in Chapter 1, a handful of studies have also considered dimensions of Northern Ghanaian migration to Brong Ahafo in recent years. Van der Geest (2011b) looks specifically at the establishment of Dagaba settler communities in west-central Brong Ahafo, where migrants have come to engage in farming activities; his focus is primarily on how the Dagaba have implemented farming practices common in Northern Ghana which are in fact quite 'sustainable' – a response to the common narrative that settler farmers contribute to land degradation at destination. Abdul-Korah (2007), meanwhile, focuses on step-migration of Dagaba to Brong Ahafo, highlighting the fact that a number of these migrants initially move to a wide range of other rural and urban destinations in southern Ghana before relocating to Brong Ahafo. Finally, Abu, et al. (2014: 357) show that – despite the relatively permanent nature of much recent migration from Northern Ghana to Brong Ahafo – a significant proportion of migrant household heads (nearly 63 per cent of a two-village sample in Brong Ahafo Region) said that they intended to move to new locations within five years. This was almost double the number of non-migrant household heads surveyed who intended to move (37 per cent) highlighting the fact that potential onward mobility is a significant characteristic of northern migration to Brong Ahafo. In short, the existing research suggests that the recent increase in migration from Northern Ghana to Brong Ahafo is broadly related to a range of historical, economic, cultural and other factors, including conflict.

4.2.1 Migrant-host relations in Ghana: a brief historical overview

Importantly, migration from Northern Ghana to other parts of the country was just one of a number of significant migrations of people within the present-day boundaries of the country during the precolonial and colonial periods, resulting in a long history of diverse host-migrant relations throughout the country. As Whitehouse (2012) notes, there is a long history of interactions between locals and migrants, or 'strangers', across Sub-Saharan Africa in general, as well as a literature stemming from this (see for example Adida 2014; Shack and Skinner 1979). Whitehouse (2012) argues that the stranger in Africa falls within Simmel's (1950) elaboration of the term, which he sees as a paradoxical figure who is both part of and excluded from society, as in manifested in urban settings

through the frequent establishment of ethnic enclaves. In contemporary rural Africa, meanwhile, the question of land tenure norms – as defined by autochthony based on who is perceived as part of the 'native' group and who is defined as a stranger – 'is among the most crucial and controversial in African politics' (Boas 2009: 20).

In the Ghanaian context migrant-host relations are a long-standing feature of the country's social dynamics. As Yaro et al. (2011: 47-49) observe, precolonial flows consisted of the slave trade, as well as the migration of groups such as the Dagaba and Gonja from present-day Northern Ghana to the Gold Coast. Colonialism considerably altered the nature of internal mobility: while the territory formed the Gold Coast and Northern Territories, Krobo and other groups migrated southwards to establish palm and later cocoa farms, beginning in the early 19th century (Yaro et al. 2011: 50). The colonial period also witnessed the establishment of 'stranger' enclaves in a number of Ghanaian cities, including Accra, Sekondi-Takroradi, and Cape Coast (Yaro et al. 2011: 52). Meanwhile, in present-day Northern Ghana, there was a major influx of 'strangers' during the colonial period from nearby Francophone colonial holdings, namely Burkina Faso, Togo and Mali, which worsened existing pressure on farmland in areas in present day Upper East Region, for example (Yaro et al. 2011: 51).

In the specific case under investigation here, in-migration from Northern Ghana to Brong Ahafo in the postcolonial era has undergone different configurations in different parts of the region, as shall be explored in Section 4.3, owing to differing timescales and volumes of migrant arrivals. Tonah (2007), Lognibe (2008) and Yelsang (2013) all highlight how migrants have become directly or in-directly involved in low-level disputes over land ownership and land use in Brong Ahafo – which can be seen as one dimension of migrant-host relations. Tonah's (2007) focus is on disagreements between pastoralists and farmers – including migrant farmers – over land use and access near Yeji in the vicinity of Lake Volta. By contrast, Lognibe (2008) shows how migrants can be used as leverage in disputes *between* local landlords, as leasing lands to migrants is one strategy that is used to keep contested lands occupied on behalf of certain parties. Meanwhile, Yelsang (2013) looks at how migrants sometimes become embroiled in disputes over land use and rental payments *with* local landlords.

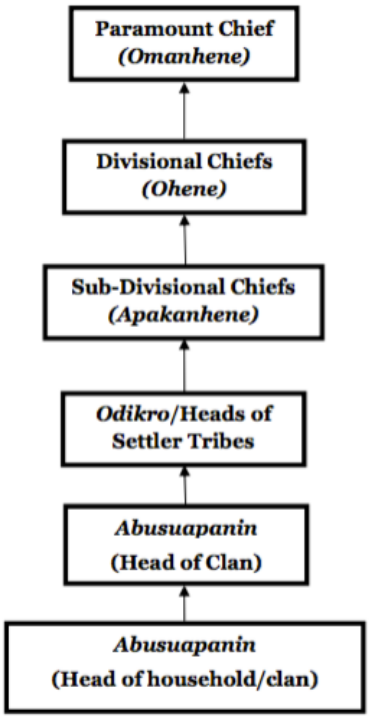
This thesis investigates migrant-host relations at three case studies in Brong Ahafo further, using migrant perspectives on their migration, as well as changing land tenure norms and environmental variability, as a lens with which to probe the relationship between migrant-host relations and how these interact with the local environment. While macro-level data show that migration is occurring to areas with lower population densities, wherever they move migrants must navigate local land ownership issues, including competing claims to land. With this general picture in mind, I shall now turn to an analysis of the district-level migration trends in the three districts where I conducted qualitative research. As I begin to drill down through complementary levels of analysis (district, community, and individual) I shall illustrate how migration can be usefully thought of as embedded in a wider 'complex adaptive system', even if only partial glimpses of this system are evident at each level of analysis. The large-scale, generalised pattern of migration from Northern Ghana to Brong Ahafo begins to emerge as coherent 'meso-level' sub-systems and 'micro-level' networks at the district- and community-level, respectively, which I argue reflects interactions between migration and specific structural factors in Brong Ahafo.

Section 4.3 District-level analysis of migration to Brong Ahafo: Potted histories of the three case study districts and district-level migration data

The three fieldwork case study sites all sit within the Brong Ahafo Region, which is the second largest administrative region in Ghana in terms of land size (39,557 square kilometres). As mentioned in Chapter 3.5, which covered how the case study regions were selected, each district has contrasting population density and agro-ecological conditions, thus providing an opportunity to conduct comparative research. In the case of Nkoranza South district, the district had a population of 96,370 in 2010, or 109.3 people per square kilometre, significantly higher than the regional average of 58.4 person per square kilometre (Ghana Statistical Service 2014: 30) – of which some 60 percent were active in agricultural production (Nkoranza South District 2010: 64). Between 1970 and 1984, the population of the region grew some 9.4 percent, which the district's 2010-2013 Medium Term Development plan attributes to a significant influx of migrant farmers from Northern Ghana during this period, noting 'The settlers established their own communities and named them after their towns from which they originated. These include Ouagadougou, Dassagwa, Anyingbekrom, Bobokrom, etc.' (Nkoranza South District 2010: 40).

The district's customary land tenure system is overseen by the Nkoranza Traditional Authority, which extends beyond the district boundaries, covering Nkoranza North and South Districts and Kintampo North and South Districts, reflecting the traditional customary area controlled by the Omanhene (or Paramount Chief) of Nkoranza (Nkoranza South District 2010: 55; refer to Fig 4.3 for an overview of the Nkoranza Traditional Authority structure). The land tenure system facilitates land access by both locals and migrants in Nkoranza South district, although the terms of access vary between the two groups, with the latter typically renting lands or sharecropping. To give a snapshot of this within the district context, a 2010 field survey suggested that some 66 percent of farmers in the district had inherited the land they were farming on, 28 per cent were renting their farmland and six percent had purchased farmland outright (Nkoranza South District 2010: 57).

Fig 4.3 Structure of Nkoranza Traditional Authority (following typical Akan chieftaincy structure)
Source: Nkoranza South District 2010



Wenchi Municipal District, by contrast, had a population of 89,739 in 2010, with a population density of 69.2 persons per square kilometre (Ghana Statistical Service 2014c: 16). The 'native' population is made up of the Bono ethnic group (which constitutes 50 per cent of the district population), as well as the Banda and Mo tribes (which account for 15 and four per cent of the district population, respectively; Wenchi Municipal District 2014). According to district figures, Dagaba and other migrants from Northern Ghana account for about 11 per cent of the district population (Wenchi Municipal District 2014). Large chunks of the district consist of woodland savannah inhabited mainly by migrant farmers, who practice commercial farming. These areas are characterised by perennial bush burning for charcoal or other purposes, relatively sparse population distribution relative to the rest of the district, and less developed basic infrastructure (Wenchi Municipal District 2014). Land tenure administration is overseen by the Wenchi Traditional Council, following the same hierarchical structure as in Nkoranza South District (refer again to Fig 4.3). Afikorah-Danquah (1997) thus observes that land access is achieved in the district through inheritable kinship, tenancy (hire or sharecropping),

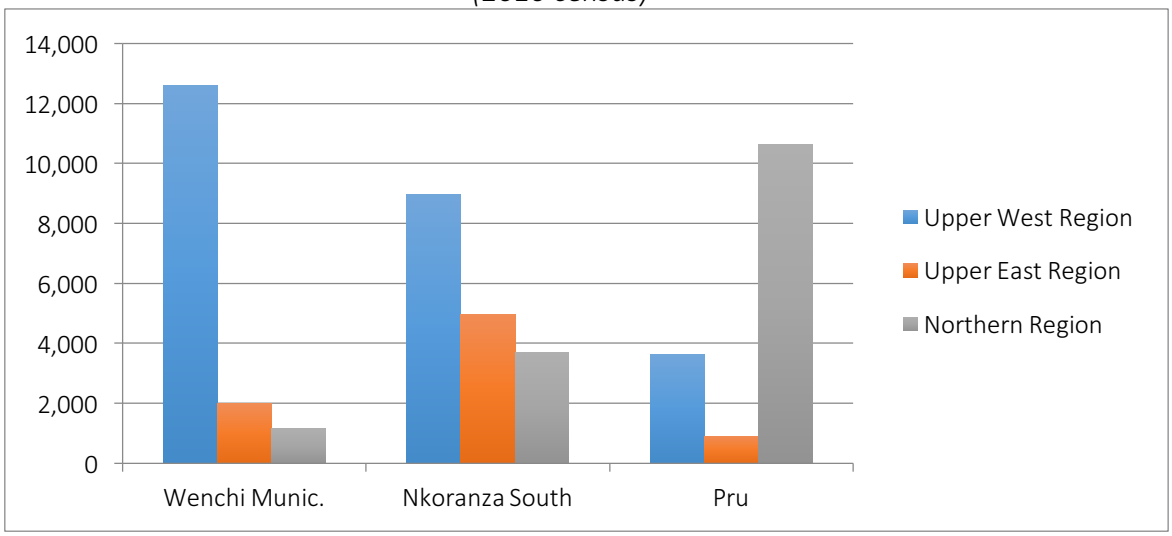
marriage, or through patronage-related gifting of land. As shall be discussed at length in Chapter 5, different groups of Northern Ghanaian migrants have differing types of access to land, based on varying levels of social capital, time of arrival in the area, etc.

In Pru District, meanwhile, the 2010 population was 129,248 persons, or 40.1 persons per square kilometre, which is well below the density of the other two sites. Around 15.5 per cent of the district's population in constituted of internal migrants, with arrivals from Northern Region (8.2 per cent) being the largest group. In contrast to the other two fieldwork districts, in Pru the 'aboriginal' group is the Nchurmurus, a tribal group which traces their arrival in the area from the 15th century (GhanaDistricts.com 2017). There are four separate paramount chiefs, covering the Yeji, Prang, and Konkoma and Abease areas of the district, following the same structure as in Nkoranza and Wenchi (see, again, Fig 4.3). A further sub-chief of Kadua has attempted to gain paramount status, which has been denied by the Yeji *omanhene*, a dispute that was ultimately forwarded to the Brong Ahafo Regional House of Chiefs for adjudication (Ghana National Peace Council 2016). This underscores the relatively fractured and contested nature of customary land administration in the district, in contrast to the other two districts where fieldwork took place. Despite the cultural heterogeneity of the area, *Twi* is the most commonly spoken language in the district. Along with agricultural activities, fishing and livestock rearing constitute important livelihood activities in the district, in contrast to the other fieldwork districts.

The district-level census data on migration for the districts where the case study communities are located provides a further meso-level picture of how in-migration trends across Brong Ahafo vary in terms of which areas attract migrants from particular origin regions, and also provides some insights into how this migration has evolved over time. As illustrated in Fig 4.4, data from the 2010 Ghana national census reveals the following migration 'sub-systems': In Wenchi Municipal District, migration from Northern Ghana is dominated by arrivals from Upper West Region; in Nkoranza South District, meanwhile, arrivals from Upper West also constitute the majority of northerners in the district, but flows from Upper East Region and Northern Region are also significant; and in Pru District, by contrast, arrivals from Northern Region are a clear majority, with migrants from Upper West constituting a significant minority. These district-level migrant

numbers show that migration flows from Northern Ghana are not uniform across Brong Ahafo, presumably due to particular constellations of social networks, differing migration histories and other factors such as transportation infrastructure and conditions at migration destinations that have attracted migrants from specific parts of the north.

Fig 4.4 District-level snapshot: Migration from Northern Ghana to case study districts (2010 census)[26]



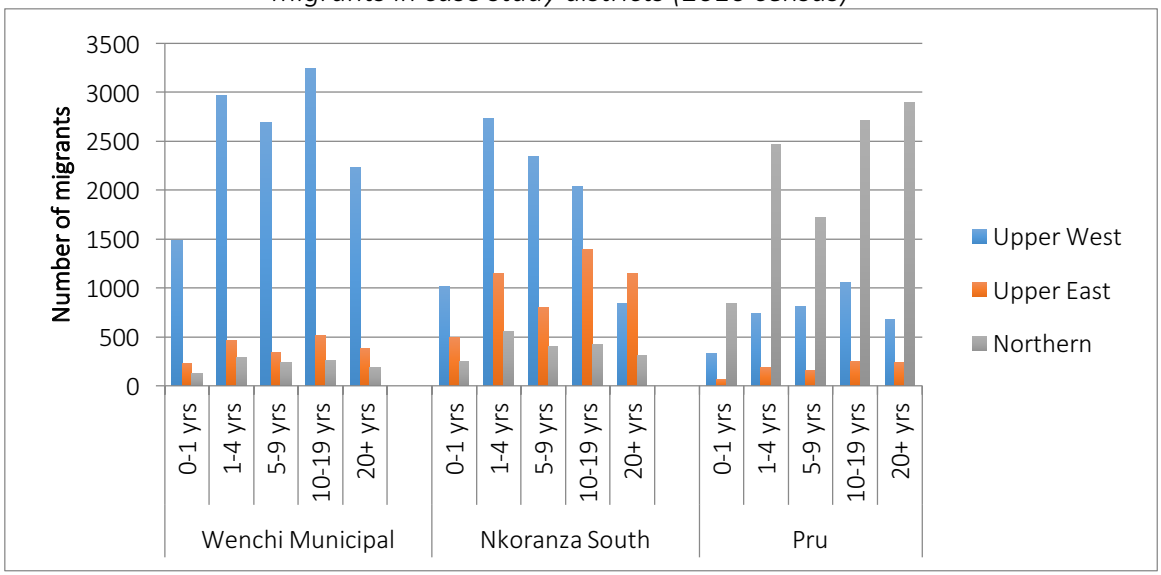
Moreover, data from the most recent Ghana census also shows that migration from Northern Ghana to all three case study districts has occurred at different rates historically (see Fig 4.5), especially where flows from the most significant migrant-sending regions are concerned. In Wenchi Municipal District, migration from Upper West has occurred fairly steadily over time and continues to be robust, with nearly 1,500 migrants from the region arriving in their current locality within a year of the 2010 census. In Nkoranza South District, by contrast, migration from Upper West appears to have accelerated in the past decade, whereas significant in-migration from Upper East has occurred at a fairly steady rate over time. Finally, in the case of Pru District, which is dominated by migration from Northern Region in terms of arrivals from Northern Ghana[27], those who have been in their current locality for over a decade represent more than 50 per cent of all migrants,

[26] Author's calculations based on GSS 2014a, GSS 2014b, and GSS 2014c.

[27] In addition to migration from Northern Region to Pru District, there have also been a relatively large number of arrivals to the district from other parts of Ghana, including Ashanti, Volta and Greater Accra – due to the migration of fisherfolk to Lake Volta and other factors (Tonah 2006).

pointing once again towards significant previous migration to the area that appears to have reduced in recent years, relatively speaking.

Fig 4.5 Internal migration trends over time: 'Years in current locality' of northern migrants in case study districts (2010 census)[28]



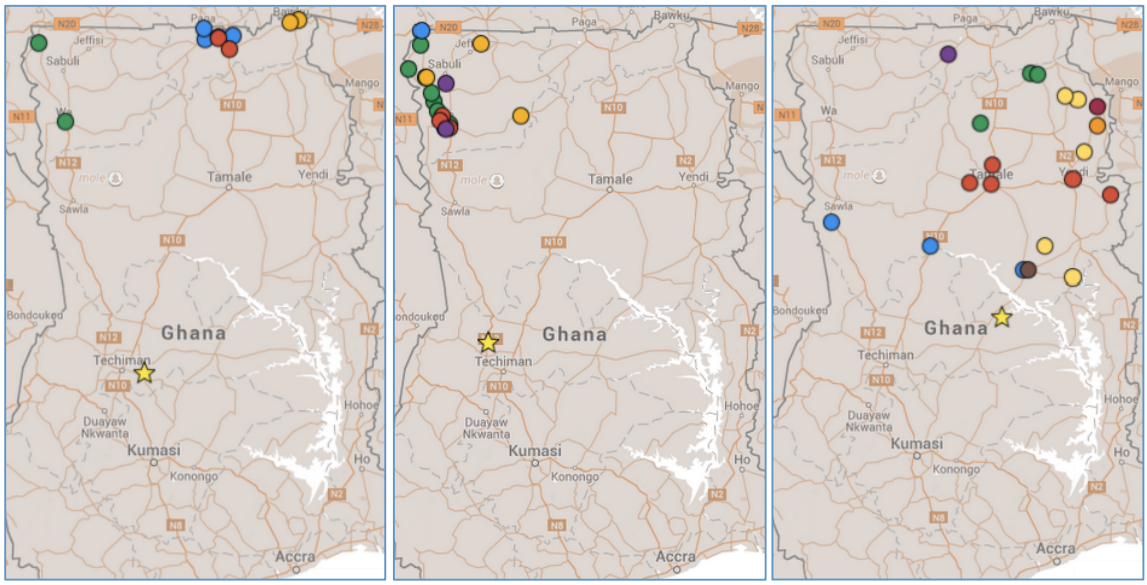
Interpreting the reasons for these changing flows over time involves some speculation, as even at the district-level these figures aggregate distinct migration flows that are responding both to factors at particular destinations and conditions in migrant origin communities. However, this data shows that migration has occurred along particular mobility corridors, and at different rates over time. With these meso-level trends in mind, I will now turn to my qualitative fieldwork findings, where I will explore how, given what we know about these district-level patterns of migration, looking at migration at the community- and individual-level can add additional granularity to our understanding of migration processes, helping us better understand how they interact with human and natural 'systems'.

[28] Author's calculations based on GSS 2014a, GSS 2014b, and GSS 2014c.

Section 4.4 Community-level migration flows: Understanding the interplay between social networks and opportunities at destination

Qualitative data from my fieldwork reveals that at the level of settler communities – which are a widespread phenomenon across Brong Ahafo – migration flows take on quite a distinct character. These flows are apparently the result of the interaction between migration networks and historical migration trends, on the one hand, and how such networks interact with local factors, including land tenure practices, population density, ecological conditions and infrastructure linking migrant origin communities and specific destinations. In each of the three case study sites, quite different local migration patterns had emerged.

Fig 4.6 Community-level flows: origin communities of migrant interviewees in Nkoranza South (left), Wenchi Municipal (centre) and Pru (right) field-sites[29]



As Fig 4.6 illustrates, the Nkoranza South site was dominated by migration from Upper East Region, with members of the Grusi ethnicity forming a strong majority. Thus, this

[29] NB: in Fig 4.6, the approximate location of field sites is indicated by the 'star' icon. For **Nkoranza South district field-site dots represent origin communities as follows**: Grusi = blue; Frafra = red; Kusasi = yellow; Dagaba = green. **For Wenchi Municipal district field-site dots represent origin communities as follows**: Dagaba = green; Sissala = yellow; Wala = red; Mossi = blue; Fulani = purple. **For Pru district field-site dots represent origin communities as follows**: Gonja = blue; Chokossi = orange; Konkomba = yellow; Dagomba = red; Mamprusi = green; Buli = purple; Nchumuru = brown; Anufo = maroon.

research site defied the overall district level in-migration trend (refer again to Fig 4.4) that has seen the majority of in-migration occur from Upper West Region. As I shall explain below, this is due to a clear pattern of 'chain migration' at this particular site, with a large number of migrants following a small handful of pioneer settlers from Upper East, and has largely occurred since the 1980s, as a result of significant changes in land availability in the area. At the Wenchi Municipal site, by contrast, migration has been dominated by arrivals from Upper West, with prominent groups including the Dagaba, Sissala, Wala and Mossi. The timing of initial waves of migration to this site occurred from the 1940s onwards, reflecting a long-standing mobility corridor between northwest Ghana and this part of mid-Ghana (which was sometimes used as a staging point for destinations further south). At the Pru site, meanwhile, arrivals typically hail from the relatively nearby Northern Region, although my interview data shows that the communities of origin are quite widely dispersed. Migration to this site has occurred solely within the last 30 years – when this settler community was established – and at least some of this migration has been influenced by the long-running conflicts in Northern Region between so-called majority and minority ethnic groups over customary land tenure rights.

Interview data collected during my fieldwork in the first half of 2014 helps shed further light on the distinct migration histories of these three settler communities, and illustrates how migration can be a lens for understanding underlying social and environmental systems in these areas. For example, in the case of migration from Upper East to the Nkoranza South site, much of this was spurred by bushfires in 1983 that destroyed the cocoa plantations that existed in the area, causing many erstwhile cocoa farmers to either abandon their farms completely or switch to other crops, with maize being the most common replacement. It was in this context of significant land use change that migrants from Upper East began arriving to the area *en masse*. As articulated by one Grusi pioneer migrant who came in the years just prior to the bushfires (when the local migrant population was sparse and mostly employed as labour on cocoa farms), the migrant population swelled in the intervening years, owing to the newfound availability of relatively good farmland in the area, which was available through sharecropping and/or rental agreements with local landlords. He noted, 'I went and informed them [other Grusi]

that the land was fertile and that they should come. … Yearly, we have been bringing people down' (Nkoranza interview 3).

Although Grusi migrants constitute the majority here, there are other minority ethnic populations from Upper East residing in the settler community, including Frafra and Kusasi, along with a small number of Dagaba migrants from Upper West (see Fig 4.6 for origin communities of migrant interviewees). Generally speaking, migration from Upper East to mid-Ghana was clearly significant in the early 1980s, when droughts affected much of Ghana. This is also supported by my own interview data at this case study community. Another Grusi pioneer migrant commented:

> Before the [1983] fire, people were not coming…in their numbers. After the fire, for about three years, there were plenty of people coming here as well as to other places around the Nkoranza area (Nkoranza interview 9).

As shall be explored in Section 4.5, the majority of these migrants remain part of trans-local social networks, with both patrilineal family hierarchies as well as linkages between distant kin and non-kin relations playing a role in migration decisions, ongoing mobility dynamics and the flow of money, food, other material goods, and information between Brong Ahafo and Upper East.

Likewise, the case study site in Wenchi Municipal District reflects distinct migration dynamics that link particular origin communities in Northern Ghana – in this case in Upper West Region – to this part of Brong Ahafo. In this community, Dagaba migrants are the clear majority, complemented by other arrivals from Upper West including Wala, Sissala, Mossi, and Fulani migrants (see Fig 4.6). As Amanor and Pabi (2007: 55-56) note, major state-led farms were established in Wenchi Municipal District in the 1960s, which helped draw northerners to the area as seasonal farm labourers, and eventually contributed to the permanent settlement of northern migrants. My interview data indicates that migration from Upper West Region began as early as the 1940s, although the Dagaba only began arriving from the 1960s onwards. As one second-generation Dagaba migrant relayed:

> [My parents] came in the early 1960s, in the 'time of Nkrumah'[30]. … They were one of the first Dagaba families to come here. They walked [from Upper West] to this spot! … [T]hey came here to earn some income. They came to labour and then went back. Finally, they came and acquired land and got stuck to the place. Before that they were going back and forth (Wenchi interview 8).

Social networks – for the most part – remained active amongst migrants who were part of my interview sample, with even second-generation migrants sending remittances, material goods and regularly visiting kin relations in Upper West, showing the apparent durability of such networks. New migrant arrivals were also still coming to this settler community – and to the district in general, as illustrated by Fig 4.5.

At the research site in Pru District, by contrast, the settler community was composed of a range of different groups from Northern Region, including the Chokossi, Dagomba, Mamprusi, Gonja, and Konkomba, as well as tribal groups such as the Anufo, Buli, and Nchumuru (see Fig 4.6). Prior to the community's establishment, some migrants – or their kin – had settled in the general area many decades previously, with the Konkomba and Gonja in particular reporting a long history of pioneer migrants moving southwards in order to gain access to farmland. As mentioned above, the migration history of this site has undoubtedly been partly influenced by the long history of conflict over land rights and chieftaincy in Northern Region, the most serious outburst of which was the so-called 'Guinea Fowl War' in the 1990s. This conflict – which was waged between the Konkomba, a 'minority' ethnic group, and 'majority' ethnic groups Gonja and Dagomba – affected eight districts, displaced upwards of 200,000 people and claimed between 2,000 and 25,000 fatalities, according to wide-ranging estimates (Oelbaum 2010: 2). Although most of the migrants who were part of my interview sample came from communities that were outside of the areas affected by the conflict, a minority of respondents did indicate that they left Northern Region specifically to get away from trouble at home. However, other migrants were motivated by a similar set of issues to those in the other two research sites, most notably the scarcity of good quality farmland in Northern Region, as shall be discussed in more depth in Section 4.5. As with the other sites, migrants in this

[30] Kwame Nkrumah was Ghana's first president and prime minister following independence, and served from 1957-1966 before being deposed by a military coup.

community generally retained active links with kin in the north, with continued migration, fostering arrangements, regular visits, remittances and other forms of material support being some of the concrete manifestations of these continued linkages.

The community-level perspective of these migration histories reveals additional important dimensions of how migration is related to a wider set of complex interactions in Brong Ahafo. As accounts from the Nkoranza site show, sometimes seemingly small changes at destination can drive big changes in localised migration flows. In the case of the Wenchi site, by contrast, older migration flows continue to feed a trans-regional connectivity between Brong Ahafo and Upper West, with second-generation migrants remaining involved in continuous exchanges with northern kin. In the Pru case study site, meanwhile, migration from Northern Region represents part of a long-standing response to both land scarcity and conflict over land in communities of origin, and to relatively attractive farming prospects at this destination. Thus, considered through the lens of CAS theory, these distinct histories invite us to consider why certain flows have happened in different locations, across different timescales, and how they are inter-related to social conceptions and uses of land.

Section 4.5 Individual-level views: Mobility, networks, and material and information flows

At both the regional and district level, it's clear that certain factors have influenced the emergence of migration flows from specific origin points in Northern Ghana to particular destinations in Brong Ahafo Region, apparently due to a confluence of factors that include historical migration patterns, opportunities to gain access to relatively fertile land in a relatively sparsely populated region and the existence of particular mobility corridors, partly dictated by transport infrastructure. At the individual level, migrants' narratives of their own mobility tend to echo these factors, albeit with a specific focus on: (1) kin or other social linkages that brought them to their current location; (2) problems or limitations of life at home in Northern Ghana that encouraged them to migrate; and (3) the recurring theme of Brong Ahafo constituting a place of 'greener pastures' from a farming perspective, relative to their prospects at home. These were common components of migrants' narratives about their mobility in all three of my case study communities. As this section will show, migrants' narratives reveal that they are active 'agents' who tend to be involved in trans-local social networks, which facilitate the continuous flow of people, money, goods, and information between Northern Ghana and Brong Ahafo. However, these networks are not without inequalities: As shall be explored in detail in Chapter 7, migration livelihood trajectories vary widely for migrants in all three case study communities, with some experiencing transformative livelihood changes, others having more modest improvements, and still others apparently stuck in cycles of 'farming at a loss'.

4.5.1 Migration decisions and return migration intentions

The factors that influenced migrants' decisions to leave the north and move to Brong Ahafo varied considerably in all three case study sites. However, the question of *where* people moved to was – with only a few exceptions among my interviewees – usually expressed in terms of having kin connections already at destination. Thus, while the motivating factors underlying migration varied among sub-groupings of migrants, social networks consistently acted as a conduit that facilitated flows to the case study sites,

helping to explain the peculiar character of district-level and community-level migration flows discussed earlier in this chapter (refer to Figs 4.5, 4.6, and 4.7), and validating Bakewell et al.'s (2011) argument that 'migration systems' – consisting of trans-local social linkages – can be highly influential in directing migration to particular locations.

At the Nkoranza South site, men expressed a variety of reasons for pursuing migration, including accessing better farming opportunities, getting money for marriage dowries, funding their education, or escaping 'family problems'. Migrants' own narratives show how kin connections and economic reasons for migration decisions can form fluid linkages, and that the former are an important factor in migrants' decisions to relocate to specific destinations, amid a plethora of options of where to move to. For example, one Frafra male migrant remarked:

> My sister was married to someone who was living here, and so I came down here to labour. I worked as a labourer for two years, and then I acquired my own piece of land (Nkoranza interview 22).

Similarly, a Grusi male migrant recalled how he arrived in the community as a result of having kin located there, after previously migrating to another location: 'I came almost 20 years ago, because I had an uncle here. Before that, I moved to Kumasi, and worked for about 11 years…there' (Nkoranza interview 20).

At the Wenchi site, the more established nature of the community meant that a large number of migrants were of the second-generation and had not played an active role in their parents' decision to migrate to Brong Ahafo. In the case of other long-term migrant residents and more recent arrivals, access to fertile farmland, marriage or kin linkages, and the opportunity to earn higher incomes were again significant motivating factors that helped to spur migration. As articulated by one elderly Sissala male migrant who initially came to Brong Ahafo in the 1940s:

> There was hardship [in the north], so I came over here to farm. ... I went to my brother's place at Dormaa [Brong Ahafo], then from there I moved to this place, because I heard that the land here was fertile (Wenchi interview 16).

Similarly, the account of one female Dagaba migrant showed the transient, kin-oriented nature of northerners' mobility in Brong Ahafo:

> At first, we lived at Nkawsaw [Brong Ahafo], since we [she and her then-husband] had paid my father a visit there. [After my divorce] I came here because my brother was here, and I engaged in *pito* selling[31] (Wenchi interview 18).

In Pru District, reasons for migration included conflict in the North – particularly the 'Guinea Fowl War' of the 1990s, which was directly referenced by a handful of my respondents as the main reason that they decided to move to Brong Ahafo:

> I had some relatives here; I had previously been displaced by the 1990s conflict [in Northern Region]. I was looking for a place, and I decided to come here. I came to farm, as my relatives here were also farming (Pru interview 31).

However, for other migrant arrivals who had moved from areas outside the conflict area, a structural scarcity of good quality farmland was a key motivation for migration. One Dagomba male migrant, who had moved to the area over 20 years ago, noted:

> We used to farm over there, in Northern Region. But the land was difficult to get and it had lost its fertility. My grandfather was here…and so I joined him (Pru interview 8).

Other reasons for migration included fostering arrangements, professional placements of kin in the area, and, in the case of a number of widows, reunification with children at destination following the death of a spouse. Overall, links with kin at destination were often articulated as a key reason for choosing to move to this destination, in particular. For example, one Mamprusi man, who arrived over 30 years ago, noted, 'My sister got married to a man who was from this place, so I followed my sister to this place, as my brother-in-law was here' (Pru interview 14).

Across all three research sites, gender was a significant factor in individual migration decisions. Many of the migrants in my sample were living together with their spouse in Brong Ahafo, and in such cases women had often moved together with husbands or re-joined them following their initial settlement in Brong Ahafo. In some cases, single men from Northern Ghana also worked in order to earn money for marriage dowries, before returning to their communities of origin to find a wife and then return to Brong Ahafo. In other instances, single women from Northern Ghana – most typically divorced and

[31] Pito is a millet-based beer that is commonly brewed in Northern Ghana and is also found in settler communities – and elsewhere – in Brong Ahafo.

widowed ones – also moved to the case study communities, usually to join kin such as siblings or offspring. Thus, although recent research shows that young women from Northern Ghana have increasingly migrated on their own in recent years, including to work as 'porters' in urban markets (see for example Awumbila and Ardayfio-Schandorf 2008), such flows were not evident at my case study sites.

Meanwhile, return migration intentions varied between the three sites – and were most often expressed in the case of the planned return of older migrants to their communities of origin, especially for the purpose of senior men who had ascended to the role of 'head of the family', and in the case of some migrants who were struggling to make ends meet (see Chapter 7 for further analysis of the relationship between differentiated migrant livelihood trajectories and future migration intentions). In some cases, these family responsibilities clearly ran counter to migrants own personal preferences. As one Dagaba male migrant at the Wenchi Municipal District research site remarked:

> I'm not going back…this is my home! When I go there [to Upper West], I will not know anyone and I will become a stranger. All my friends are here! … Unless I need to become the head of the family: Then there is no choice. They will come and carry you back! (Wenchi interview 6)

Others expressed a general desire to retire in their home communities in the north when they had finished farming in Brong Ahafo. However, in most cases, return migration was contingent on the completion of a successful migration project, which allowed migrants to 'get money' in order to prepare for their return. As one Grusi male migrant from the Nkoranza South research site noted, 'If I get money, I'll go, but without it, I'll stay, so it's 50-50' (Nkoranza interview 2). By contrast, many others expressed a clear desire to retire in the settler communities that they had relocated to. One Chokossi male migrant at the Pru research site commented, 'I have no plans of going back. I have land… and I have peace. And here I also have a house' (Pru interview 1).

As evidenced by the above interview extracts, seasonal migration before taking up 'permanent' settlement in Brong Ahafo was relatively commonplace, showing the continuum between 'temporary' and 'permanent' types of migration. While step-migration from other destinations in Ghana to Brong Ahafo was not the norm among migrants, it was evident in a significant minority of cases, both in terms of movement

from other farming communities within Brong Ahafo and in the case of relocating from locations in neighbouring Ashanti Region. As with other forms of migration, information received by migrants from kin and other relations about farming opportunities at specific locations in Brong Ahafo was indicated by migrants as being pivotal in influencing their decisions to relocate.

4.5.2 Social linkages: Remittances, visits, and other links

Whatever migrants' reasons for moving to Brong Ahafo initially, the majority of migrants remained embedded in social relations with northern kin and acquaintances. These were extremely active social networks that were typically characterized by factors such as relatively frequent visits to Northern Ghana (particularly for funerals or festivals), migrants sending internal remittances, food and other forms of material support to northern kin, and flows of people from the north for temporary or seasonal migration, fostering arrangements, and short-term visits. Relatively cheap travel via *tro-tros* (group taxis) is a key component of this ongoing mobility, and until recently travel served as the primary way of passing information from the north to Brong Ahafo, per my interview data. These social linkages are now easier to maintain due to the penetration of mobile phone technology in Brong Ahafo: Many migrants now own mobiles or have access to one via others in their settler communities.

In Nkoranza South, remittance levels tended to vary widely, reflecting a fairly substantial divergence in the success of migrant farmers in this settler community, as well as the importance of larger remitters in enhancing their families' prestige and status through the funding of elaborate funeral arrangements, as well as housing, schooling and healthcare needs. As one senior Grusi migrant noted of the support he sent to relatives in Upper East:

> There, too, they farm. If they don't get a good yield, I will send 15 bags of maize to the [family] house; if they do get a good yield, I'll usually send 6 bags. I also

> usually send around 1,000 [Ghanaian] cedis[32] a year. … They use it for school fees, hospital bills, funerals, and other uses (Nkoranza interview 14).

On the other end of the spectrum, less successful or struggling farmers were only able to send small remittances, exclusively sent support in the form of foodstuffs, or – in rare cases – gave no support at all. However, smaller levels of support also tended to be tailored to the specific needs of kin. As another Grusi migrant noted:

> If there is no problem, I usually send money once per year. But if there are some problems, I send money two or three times a year. One hundred cedis is the usual amount. I also send food, usually between a half bag and a full bag of maize (Nkoranza interview 2).

In Wenchi, visits and remittances were also common, particularly among the Dagaba – even though many of these were second-generation migrants who had grown up away from Upper West Region. First-generation Dagaba migrants were also often buried in their communities of origin, reflecting the durable nature of social networks for this group, in particular. As one second-generation Dagaba migrant noted:

> I send food and cash because life is much more difficult there than here, so once you go there, they will be looking for something. So you have to go and prove it [that you are successful] (Wenchi interview 7).

However, support from second-generation Dagaba migrants was usually relatively small (typical remittances per visit were usually 50-100 cedis) in comparison to their first generation migrant counterparts at Wenchi and other research sites. For example, a senior Sissala migrant who was planning to move back to his community in Upper West and take up the mantle of head of the family took 300 cedis home for each of his three-to-four annual visits. He remarked, 'It's used for food for visitors who come to the place. We have a feast, with a cow, goat and all the rest of it' (Wenchi interview 18). In both the case of smaller and larger monetary gifts, however, it was clear that an important dimension of these material exchanges was about maintaining social networks, based on ongoing practices of patronage and attempts to enhance family prestige.

---

[32] At time of writing (18 August 2016), 1 Ghanaian cedi = 0.19 pounds sterling.

Similarly, in Pru District visits and remittances were common – although the prohibitive cost of sending food to Northern Region via Lake Volta meant that, compared to the other two sites, fewer migrants sent food crops to northern kin, instead sending cash for relatives to purchase food or other goods. One Konkomba migrant, who had been displaced by fighting during the 1990s, commented:

> I send them [his relatives in Northern Region] 600-1,000 cedis a year. Part of it is for healthcare purposes, to pay for health insurance. They also use it for buying clothes, soap, and other daily essentials (Wenchi interview 31).

In this settler community, fostering arrangements for the purpose of education were common, both in terms of northern kin sending children to Brong Ahafo, and migrants sending their children in the opposite direction. At times, these multiple forms of support for kin in Northern Region overlapped: As one Chokossi migrant commented, 'I send them [Northern relatives] 600 cedis a year. I am also supporting three brothers who are here, including paying their school fees' (Pru interview 6).

Frequent visits to the north were fairly common for all but the poorest farmers – or in rare cases where migrants had become estranged from northern kin. Most migrants went to the north at least once a year, while others went as many as three-to-four times a year, often to attend funerals or deal with other family matters. The existence of migrants' trans-local social networks was also not confined to their origin communities and the settler communities in which they resided. Many migrants indicated that they were in regular contact with members of their ethnic groups who lived in other communities in Brong Ahafo. As one Frafra migrant at the Nkoranza South research site remarked, 'They [other Frafra migrants] are circulated all around Brong Ahafo. I meet them at the market [in Nkoranza], or they come here to visit, or I see them at funerals, too' (Nkoranza interview 4).

Section 4.6 Conclusion: Conceptualising Northern Ghanaian migration to rural Brong Ahafo as part of a 'complex adaptive system'

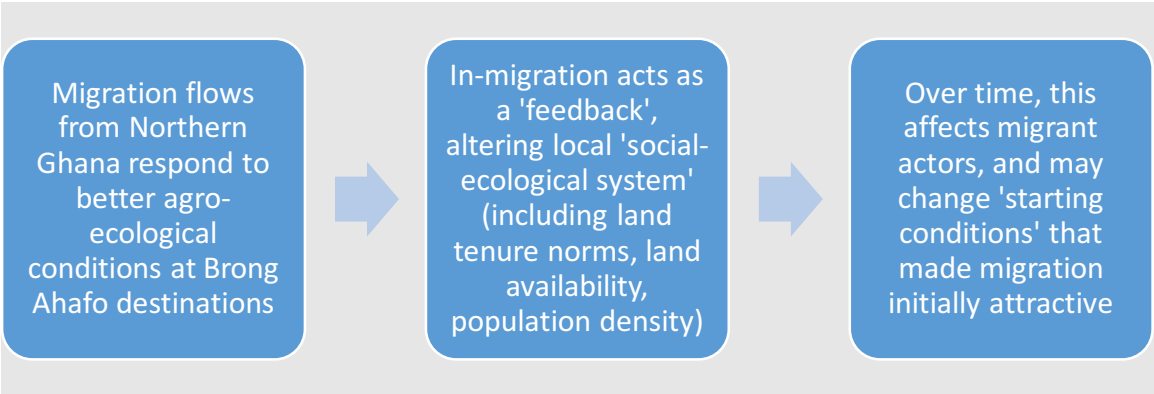
This chapter has examined the increase in (semi-)permanent migration from Northern Ghana to Brong Ahafo, where the majority of migrants are engaged in smallholder commercial agriculture. By conducting an analysis of migration processes at the regional, district, community and individual level, this chapter has demonstrated that migration patterns emerge as part of locally evolved conditions at specific migration destinations, and the subsequent emergence of trans-local social networks. At the meso- and macro-level, migration patterns also correspond to particular mobility corridors, reflecting transport infrastructure and other contingent factors. The chapter has also considered Northern Ghanaian migration to Brong Ahafo in a wider national and historical context in order to show that current migration flows are the latest iteration of historical mobility patterns from Northern Ghana to mid-Ghana for the purpose of labour in agriculture.

This analysis has sought to tease out the interplay between migration patterns and other social and environmental factors. Migrants' own accounts of their mobility reveal two important points. Firstly, migration from Northern Ghana to Brong Ahafo is clearly mediated by trans-local social networks. These operate along the lines of what Bakewell and colleagues (2011: 5) refer to as 'migration systems', which they define as trans-local networks that help to direct migration flows to particular destinations, in way that is far from 'random'. Secondly, the perception that better livelihood opportunities are available to migrants in Brong Ahafo in comparison to their prospects in Northern Ghana is an important factor that drives this migration. However, a different perspective on migration emerges when considering the evolution of community-level migration histories across the three case study migrant communities. Different lessons are evident across the three case study sites. The Nkoranza South site suggests that migration can be highly sensitive to sudden changes at would-be migration destinations, with social networks in this case facilitating a fairly rapid flow of migration from Upper East Region to this destination in response to changes in land availability. The Wenchi and Pru district sites, by comparison, show that migration can also follow more slow-burning patterns, with previous waves of migration facilitating the continuous flow of people, goods and

information between northern communities and Brong Ahafo, even in cases where new 'permanent' migrant arrivals begin to reduce.

These small-scale interactions between migrants and their destinations in Brong Ahafo provide greater granularity to what we already know about migration from Northern Ghana to Brong Ahafo via census data that captures flows at the district and regional level, as well as analysis by van der Geest and colleagues (2010) that links in-migration to areas with relatively low population densities and relatively high vegetation cover. Through this analysis, a clearer picture of how migration patterns have developed over time emerges, and we can also begin to trace the outlines of how migration is part of a complex adaptive system in Brong Ahafo, interacting with co-evolving local conditions such as land availability and population dynamics. Thus, the migration of farmers to rural areas in Brong Ahafo has a very particular role in the 'human-nature system' that is co-evolving in this part of Ghana. Migration is at once an expression of historical and current social and environmental factors in Brong Ahafo, and also plays a potentially important role in redefining land use practices and land tenure norms. In other words, migration is one important feature of in 'frontier' agricultural dynamics that, Amanor (1994) argues, have characterized changing farming practices in Ghana's transition zone since the 1970s.

Fig 4.7 Migration from Northern Ghana as a 'feedback'



In this context, I argue that Northern Ghanaian migration – on one level – represents a 'feedback', which has responded to particular conditions in Brong Ahafo's 'social-ecological system' in recent decades (as shown in Fig 4.7). This includes comparatively better farming opportunities for Northern Ghanaians, especially linked to the relative abundance of arable land and a better rainfall regime. However, I argue that a key

dimension of conceptualising internal migration to Brong Ahafo as a 'feedback' is that this process inevitably leads to change in the local 'social-ecological system' over time. To again return to Ramalingam's (2013: 156) definition of a 'feedback' cited in Chapter 2, it describes a process by which 'a change in an element or relationship…alters others, which in turn affect the original one'. Thus, in-migration has the potential to set in motion changes that alter the very conditions that have made Brong Ahafo a relatively attractive migration destination in recent decades. An example of the dynamic relationship between in-migration and the local 'complex adaptive system' is examined in Chapter 5, which focuses on how in-migration has contributed to a context of changing land tenure norms in parts of the region over recent decades. How migration influences – and is influenced by – such processes of rural change and transformation also affects how different actors (including migrants) perceive and respond to environmental (or other) shocks or stresses, as explored in Chapters 6-7. Thus, thinking about migration as a 'feedback' that affects social and ecological factors at rural migration destinations opens up a theoretical space for exploring the climate-migration nexus in the wider context of both local and regional 'social-ecological system(s)'.

Chapter 5: Migration and land tenure: Understanding the relationship between population mobility and changing tenure norms in Brong Ahafo Region

Section 5.1 Introduction: Conceptualising migration, land tenure and wider development linkages as part of a 'complex adaptive system'

As Wolford (2015) argues, in Sub-Saharan Africa development efforts have long taken rural Africans as their primary focus, with debates often centred on how to transform the use of rural land that has often been viewed – from the European colonial period to the present-day – as under-utilised or 'empty'. Despite such efforts, Sub-Saharan Africa's rural peasantry remains a significant structural feature of the region, with 64 per cent of the region residing in rural areas in 2011, and 54 per cent being employed in agriculture as of 2012 (FAO 2014). In this context, the contested, overlapping nature of claims to rural land in Sub-Saharan Africa are part of the 'agrarian question' (see for example Bernstein 2004), which grapples with the apparent paradox of the persistence of the region's peasantry. This is rendered all the more complex by legal pluralism concerning land ownership and administration, which Boone (2015) argues exists on a continuum from 'statist' to 'neo-customary' forms of land administration in different states in Sub-Saharan Africa, and by the recent explosion of large-scale land acquisitions (or 'land grabs') that have occurred across rural parts of the region in recent years (see, for example, Cotula 2013).

In Ghana, mobile populations interface with this wider debate about rural transformations, in general, and more particularly in relation to land tenure, in multiple ways. Migrant populations have long been a key form of agricultural labour in the country, with Northern Ghana in particular being a source of labour for agricultural efforts in Southern and mid-Ghana in the pre-colonial, colonial and post-colonial periods (as shall be discussed in Section 5.2). Relatedly, mobile populations have contributed to changing agricultural practices in Ghana. For example, internal migration was integral to the shifting of Ghana's cocoa frontier during the course of the twentieth century, as migrants frequently established new areas of cocoa production in southern Ghana (Amanor 1994). Moreover, migrants to rural areas have also played an important role in the continual

reconstitution of customary claims to land in various settings. Migrants typically occupy the role of 'outsiders' within customary land tenure frameworks, who lack nativist claims to land, and thus they usually rely on arrangements with local hosts in order to access farmland, with these agreements in turn refracted through local power relations and potentially overlapping claims to land ownership (see, for example, Lognibe 2008).

This chapter focuses on the relationship between mobile populations and wider rural transformations through a discussion of in-migration and changing land tenure norms in Ghana's 'transition zone' in Brong Ahafo Region. It explores these issues by looking at the following research questions: What are migrants' terms of access to land, and how have these evolved over time in different parts of Brong Ahafo Region? What does this reveal about migrants' (supposedly) marginal place in customary land administration hierarchies? Thus, it probes how mobile populations interact with customary land tenure institutions in Brong Ahafo, in particular, and broader concerns about rural development and poverty reduction, more generally. These migrant farmers are, on the one hand, increasingly hardwired into commercial agricultural markets, and, on the other hand, completely dependent on rain-fed agriculture for crop production. Thus, as with farmers elsewhere in the West African region – and the Global South more broadly – they face a potential *double exposure* to both market and climatic shocks (Nyantakyi-Frimpong and Bezner-Kerr, 2015). Indeed, Murray Li (2014) and Weis (2007) have both highlighted that smallholder farmers in the Global South are facing increasingly risky forms of participation in global agricultural markets, with debt and land loss being relatively common among smallholders in the post-structural adjustment era. As Nyantakyi-Frimpong and Bezner-Kerr (2015) note in the case of Northern Ghana, climate change – manifested through environmental shocks or stresses – often exacerbates smallholders' increasingly risky positionality with respect to global markets.

However, in the specific case under investigation here, migrants have moved out of a context of relative poverty in Northern Ghana, with farming opportunities in Brong Ahafo representing a comparatively attractive livelihood option to many Northern Ghanaian migrants – despite the risks involved. As Nyantakyi-Frimpong and Bezner-Kerr (2015: 41) observe, Northern Ghana remains a development 'paradox on virtually every front', with 80 per cent of the population engaged in agriculture, food insecurity and child

malnourishment affecting high levels of the population, and poverty rates typically two-to-three times the national average. Significantly, as Marchetta (2013) and Awumbila et al. (2015) have separately demonstrated, internal migration is a livelihood strategy more often pursued by less well-off households in Northern Ghana. Van der Geest (2011a) has argued that this is in part related to a structural scarcity of good quality arable land in Northern Ghana, which he cites as a key reason for out-migration to rural destinations in Central and Southern Ghana, including Brong Ahafo and Western Region[33] [34].

In this chapter, I am interested in the relationship between in-migration and changing land tenure norms, both in terms of how these two processes are mutually informing one another and with regard to their wider effect on the complex adaptive system in Brong Ahafo Region. With this central focus in mind, this chapter is structured as follows: Section 5.2 provides an overview of the existing debate on land tenure in Sub-Saharan Africa, in general, and Ghana, in particular, with a specific focus on how this relates to marginalised groups, including migrants. Section 5.3 presents comparative findings from the three case study communities in Brong Ahafo Region where I conducted my research, highlighting locally-specific land tenure norms, as well as commonalities, across the three sites. Section 5.4 concludes by positioning these findings within the wider national and West African context, in terms of re-thinking the relationship between migration, changing land tenure norms and the wider processes of rural change in the region.

[33] Another key factor of farmer migration in Ghana is the fact that southern destinations have a more favourable rainfall regime than Northern Ghana: For example, Brong Ahafo has two rainy seasons per year, with peak rains occurring from May-June and September-October, which constitute the major and minor growing seasons respectively (see Owusu and Waylen 2013), compared to just one annual rainy season in Northern Ghana.

[34] Refer to Moller-Jensen and Knudsen (2008) for a discussion of how this has emerged as a key secondary migration flow in Ghana, according to 2000 census data.

Section 5.2 Land tenure, migration and poverty: Existing debates in West Africa

As Boone (2015) notes, Sub-Saharan African states differ in the extent to which they legally recognize customary tenure, with some states featuring out-right government ownership of rural lands (what she refers to as 'statist' systems) and others legally recognizing traditional customary land tenure systems (which she terms 'neo-customary', owing to the contested and fluid nature of such systems). It would be difficult to underestimate the importance of customary tenure in Ghana, which conforms to Booth's 'neo-customary' model. As Ubink (2009: 52) notes, 'In Ghana, the 'customary' dominates both property rights and allocational authority: 80% of land is regulated by customary law, with a decisive role for traditional authorities.' Traditional Authorities, or chiefs, are recognized as the 'legitimate owners over the land and representatives of the rural people' (Amanor, 2005: 117). This status, though it has its roots in pre-colonial Ghana, was solidified during the colonial era[35] when Ghana's British colonizers adopted a system of indirect rule that formalised existing chieftaincies (and in some cases created new ones where no clear, formal chieftaincy existed), and was reinforced after Ghana's independence in 1957, when recognition of customary tenure was included in the country's new constitution (Amanor 2008). However, the ultimate authority of chiefs over customary land runs parallel to the *de facto* ownership rights of local families, who often pass user rights to specific pieces of land down from generation to generation (see, for example, Afikorah-Danquah 1997).

In recent years, a number of scholars have emphasised that customary tenure is not a fixed and unchanging indigenous institution, but rather one that is continuously re-constituted in myriad contexts throughout Sub-Saharan Africa. For example, Lentz argues in this regard:

> customary tenure… has never been as static or homogeneous as many policy makers and researchers have assumed. Even in pre-colonial times, and more so during colonial rule and after independence, indigenous tenure regimes were not coherent and stable systems of rules and beliefs, but contested pastiches of historically grounded arguments about property rights and access to land

[35]When the territory was known as 'Gold Coast'.

> resources as well as to membership in the local political community (Lentz 2013: 8).

Ubink (2009: 50) notes that scholars have debated the implications of the continuous re-negotiation of customary land tenure for users and elites, as well as the wider implications for development in Sub-Saharan Africa over the past half century. Between 1960-1980, the widely held view among many scholars was that customary tenure represented a barrier to development, with its inherent ambiguity creating insecurity for producers and discouraging investment (see, for example: Acock 1962; Feder and Noronha 1987; Yudelman 1964). More recently, however, the debate has focused on the links between membership in social networks, political processes and access to land, with disagreement emerging over whether such engagements increase the prospect of poor people being able to access land through such social connections (cf. Berry, 1993: 104; see also Toulmin and Quan, 2000; and Toulmin, Lavigne Delville and Traoré, 2002), or whether in fact this only exacerbates inequality, owing to stratifications within social networks and local power structures (see for example Daley and Hobley, 2005; Juul and Lund, 2002; Lund, 2000; and Woodhouse, 2003).

One key area that this debate has focused on is the relationship between customary land administration and women's access rights. In their influential critique of women's access rights under customary land administration systems, Whitehead and Tsikata (2003) note that customary tenure regimes can exacerbate gender-based inequalities. They argue that there are, 'considerable problems with so-called customary systems of land tenure and administration for achieving gender justice with regard to women's land claims' (Whitehead and Tsikata 2003: 67). They observe that, in the context of wider Sub-Saharan debates about the utility of the 'customary' in ensuring equitable access to the land for all land claimants:

> …insufficient attention has been paid to power relations in the countryside, and the implications for social groups, including women, who are not well represented in local-level power structures (Whitehead and Tsikata, 2003: 67).

Empirical studies of the relationship between gender and land in Ghana have shown that these intersections are fairly context-specific. For example, Awumbila and Tsikata (2010) present two different case studies of land tenure, gender and mobility in rural Ghana. In

a gold-mining operation in Upper East Region, they found women were typically excluded from access, while in the lower Volta River Basin, women were able to get access to mangrove farming areas, although their terms of access were often not as favourable as those available to men. Harvey et al. (2012) meanwhile, found a link between the out-migration of men from Ghana's lower Volta River Basin and women's ability to access to land under customary control – with men's absence meaning that women were often formally excluded from access to customary land. Relatedly, recent research from Maconachie and Fortin (2016) shows that in southern Ghana women are often excluded from 'fair-trade' cocoa farming operations, due to their lack of full 'user rights' to customary land.

Migrants are another notable 'marginal' group within customary tenure frameworks. In the case of Ghana, the particular positionality of migrants from Northern Ghana within land tenure systems elsewhere in the country has evolved significantly over time. In pre-colonial times, mid-Ghana was dominated by the rise of the Ashanti and other imperial states from the 16th century onwards. In this context, slave-raiding from what is present-day Northern Ghana was one practice used to acquire agricultural labour by the Ashanti and other groups (Amanor 1994: 45). As mentioned in Chapter 4, slave labour from present-day Northern Ghana was also essential to the establishment of Ghana's cocoa sector in Southern Ghana, although the eventual prohibition of this practice by the country's British colonizers led to the emergence of sharecropping arrangements between Northern Ghanaian tenant farmers and their southern hosts (Austin 2006: 201). Overall, there were typically limits to the extent to which migrants could better themselves through engaging in tenant farming, as it was not possible for them to establish cocoa farms in the more arid north, and for most sharecroppers it was difficult to acquire permanent landholdings in mid-Ghana (Austin 2006: 206).

Generally speaking, in the postcolonial context, land tenure norms in Ghana have continued to evolve, as changes in land availability and other factors have taken root. This has especially affected how land is transferred among family members who have a customary claim to specific pieces of land – and, naturally, has had implications for migrant-host relations in different parts of the country. As Amanor argues, since the 1970s:

> Increasing scarcity of land has hindered the transmission of land across generations, as well as the use of gifts of land within the family to build up family labour networks. … Increasing areas of family land are allocated as sharecrop arrangements to non-kin rather than being inherited by kin members (Amanor 2008: 72).

Not surprisingly, the nature of such arrangements has meant that migrants have been involved in land conflicts in some parts of Ghana in recent years. For example, Quan et al. (2008) observe that pilot land registration projects in Ghana's Eastern and Western Regions created tensions over contested claims to land, including land allocated to migrants. Boni (2008) further documents how migrants have been caught up in conflicts with land owners in Western Region in recent years, in some cases being forcefully removed from the lands they were culivating by youth working under the instruction of local chiefs. Lobnibe (2008) notes that in Brong Ahafo, village chiefs sometimes intentionally allocated contested land to migrants, with such arrangements intended to solidify their own underlying claims to these tracts. This is in line with Amanor and Pabi's (2007) argument that under customary land administration in Brong Ahafo, where multiple parties may have potential claims to land, keeping land continuously occupied—via agreements with migrants or otherwise—is one way of expressing de facto land ownership.

As will be explored in Section 5.3 of this chapter, such changing land tenure norms appear to reflect a wider set of processes, including land availability, generational power cleavages, and the emergence of more commercialised land rental markets. However, these processes are clearly happening at differing paces in different parts of Ghana. For example, Amanor observed of Brong Ahafo's transition zone in the 1990s that, 'The area is one of the least densely populated in Ghana. Land values are not highly commoditized, unlike in other areas of the forest' (Amanor 1994: 34). The relative abundance of available farmland in Brong Ahafo is one factor that has encouraged in-migration of tenant farmers from Northern Ghana to the transition zone in recent decades, a process which itself has begun to alter social perceptions of land in different parts of the region. However, migration is just one dimension of ongoing change and transformation that has been taking place in Brong Ahafo's complex adaptive system. As shall be explored below, in-

migration and changing land tenure norms interface with a wide array of processes that are, to varying degrees, global and local in their origins.

Section 5.3 In-migration and evolving land tenure norms: Comparative findings from Brong Ahafo

This section explores how tenure arrangements between migrants from Northern Ghana and their local hosts have evolved over time in the three case study communities, according to qualitative interview data collected in 2014. There is not a single story about how customary land tenure and migration interact. Rather, evidence from the three case study sites where I conducted research shows that there is considerable variability in the terms of land access for migrants across Brong Ahafo Region, ranging from commercialised cash rental agreements to more 'traditional' sharecropping or 'tribute' arrangements (the latter being based on annual food crop 'tributes' given to landlords at harvest time). These arrangements represent a snapshot of continuously evolving land tenure norms, based on the interplay between a wide range of influential factors, including migration, land's quality and availability, population dynamics, agricultural markets, development initiatives, and international land investments deals. This section explores how the relationship between migrants and changing land tenure institutions emerges through small-scale interactions observed at the three research sites.

5.3.1 From cocoa to corn, and forest to farmland: Evolving land use practices and in-migration in Nkoranza South District

This research site, situated in Nkoranza South District, is inhabited largely by migrants from Ghana's Upper East Region, including Grusi, Frafra and Kusasi migrants, as well as a minority population of Dagaba migrants from Upper West Region. Additionally, there are settlers from earlier waves of migration from Volta Region and Ashanti Region, who came to the area in the decades following Ghana's independence when it emerged as a site of cocoa production. Subsequently, food crops have replaced cocoa (as shall be described in more detail below), with maize being the primary crop of choice among most farmers, although it is complemented by watermelon, yam, beans, groundnuts, cashew and cassava.

According to qualitative interviews with both long-time migrant residents and locals, land tenure norms and land use practices have undergone a significant transformation in recent decades at this location. As one local woman remarked regarding land tenure conditions in the 1960s and 1970s, during a time when the area was largely utilised for cocoa production:

> Formerly there wasn't any [land] demarcation: The chief would just show you a piece of land and you would farm up to where your strength could take you [after clearing the forest] (Nkoranza interview 6).

She added that following bushfires in 1983 that destroyed local cocoa plantations, many local residents who had previously engaged in cocoa farming moved out of the area, although they often retained *de facto* ownership over the land they had previously cultivated by renting it out to migrant tenant farmers from Northern Ghana.

The intervening years since the destruction of the area's cocoa plantations have seen a significant growth in the size of the community – from less than three dozen households in 1983 to at least 200 in 2014, primarily as a result of migration from Ghana's Upper East Region. One of the key reasons Northern Ghanaian migrants gave for moving to Brong Ahafo was the comparative ease in attaining relatively fertile farmland. As one Kusasi migrant from Upper East Region remarked, 'There is scarcity of land [in Upper East Region]. You will not get one acre to farm on!' (Nkoranza interview 23). Since the 1983 bushfires, and the subsequent arrival of migrant tenant farmers from Northern Ghana seeking farmland, land tenure norms in the area have become increasingly commercialised. As one farmer who had been in the community for over 60 years remarked, 'After the fire, that's when the *abusa* [sharecropping] system started, and some landlords began charging rents from 1985' (Nkoranza interview 1). At the time of my research, the cost of renting land in the community had risen to 50 Ghanaian cedis an acre, per growing season (or 100 cedis over both major and minor growing seasons). Despite the emergence of the land rental market, some farmers were still engaged in

abusa arrangements with landlords, while in other cases farmers paid a bag of maize[36] per acre to the landowner at the end of each growing season.

Over time, in-migration had begun to create a degree of land scarcity in the community. According an elderly Grusi migrant who was one of the only migrants from Upper East Region living in the community prior to the 1980s bushfires:

> Now we don't have any reserve land, whereby we know that a particular area is fertile. We used to move around from this land to that land. Now there is a scarcity of land, and bush fallowing has not been followed. Formerly we would leave a piece of land for two-to-three years and then go back to it, but now there is no land [to accommodate this] (Nkoranza interview 9).

My interviews in this research site also suggested that Northern Ghanaian migrants' fairly marginal place in local customary land tenure hierarchies affected their land use practices. They were often limited to growing seasonal crops – as opposed to more permanent tree crops such as cashew, which are increasingly common in the district – and sometimes changed plots of land due to a decrease in the fertility of the land they farmed the previous season. There were also other actors who vied for natural resources in the area, and which presented a potential threat to migrant tenant farmers having access to farmland through rental and sharecropping agreements year after year. These included the logging of forests – sanctioned by land owners – as well as a potential gold-mining operation, which was rejected due to protests by residents in a neighbouring community in the year prior to my 2014 fieldwork, according to interviews with local residents.

In general, since the opening up of land to northern migrants after the bushfires in 1983, it's clear that rental agreements based on cash payments have become increasingly common, even as some farmers retain *abusa* arrangements, or pay at the end of the growing season via 'acre/bag' (of maize) arrangements. As one senior Grusi male migrant commented, when asked if it was still possible for new arrivals to the community to get access to farmland: 'Provided you have the cash, you will get land!' (Nkoranza interview 3). This points to a confluence between increased migration, the finite availability of local farmland, and the increasing commercialisation of land that is under customary tenure.

---

[36] Worth about 70 Ghanaian cedis, at the time of fieldwork.

This phenomenon can be seen as related – at least in part – to demand from migrant tenant farmers for land, which has increased as migrant numbers have swelled.

In this context, there were parallel land access systems at work. Better capitalised farmers were able to gain access to plots of land from local landlords by paying cash rents, while less well capitalised farmers were more likely to be engaged in share-cropping arrangements, or *abusa,* where migrants typically gave one-third of their harvest to landowners. Those who had access to 'family land' at this site – i.e. plots of land that were passed down from previous migrant generations – were not typically migrants from Northern Ghana, but rather migrants from Ashanti or Volta Regions, whose families had come to the area for the purpose of establishing cocoa farms prior to the 1980s, when land tenure norms were more 'traditional', with the local chief often giving out plots of land in exchange for tribute (usually involving the formal presentation of drinks, such as Schnapps, and a small annual tribute of yams or other food crops). There were also, in general, generational cleavages in terms of access to land: In the case of most young men, farming plots were small and many youths were hoping to potentially pursue off-farm livelihoods in the future (Nkoranza young men's focus group discussion). Migrant women often assisted with men's farming at this site, or had small plots of their own, and were less likely to be involved in commercial farming or successful market trading, in comparison to the other two case study sites.

5.3.2 Unintended consequences of development: Smallholder farming in the shadow of big agricultural ventures in Wenchi Municipal District

This research site featured a large population of Northern Ghanaian migrants from Upper West Region – including Dagaba, Sissala, Wala and Mossi migrants – in part due to the establishment of state-run farms, as well as private plantations, in its vicinity beginning in the 1960s. Although most of these bigger farming operations ultimately failed, owing to the unsuitability of local soils to intensive, mechanized agriculture, they attracted significant numbers of migrant labourers from Northern Ghana, some of whom subsequently became involved in smallholder tenant farming in the area (Amanor 2013). As Amanor (2013) points out, the practices of smallholders in this part of the region –

including those of migrants – have undergone substantial shifts in recent decades, with changes in the availability of farm subsidies for chemical fertilizer inputs and the relative decline in soil fertility due to farming using tractors leading many farmers to shift away from growing maize – the dominant crop in the 1970s and 1980s – towards a combination of cassava, groundnuts and inter-cropped maize. This was also true at the case study community where I conducted research. Additionally, yam – a crop historically dominant in this part of the region – also remains the main crop produced by some farmers in the case study community. Some smallholder farmers in this area were also producing tobacco on a contract basis for British American Tobacco, an international conglomerate, until the company ceased its production activities in the area in the 1980s, according to one senior member of the community (Wenchi interview 22).

This part of Brong Ahafo is more arid than the Nkoranza case study site. Additionally, a particular feature of this site is that tenant farmers tend to access land from landlords in nearby village communities. Access to farmland for Dagaba migrants was often achieved via the local land rental market, a process that was smoothed in some cases through membership in migrant social networks, which provided access to meetings with landlords via relatives or other relations who could vouch for migrant newcomers. As one second-generation Dagaba migrant explained,

> The lands have different owners, and every owner has their terms: If you don't agree, you can quit [the land] … You have to go to that community [where they live]. Usually, if you know someone who is already farming on their land, you can go with them (Wenchi interview 8).

Many Muslim migrants, including Sissala, Wala and Mossi migrants, also acquired land through rental market in neighbouring settlements. There was a wide range in the cost of farmland that was available, according to interview data, varying from between 20-50 Ghanaian cedis per growing season (or 40-100 cedis a year, over the major and minor rainy seasons). This depended on both the individual terms of the landlord, as well as the varying suitability of different plots of land for specific crops, with some farmers willing to pay a premium for more fertile land. The cost of renting farmland has apparently increased incrementally over recent decades. As one Mossi migrant who had arrived 20 years previously remarked, 'It [the rental price] has increased steadily. About once every

two years, they [local landlords] will add something small. It went from 6 to 8 to 10 to 15 [cedis per season]' (Wenchi interview 3).

However, some migrants at this site were able to get more favourable terms of access to land either through patronage-related gifts of land, financial transactions, or favourable family-access arrangements agreed previously by their migrant kin. For example, one way that some Muslim migrants were able to acquire land was through intermarriage into local Muslim families. As one Mossi migrant remarked, 'A man here that I met took me as his son. I married someone from this place, and so that man gave me the land for nothing' (Wenchi interview 2). In the case of another research participant, a Sissala migrant was gifted a large tract of 100 acres of land as reciprocation for paying the medical expenses of a local resident (Wenchi interview 9). Some migrants also benefitted from more 'traditional' arrangements entered into by relatives in previous decades, which had been carried over year after year. An example of such an arrangement was described by one Dagaba farmer:

> When we came here [in 1975] … we were able to get land through [a neighbouring village], by paying dues to the chief. … We don't pay rents on the land, but we give a token to the chief [every year], usually some tubers of yam and 20 cedis (Wenchi interview 21).

In this community, a number of migrant women had established themselves as successful market traders, and were earning significant income from this profession, showing that land access was not the only mediating factor of migrant livelihoods in this case study community. Women also sometimes farmed plots as a form of insurance in cases where their primary income came from running small businesses or market trading, in some cases using their harvests to boost their trading activities.

Overall, the lands accessed by migrants were typically smaller at the Wenchi site than in the other two research sites, reflecting the more fragmented nature of land access in this community (see Chapter 7 for more in-depth analysis of migrant land holdings in the three case study sites). Thus, processes of negotiation over land were taking place against the backdrop of increasing scarcity of good quality farmland. Although in the 1970s this part of the region was relatively sparsely populated, and chiefs made large areas of land

available to migrant farmers (see Amanor 2013), more recently acquiring land has become relatively difficult. Thus, a number of migrant settler communities have been established in more remote parts of the district in recent decades where there is less pressure on land, as documented by van der Geest (2011b). As one Dagaba farmer in the case study community put it, '…forever we are tied here. If you go somewhere else and leave the land that you are farming, someone else will come along and take it!' (Wenchi interview 7).

5.3.3 Pru District: Cross-river migration for better farming prospects

The majority of the migration from Northern Ghana to this case study site is from the relatively nearby Northern Region, which lies just across Lake Volta from Pru District. The main migrant groups in this community include the Gonja, Konkomba, Dagomba, Mamprusi, and Chokossi. Despite the fact that this part of the region is relatively arid in comparison to the other two case study sites, the availability of farmland, including the existence of the seasonal floodplains of Lake Volta (known locally as 'the riverside') offer relatively good farming prospects. Indeed, disputes over customary land ownership in Northern Region have been a key reason for migration to Pru District, and are also the main cause of long-running violent conflicts in Northern Region, in particular between the Konkomba, Dagomba and Gonja. Thus, as Tonah (2007: 245) comments, for migrants coming from Northern Region, the farming opportunities in Pru District are comparatively 'rosy', although he also notes that the influx of migrants is one factor that has led to relatively higher population density and increased demand for farmland in the district in recent years.

In this case study community, there was a nearly universal practice of more 'traditional' forms of land access, with migrants typically paying yam 'tributes' to local landowners or chiefs at harvest time. Pru District's traditional authority, Yeji Traditional Council, has itself endured an ongoing chieftaincy dispute (see, for details, Ghana National Peace Council 2016) in recent years, and as a result customary authority over land is relatively fragmented within the district (refer to Chapter 4.3 for more details). Thus, migrants in this case study community accessed land through several different village chiefs, who

exercised control over differing sections of farmland in the vicinity of the community. One Chokossi migrant outlined the typical process through which land was acquired by migrant arrivals:

> Before I acquired the land, I presented two bottles of Schnapps to the chief of [the]…village. Then at every festival we also give some yams [as further tribute to the chief] (Pru interview 1).

Additionally, it was common for migrants who followed kin to the community to initially gain access to farmland via farming part of their relatives' existing plots of land (as was sometimes also practiced in the other case study communities). This was particularly the case for Konkomba and Gonja migrants, who have a longer history of migration to this area than other migrant groups from Northern Region. In the case of some more successful farmers, this initial access to 'family land' provided them with a platform to expand to bigger farming plots, in some cases farming multiple plots simultaneously. However, in other cases farmers with access to family land were merely cultivating small plots that had been fragmented among several family members from one initial kin member's original access arrangement, and thus had limited potential to earn income via their farming activities.

Overall, migrant farmers at this site were able to access comparatively large plots of land when judged against trends from the other two case study sites. Interviews at this site revealed two types of land access emerging across the settlement's diverse range of ethnic migrant groups from Northern Region: (1) Those who had over ten acres of land were more likely to have accessed land directly for chiefs or land-owners; (2) those with smaller pieces of land were more likely to be farming on part of a relative's plot of land. Women often farmed small plots of male relatives' land – although a number of migrant women were able to earn relatively lucrative non-farm incomes as market traders in nearby Yeji market, trading in both farm produce and smoked fish. Those who had access to more than ten acres of farmland were also more likely to have arrived in the community earlier, when land was more readily available[37].

[37] The average time spent in the community of this cohort (N = 22) was 17.8 years, compared to 12.2 years for those who had access to ten acres or less of farmland (N = 38).

Competing claims to land at this case study site included the presence of Fulani pastoralists who were common in the area, with cattle sometimes destroying tenant farmers' crops as they moved across the landscape. Despite long-standing (and partly successful) attempts to mediate land use disputes between herders and farmers in the district (see Tonah 2007), my research findings suggest that the destruction of crops by cattle remains an issue among migrant tenant farmers. Additionally, the establishment of two major biofuel plantations in the district in recent years alienated a significant amount of erstwhile farmland from smallholder producers, although this land was previously being used mainly by 'local' farmers, rather than migrant tenant farmers, according to local migrants (Pru interview 13)[38].

As with other research sites, the interface between migration and land tenure norms at this site revealed locally-evolved social relations between people and land. While it's unclear based on my qualitative research data why land tenure arrangements retained a more 'traditional' configuration in this case study site in comparison to the other case study communities, an initial hypothesis is that this may have been due to a combination of factors, including the relatively remote location of this site in the regional context, the fragmented nature of the local chieftaincy, and the relatively poor quality of the local land and rainfall regime in comparison to other parts of Brong Ahafo. However, this more 'traditional' type of access did not preclude the existence of concurrent processes of large-scale land transactions occurring in the district, with the aforementioned recent establishment of biofuel plantations – via access negotiated with chiefs – being one example of this.

Across the three sites, there were gendered dimensions to land access. Although women were able to gain access to land under land rental systems – particularly in Wenchi – and usually had access to 'family land' if such plots were available within their kin networks, they were often times excluded from more patronage-based land exchanges. However, there were a wide range of experiences among women I interviewed, with some

[38] One of these plantations had ceased operation for 18 months prior to my fieldwork, apparently due to financial difficulties, yet the land remained under biofuel cultivation – and thus alienated from potential use by smallholder farmers.

successful market traders in Wenchi and Pru producing crops that they could then trade in markets. For other women, farming was confined to small plots, with meagre harvests sometimes serving as form of insurance if they had off-farm small business ventures or forms of petty trading. In other instances, married women helped out with husbands' farms, rather than pursuing their own separate crop harvests.

Section 5.4 Conclusion: Land tenure, migration and processes of land fragmentation and accumulation

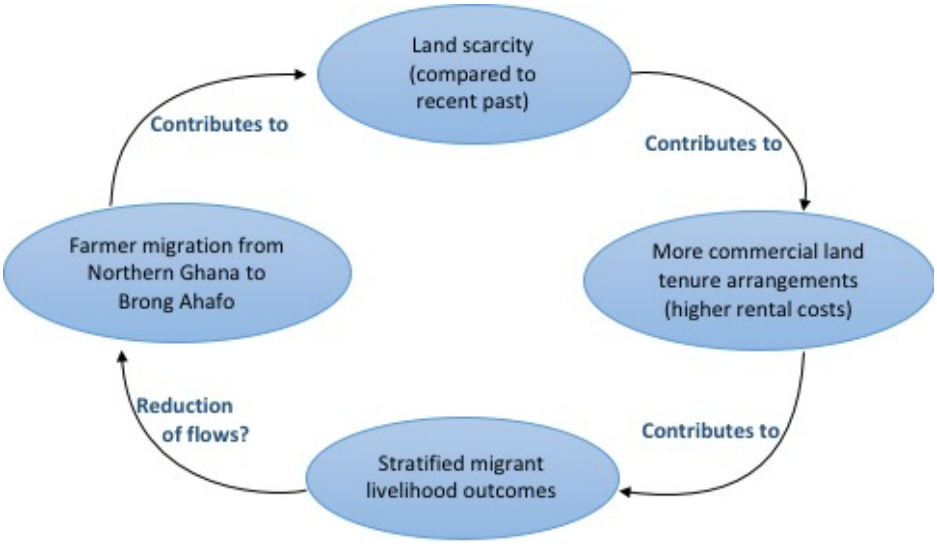
The qualitative research presented in this chapter suggests that the relationship between migration and land tenure in mid-Ghana – when considered as embedded in a wider 'complex adaptive system' – is influenced by factors such as land's availability and shifting population density. As Amanor (1994) and van der Geest et al. (2010) have both argued, albeit in different ways, migrants have been drawn to Brong Ahafo's transition zone in recent decades in part due to the relative abundance of arable land and the lack of heavily commercialised terms of access, which exist elsewhere in the Ghana's forest region. However, as the qualitative research findings presented in Section 5.3 of this chapter highlight, land tenure norms across the region have begun to change in recent years, with terms of access for migrants becoming increasingly commoditised in some parts of the region, even as other parallel forms of land tenure access continue to exist.

The qualitative findings from the three case study communities show that there are multiple configurations of land tenure arrangements between migrant tenant farmers and local hosts operating in the region. On the one hand, land is increasingly viewed as a quasi-commodity, which can be rented to migrants, or leased to them under sharecropping arrangements such as *abusa*. On the other hand, more 'traditional' social relations to land also continue to exist, including the notion of land as gift that can be given as a means of patronage, or in reciprocal exchange, as well as the ceding of land to migrants by chiefs or other local hosts in exchange for annual 'tributes' of yam or other crops. I argue that this spectrum of land tenure configurations can be theorised as part of a wider 'complex adaptive system': In the context of significant migration to Brong Ahafo in recent decades, the negotiations around land between migrants and their hosts are just one dimension of a wider set of co-evolving social and environmental processes in the region.

Thus, the myriad configurations of land tenure in part reflect the 'diversity' of local responses to broader changes across the region, that include increased integration of farmers into global markets, environmental variability, and overlapping, competing claims to land within local customary tenure institutions from both 'hosts' and 'strangers'.

Therefore, while changing land tenure norms are influenced by factors such as in-migration, as well as relative land scarcity in comparison to recent decades (due to increasing population density), these wider transformations apparently have significant variability at the local level. In this context, migrants who arrived at destinations in Brong Ahafo when more favourable land tenure norms existed, or who have inherited 'family land' under favourable terms from migrant relatives who preceded them, are at a comparative advantage, relative to more recent migrant arrivals. While the increasing *double exposure* of smallholders to market and climatic shocks (as theorised by Nyantakyi-Frimpong and Bezner-Kerr 2015) means that land tenure norms are only one dynamic that affects livelihood outcomes for migrant tenant farmers in a context of overlapping risks, it is nevertheless possible that changing land tenure norms may over time have a wider, amplified effect on the evolving 'complex adaptive system' in Brong Ahafo, particularly with respect to migrant tenant farmers' livelihood outcomes.

Fig 5.1 A negative feedback? More commercialised land tenure norms in Brong Ahafo and eroding migrant livelihoods – a possible future trajectory



Thus, as shown in Fig 5.1, the relative scarcity of farmland (in comparison to past decades) as well as changing land tenure norms, which are generally becoming more commercial, may serve as a 'feedback' that has a negative impact on the livelihood trajectories of many migrant farmers, ultimately diminishing the attractiveness of Brong Ahafo's transition zone as a migration destination. Changing land tenure norms may be beginning to undermine migration to Brong Ahafo as a potential pathway out of poverty for

Northern Ghanaians, except in the case of a small minority of commercially successful migrant farmers (for more detail on this, see Chapter 7). In part, these changes reflect broader processes happening at the regional and national level, including recent large-scale economic reforms. As Awumbila and Tsikata (2010: 99) argue, since the economic liberalization that accompanied Ghana's experience of structural adjustment in the 1980s, there have been contradictory processes of *concentration* of land in the hands of certain economic interests, as well as *fragmentation* of land holdings, in particular among rural smallholders. This has resulted in, 'significant inequalities in access to land and its resources' (Awumbila and Tsikata, 2010: 99).

These joint processes of the fragmentation of smallholders' land holdings and terms of access as well as the concentration of land in the hands of relatively powerful economic interests are often mediated through customary land tenure institutions in mid-Ghana. For example, chiefs have acted as the brokers of large-scale international land deals in recent years, with customary tenure increasingly being interpreted as outright *ownership* of land in these cases, on par with private property. Amanor explains the power dynamics of this relationship as follows:

> The allodial rights of chiefs have often been upheld and used by government, which frequently works through the chiefs to expropriate peasant cultivators. These claims enable rural farmers to be easily expropriated in the national interest or in the interest of development. Compensation for the land is only paid to the chief as the owner, while farmers only receive compensation for the crop on the land. Thus the chiefs gain direct economic benefit from the expropriation of their subjects (Amanor 2008: 68).

In the case of Brong Ahafo, there has been major investment in teak, cashew, and exotic mango approved by local chiefs in recent decades (Amanor 2008: 76-77), as well as investment in the biofuel plantations for jatropha (Schoneveld 2013), although in the case of the latter many of these investments have apparently failed[39]. Such land investment is part of a significant wave of global investment in farmland in countries across the Global South over the past decade, in particular, prompting claims of a new, unprecedented

[39]George Schoneveld, personal email communication, 2012.

'land grab' (see for example, Schoneveld 2011; Fairhead et al. 2012; Cotula 2013; Scoones et al. 2013; White et al. 2013).

The internal migration of tenant farmers from Northern Ghana to Brong Ahafo interfaces with these larger processes on multiple fronts, with migrants at once creating greater demand for land – in some cases enhancing local perceptions of land's value – while at the same time retaining a relatively marginal position in local customary land tenure power structures. In a context in which, as Amanor and Pabi (2007) have highlighted, keeping land continuously occupied is one way of expressing *de facto* land ownership, rental or sharecropping agreements with migrants can help solidify locals' claims to (potentially contested) land. At the same time, migrants from Northern Ghana are also moving to Brong Ahafo partly as a result of a structural scarcity of good-quality farmland in *their* communities of origin, as highlighted by van der Geest (2011a), showing that issues regarding land access are vital at both ends of the migratory chain.

It is through this lens that it is necessary to evaluate the complex relationship between migration, evolving land tenure norms, changing market conditions and other key factors in Brong Ahafo. While migrant tenant farmers from Northern Ghana move to Brong Ahafo in order to access comparatively better agro-ecological conditions than those that exist in many of their origin communities, their livelihood trajectories at destination are also affected by 'feedbacks' such as changing land tenure norms, which change the conditions through which they are able to access farmland. As discussed in Chapter 7, my research shows that stratified livelihood trajectories among migrant tenant farmers were evident across all three sites, despite the existence of different terms of land access, suggesting that the commercialisation of land tenure norms in parts of Brong Ahafo Region is only one dimension of a process whereby more commercially savvy farmers are essentially crowding out competitors – whether migrant or local. As Amanor (2012: 731-732) notes, land dispossession of smallholders in Ghana is not only a process that happens from above, through international land investment deals and the like, but also from below, through the expansion of more commercially successful smallholder farmers. He argues:

> the increasing commercialisation of smallholder production and its integration into global agri-food chains results in the expansion of more successful commercial smallholders at the expense of less commercial producers, or in the

> movement of producers with options into other sectors leaving those less able to absorb declining margins of profit to fend for themselves (Amanor 2012: 731-732).

Thus, while the relative scarcity of land (in comparison to recent decades) and the emergence of more commercial land tenure norms represent an additional barrier to some migrants accessing farmland in Brong Ahafo, this is only one aspect of a wider relationship in which migrant tenant farmers operate in more commercially competitive global agro-markets. As shall be explored in Chapter 6, such shifts potentially exacerbate the sensitivity of migrant livelihoods to environmental factors, in particular seasonal rainfall variability.

Chapter 6. Environmental change and migration to rural 'frontiers': Assessing migrant perceptions of environmental change at migration destinations in Brong Ahafo's transition zone

Section 6.1 Introduction: Accounting for the role of environmental factors at rural migration destinations – a blind-spot in research on the climate-migration nexus

In recent years, there has been an explosion of literature on the relationship between migration and environmental change – as highlighted in Chapters 1-3. However, much of this literature has focused on how environmental factors impact on people's decisions to migrate *away from* their communities of origin, rather than on how environmental conditions may impact outcomes for migrants in the places that they are ultimately *moving to*. With this latter question in mind, this chapter picks up on a key finding of the *Foresight Report on Migration and Global Environmental Change* (Foresight 2011; referred to for the remainder of this chapter as the *Foresight Report*), which observed that in the coming decades migrants are increasingly likely be moving into areas that are characterized by a high degree of vulnerability to environmental shocks or stressors. It takes as its case study the migration of farmers from Northern Ghana to Ghana's 'transition zone' in Brong Ahafo Region, which has emerged as one of several active 'agricultural frontiers' in Ghana since the 1970s, in order to investigate the relationship between this migration and environmental factors at destination.

The internal migration of Northern Ghanaian migrant farmers to Brong Ahafo offers a valuable case study in which to consider the question of how 'climatic factors' are relevant at migration destinations for two reasons. Firstly, these migrants are leaving what is typically seen as a marginal environmental zone, with limited agro-ecological prospects for many residents, in order to migrate to an area with comparatively favourable agro-ecological conditions, but one in which *livelihoods are nonetheless highly exposed to environmental change(s),* including rainfall variability, bushfires, and soil degradation. Secondly, it offers an opportunity to explore the impact of environmental change at rural migration destinations, whereas the limited attention paid to this issue thus far has mainly focused on migration to cities, in particular those sited in low-

elevation coastal zones at risk of sea-level rise or flooding, where informal housing settlements – which are often home to migrants – are particularly vulnerable (see Adams et al. 2012; Sward 2012).

This chapter utilises comparative qualitative research conducted in three migrant settler communities in Brong Ahafo Region in 2014, which sheds light on migrants' perceptions of environmental change at their destinations, as an entry point for discussing how environmental change impacts migrants at destination. It seeks to answer the following research questions: What are migrants' perceptions of environmental change and variability and how do they perceive environmental risks to be affecting their livelihood prospects? Can migrant narratives about environmental change be interpreted as part of their wider social positionality as 'strangers' in Brong Ahafo? The chapter thus considers migrants' perceptions of environmental change, which across the three case study sites emerge as narratives of a changing and increasingly unpredictable environment. I argue that these migrant narratives of environmental change emerge through migrants' social experience of their environment, thus reflecting their positionalities in local social and political hierarchies – especially local customary land tenure institutions. Indeed, as Jones et al. argue, risk perception of environmental change is effectively a social process, and as a result,

> Risk perceptions can be amplified socially where events pertaining to hazards interact with psychological, social, institutional, and cultural processes in ways that heighten or attenuate individual and social perceptions of risk and shape risk behaviour (Jones et al. 2014: 202).

In this vein, the chapter uses CAS theory to position these qualitative migrant perspectives of environmental change within co-evolving social and environmental 'systems' in Brong Ahafo, of which migration from Northern Ghana makes up just one dynamic. Thus, the chapter highlights relevant secondary data which positions the qualitative data from the three case study sites within a broader perspective of environmental change in the region – including available data on rainfall variability. This secondary data is also considered alongside a discussion of changing agricultural production patterns and the increased integration of smallholder farmers into national and international food production chains. By accounting for these particular elements of

the wider 'complex adaptive system', this approach draws out the links between migrant livelihoods, environmental change and wider rural transformations in Brong Ahafo.

The chapter is thus structured as follows: Section 6.2 provides a brief background of the existing research on migration and environmental change in the West African context, highlighting that although environmental factors are often considered among the 'push' factors that lead to out-migration from various areas, their impact upon migrants at destination is less often considered, particularly with respect to migrant livelihood outcomes[40]. Section 6.3 presents qualitative data collected at three research sites in Brong Ahafo Region, which illustrates emerging collective narratives of vulnerability to environmental factors among migrants in this specific 'agricultural frontier'. Section 6.4 places these qualitative findings in the context of wider secondary data, looking at historical rainfall data, and recent changes in food production at the regional level, in order to show that migrants' perceptions of vulnerability to a changing climate need to be considered in a broader context of change and transformation across the region as it concerns smallholder agriculture, in general, and migrant tenant farmers, in particular. The chapter concludes in Section 6.5 with a discussion of how to conceptualise environmental shocks and stresses within the Brong Ahafo's 'social-ecological system', with migrant perceptions of environmental change effectively providing insights into not only their subjective experience of such changes – but also into larger array of inter-connected relationships between migrants, locals, land, and global market forces that exist in Brong Ahafo Region.

[40] Rather, the focus is oftentimes on the reverse relationship: namely, migrants' impact *on* the environment at destination (see, for examples, van der Geest [2011b] and van der Geest et al. (2015) for Brong Ahafo and Black and Sessay [1997] for the wider West African context).

Section 6.2 Migration as an adaptation to environmental change? Existing evidence on environmental change and the climate-migration nexus in West Africa

The evidence on environmental change in Ghana (and West Africa more broadly) – both in terms of the historical context and future projections linked to anthropogenic climate change, suggest complex, non-linear impacts in different areas of the country. The most recent Intergovernmental Panel on Climate Change (IPCC) projections for Ghana, and the wider West African region, predict a rise of up to 1 C° by 2035 (IPCC 2013: 1358), in line with the IPCC's global predictions of a temperature rise of 0.3-0.7 C° over the same time period (Kirtman et al. 2013). Longer-term climate projections for Ghana predict that temperatures could increase by as much as 3°C by 2100, with increases the highest in the north of the country (Black et al. 2008: 37). Annual rainfall levels are also predicted to decrease across much of the country, which could affect agricultural outputs in the north and central areas of the country in particular (Black et al. 2008: 37), including Brong Ahafo Region's transition zone – where the case study communities that are the subject of the thesis are located.

Future environmental change predictions, which show a high level of variation in impacts across the country, are mirrored by available data on climate trends in mid-Ghana in both the recent and more distant past, which are characterised by significant local variation and fluctuations between wetter and drier periods. Variation in precipitation is also part of the annual seasonal cycle in Ghana, influenced by regional monsoon patterns that circulate via the Gulf of Guinea. As noted by Shannahan et al. (2006: 289), 'Rainfall in southern Ghana [which mirrors to a large extent rainfall patterns in Brong Ahafo's 'transition zone'] is strongly seasonal with rainfall maximums occurring between April and June (long rains) and September-October (short rains)'. In the autumn, the dry north-easterly winds (known as the Harmattan), drive away precipitation until the following spring (Shannahan et al. 2006: 289).

Meteorological records from available stations in the wider mid-Ghana region that includes Brong Ahafo and neighbouring Ashanti Region suggest a high level of micro-climatological variation across this part of the country. As Owusu and Waylen (2013: 422) note, in comparing rainfall records for 11 stations across this area of Ghana for the

periods 1951-1970 and 1981-2000, reductions in rainfall were in general observable in the latter period, both in terms of total rainfall levels and rainy days observed, especially with respect to early termination of the minor rainy season from September-October. Owusu and Waylen's study provides specific data from weather stations that can to some extent provide a degree of longitudinal rainfall data for the three case study communities where I conducted my fieldwork. A weather station in Wenchi Municipal District – which can be used as a proxy for the case study community located in this district – showed a reduction in the number of rainy days and the overall level of precipitation during both the major and the minor rainy seasons over the time periods covered by the study, with the most significant reduction being linked to the frequent early termination of the minor wet period (Owusu and Waylen 2013: 426). A weather station in Ejura, meanwhile, which provides the closest proxy data for the Nkoranza South District case study site, records a less significant rainfall reduction in the major rainy season, but a significant reduction of the minor rainy season, again reflecting early terminations of rains (Owusu and Waylen 2013: 428). A weather station in Kete-Krachi, on the Northern Region's banks of Lake Volta is the closest proxy site for the Pru District case study site. However, this station's data represents an anomaly in the Owusu and Waylen dataset, in that it is the lone station that shows an increase in precipitation over the second time period covered by the study, which the authors' hypothesise may be due to micro-climatological changes relating to the construction of Lake Volta (Owusu and Waylen 2013: 424). This increase in precipitation may not have occurred in rainfall levels on the Brong Ahafo side of Lake Volta where the case study community in Pru District is located[41].

These recent changes should be considered in light of significant much longer-term historical rainfall variation in mid-Ghana. As Shannahan et al. (2006) observe, historical rainfall records obtained by radiocarbon dating at Lake Bosumtwi, a crater lake in Ashanti Region 35 kilometres from Kumasi (to the south of Brong Ahafo), which is fed exclusively by rainfall, indicate periods of abrupt drying during the Holocene period, possibly in relation sudden shifts in the West African monsoon, as well as much wetter periods during the Holocene when the lake overflowed its banks (Shannahan et al. 2006: 298; see

[41] Kwadwo Owusu, personal communication, May 2014.

also Russell et al. 2003; Talbot and Delibrias 1980, 1977). Shannahan et al. (2006) also suggest that, when compared to other locations in West Africa, the precipitation levels at Lake Bosumtwi in the Holocene indicate that drying took place at different times across the region, with changes at the lake coming much later than locations to the north in the West African Sahel, for example. They note,

> Differences in the timing of this transition between sites on the Guinea coast and inland are potentially important for understanding the controls on abrupt climate change in West Africa. The delay may be related to important differences in the cause of the drying event in the Sahel and Sahara, when compared with the coastal region (Shannahan et al. 2006: 298).

However, rainfall variability is only one example of environmental change in West Africa. Another core example in the case of mid-Ghana is the changing levels of forest and vegetation cover in the region over recent decades – as well as oscillating forest cover over recent centuries. Recent LANDSAT imagery suggests that Ghana's forest cover reduced some 22 per cent between 1975-2000, including the loss of gallery forests in central Ghana due to a combination of slash and burn agriculture, logging, annual wildfires and recently commissioned open cast mining (USGS 2013). While such figures are alarming, it is important to note that agricultural exploitation of land linked to loss of forest cover and eventual abandonment of said farmland is not a new phenomenon in this part of Ghana. As Amanor (1994) observes, between the 17th and 19th centuries, intensive farming practices undertaken by cultivators at the behest of the Ashanti and other imperial states in the region led to the repeated creation of derived savannah in mid-Ghana. As Fairhead and Leach (1998) point out, however, this history was also punctuated by periods of reforestation across Ghana's transition zone, which was a least in part due to human efforts to re-establish forests. The historical variation which Fairhead and Leach describe can be thought of – if conceptualised using CAS theory – as an ongoing reconfiguration of the relationship between human 'agents' and the surrounding environment that constitute the area's 'complex adaptive system':

> The vegetation history of Ghana's transition zone is clearly extremely complicated. … [Deforestation and savannisation narratives] obscure demonstrable instances of forest (or forest fallow) advance over savannas in certain regions, whether due to purposeful enrichment (e.g. in establishing palm

> forests or cocoa groves in savannas), to climatic rehumidification, to depopulation or to forest reservation (Fairhead and Leach 1998: 90).

This history of environmental variability and changing relationships between human actors and their environment is important for considering how environmental factors and migration co-exist in West Africa in general and in Ghana in particular. Migration out of Northern Ghana has long been a widespread phenomenon, owing to overlapping factors that include spatial inequality between this part of the country and Southern Ghana, linked partly to key differences in agro-ecological conditions (see Chapter 4.2 for a discussion of the socio-historical aspects of Ghana's north-south migration patterns). Relatedly, much of the research that has focused on the implications of environmental change for migration in West Africa has focused on drylands, of which Northern Ghana forms a part. The existing evidence on the relationship between migration and environmental factors in West Africa suggests that it is mediated by historical processes and is one long-standing response to environmental stress among inhabitants of the region. It also suggests that the relationship between migration and environmental factors in the West African context is nonlinear – and that it is mediated by both individual- and household-level characteristics and social institutions.

For example, in Burkina Faso, Henry et al. (2004a) showed that fewer people migrated out of areas with unfavourable climatic conditions when compared to those with favourable ones, because households located in the former were less likely to have the capital necessary for initial migration costs. In a different study, Henry et al. (2004b) looked at the impact of rainfall stress, land availability, and road access on migration decisions in Burkina Faso. Here, individual factors (including education level, ethnic group membership, livelihood type, and gender) were found to be much more significant than poor rainfall in determining people's mobility decisions, and also impacted the destination of people's migration. Elsewhere, Doevenspeck (2011) observed that in Benin the main factors determining the likelihood of migration from the north of the country – which was experiencing declining soil quality – to the south was proximity to transport infrastructure and population pressure. Doevenspeck (2011) also highlighted the role of social networks in facilitating this migration, as 71 per cent of respondents at migration destinations had relations in communities they moved to prior to their arrival.

This echoes the available research evidence on the climate-migration nexus in Ghana. For example, Bawakyillenuo et al. (2014), show that seasonal migration is just one livelihood response among many to climate variability in Northern Ghana's savannah zone. Of greater relevance in terms for this chapter, the available evidence also suggests that migration trends are also highly sensitive to environmental conditions at migration *destinations*. For example, van der Geest et al. (2010) looked at the relationship between vegetation cover, census data and rainfall data to explore the environmental dimensions of migration from Northern Ghana to mid-Ghana. As mentioned in Chapters 1 and 4, this study showed that out-migration from Northern Ghana was linked to relatively low vegetation cover, while in-migration to central and western Ghana was linked to higher vegetation cover, and relatively low population densities. Overall, the existing research findings on the climate-migration nexus in West Africa show that, even in instances where environmental shocks or stresses are a factor in influencing migration decisions, people's mobility (or immobility) is also heavily influenced by non-environmental factors. Similarly, Black et al. (2008: 37) observe that future migration flows in Ghana are likely to be influenced by existing 'migration systems' – such as rural-urban migration, rural-rural migration and various established international flows – and the social, economic and other types of capital that these flows can enable, as well as by the emergence of new environmental factors.

Building on this past research, this chapter explores the impacts of environmental change at migration destinations, by considering the perceptions of migrant farmers of environmental change at three research sites in Brong Ahafo. In addition to the aforementioned work by van der Geest et al. (2010) outlining the general relationship between in-migration, low population densities and vegetation cover in Brong Ahafo, several other studies have investigated areas related to the environment and in-migration into Brong Ahafo, which are worthy of mention. For example, there has been an ongoing debate about the impact of migrant tenant farmers on local ecology in the region. As van der Geest and colleagues (2015) note, a handful of Ghanaian scholars (see Afikorah-Danquah 1997; Codjoe 2006) have blamed environmental degradation in Brong Ahafo Region in recent decades on migrant farmers. However, van der Geest et al. (2015) use time-series analysis of migration and deforestation data to investigate the link

between waves of in-migration and deforestation. They observe that satellite imagery shows that much of the recent forest loss in the region predated the arrival of significant numbers of permanent migrants from Northern Ghana, suggesting the impact of migrant tenant on local ecology has been exaggerated (van der Geest et al. 2015). This echoes a larger debate in Sub-Saharan Africa, more broadly, about whether migrants or refugees contribute to environmental degradation at their destinations (McGregor 1994; Black and Sessay 1997). In McGregor's influential review of the evidence, she demonstrated that there were a number of examples of the beneficial role that migrants and refugees have played in in agricultural development in various North and East African contexts (McGregor 1994: 123-124).

Other research has investigated various other elements of the climate-migration nexus in Brong Ahafo Region. Although the 2010 Ghana national census figures show much of the migration from Northern Ghana to Brong Ahafo is relatively 'permanent' (see Chapter 4 for a full discussion of this), one qualitative study focusing on two farming communities in region found that nearly two-thirds of migrant households intended to migrate to a new location within five years (Abu et al. 2014), showing the relatively fluid nature of mobility among tenant farmers. The same study also highlighted that environmental stress was a significant problem faced by migrant farmers, although there was not a clear linear relationship between this and future migration intentions (Abu et al. 2014). Overall, the existing research suggests that in-migration is one facet of a 'complex adaptive system' that is occurring at destinations across Brong Ahafo. On the one hand, migrants are drawn to – on aggregate – areas that are less densely populated and have higher vegetation cover; on the other hand, over time the process of migration itself begins to cause population dynamics to shift, and in turn influences social relations that emerge around land in 'agricultural frontiers' in Ghana, in conjunction with other local factors, as well global agricultural markets and international land investment deals.

Section 6.3 Changing climatic conditions and farmers' 'struggles': Narratives of environmental change among migrant tenant farmers in Brong Ahafo

This section explores qualitative findings from three research sites in Brong Ahafo Region. As already highlighted at length in Chapter 3, these sites were purposively selected in part because of their varying ecological conditions, as they are located in different districts across Brong Ahafo, which is the second largest administrative region in Ghana (refer to Section 3.5 for a map of field site locations). Each of the three sites also have distinct migration histories, drawing migrants from different origin areas in Northern Ghana (see Chapter 4), and varying land tenure norms that govern the ways in which migrants are able to access land from local chiefs or other *de facto* local landowners (see Chapter 5). Thus, the selection of such varied sites was designed to provide a comparative perspective highlighting similarities and local specificities of in-migration from Northern Ghana across the region. In this vein, this section reflects on the similarities and differences of migrant perceptions of environmental change in the three case study sites.

Across the three sites, there was a shared perception among migrants of increased rainfall variability and declining soil fertility, which was often linked to decreasing crop yields in recent years in comparison to previous decades. Within this general narrative, there were more locally specific contours at each of the three research sites. In the case study site in Nkoranza South District, the southernmost of the sites, with comparatively rich soils and a more favourable rainfall regime, there was a strong narrative among locals that the reduction in rainfall in recent years was the result of deforestation by logging gangs. In Wenchi Municipal District, meanwhile, decreased rainfall as well as a decline in the quality and availability of farmland – and the removal of state subsidies for chemical inputs – has seen many farmers switch from maize to more drought-resistant crops such as cassava in recent decades (Amanor 2013: 12). At the case study site in this district, farmers attested to declining rainfall, with charcoal production being one of the responses of migrant men to this phenomenon. Finally, at the research site in Pru District, which had comparatively the worst rainfall and soil quality of the three sites, migrants testified that the dry season had lengthened to such an extent that they were now farming just one season per year, rather than producing separate harvests in the both

the major and minor rainy seasons, as is practiced in most of Brong Ahafo's 'transition zone'.

What is the significance of such locally constructed narratives about environmental change among migrant farmers? Following Adger et al. (2013), who argue that there are important cultural dimensions to how societies respond and adapt to climate-related risks, I suggest that migrant tenant farmers' perceptions of climatic change are articulated through particular cultural subjectivities. I argue that these narratives reveal migrants' own perceived positionality within the wider 'human-nature system' in Brong Ahafo, reflecting – in many cases – their relative social marginality as 'strangers' within local land tenure regimes *as well as* their susceptibility to environmental changes and other types of 'shocks'. Migrants' experiences of environmental stress also offer important insights into how changing environmental conditions at migration destinations potentially act as a barrier to the possibility of migration serving as an adaptation to climatic changes happening in migrants' communities of *origin*, and limit the potential contributions of migration to poverty reduction and development efforts, more generally.

6.3.1 Nkoranza South District: Dwindling yields and erratic rains linked by farmers to recent deforestation

At this research site, farmers repeatedly made a connection between more erratic rainfall and the fact that forestland had been decimated in recent years by logging gangs. This narrative about recent changes in the local rainfall regime, and the specific causality linking this change to deforestation, has emerged against a backdrop of quite significant change to the local landscape in recent decades. As mentioned in Chapters 4 and 5, this area was previously used for cocoa cultivation until bushfires in 1983 – prompted by a severe nationwide drought – destroyed existing cocoa farms. It was in this context that the area became available to migrant sharecroppers, many of whom opted to leave Northern Ghana during this time period in response to this same drought, with arrivals from Upper East Region constituting the migrant majority in this settler community. The settlement's significant in-migration and population increase in the intervening years since the 1983 bushfires has occurred alongside the emergence of an increasingly

commercialised land rental market, with migrant tenant farmers either paying cash rents every growing season or entering into sharecropping arrangements (usually *abusa* – where landowners retain one-third of tenant farmers' harvest; refer to Chapter 5 for more detail on land tenure arrangements).

The deforestation narrative was summed by a Frafra migrant from Upper East Region who had been in the community for more than 30 years:

> There has been a change caused by these chainsaw gangs with the felling of trees without replacing them. … For the past three years, there has been a rampant felling of trees. … The rainfall pattern is very bad. Our streams and rivers are drying up. And the land, too, is turning into desert. We've also had a problem with bushfires (Nkoranza interview 4).

This contrasts with a parallel narrative about historically reliable rainfall in previous decades. Another long-time migrant resident of the community, a Grusi man who also moved to the site more than 30 years previously, said of the years following his arrival, 'In those days, the rains were predictable. You could start preparing your fields on the first day of March, and know that there would be rain' (Nkoranza interview 3). Crucially, the recent change in rainfall was often linked to lower yields than many farmers had experienced in recent years. As one local woman noted,

> Formerly [before the fire], when you farmed one acre, you would get 15 bags of maize without applying chemicals, but now when you farm two acres, even when you apply chemicals, you get 3-4 bags (Nkoranza interview 6).

Of course, in-migration itself has played a significant role in local land use changes in recent decades, which has seen a shift in cultivation from cocoa to commercial food crops, in particular maize, watermelon, groundnuts and other crops. In recent years, fallow farming practices in the area have become less frequently practiced owing to an increased scarcity of 'reserve' lands in the vicinity of the community – as already noted in Chapter 5's discussion of changing land tenure norms and land availability. This has occurred alongside the more frequent use of tractors and chemical fertilizers for food crop production, in particular of maize, which since the early 1980s has been the cash crop of choice for the majority of migrant farmers in the community. It was acknowledged that these techniques, though contributing to the commercial success of some farmers,

were having a detrimental impact on local soils. As one Grusi farmer who had been in the community for 20 years reflected,

> We farm two seasons within a year, and each season we plough with a tractor, and the nutrients come up (out of the soil), and the sun shines on them. And also sometimes when it rains heavily the nutrients leave the soil (Nkoranza interview 20).

This suggests an interplay between changing environmental conditions and changing land use and farming practices that are impacting yields at this research site – with human and environmental systems mutually informing one another and thus 'co-evolving'. Migrant farmers' narratives of environmental change, which link decreased rainfall to deforestation (and to decreasing yields), reflect their relatively marginal position within local land tenure systems, as well as their vulnerability to environmental conditions. For example, the same Grusi farmer who acknowledged the negative effect of new farming techniques on soil quality noted,

> We've not planned to do anything ourselves, because we don't own the land. Once we see that the fertility of the land is running down, we just move to a different place (Nkoranza interview 20).

However, not all farmers are being equally affected by these changes. Better capitalised farmers are better able to maintain or even increase yields by using chemical inputs and more intensive farming techniques, while struggling farmers may not have the capital to invest in tractor ploughing, sufficient chemical inputs, or farm labour needed to maximise yields (as further analysed in Chapter 7's discussion of stratified migrant livelihood trajectories). Thus, even though farmers experiencing differing levels of success embrace the narrative that links rainfall irregularity to deforestation, the implications of this change vary according to migrants' ability to adapt to such changes.

6.3.2 Wenchi: Rainfall irregularity and fragmented land access

At the Wenchi Municipal District research site, the land was comparatively less fertile than at the Nkoranza site, as it is part of Brong Ahafo's 'yam belt' and is too arid to support

cocoa cultivation. However, government subsidies for fertilizer encouraged many farmers to switch to maize in the 1970s and 1980s, as documented by Amanor (2013), before the eventual removal of these subsidies under Ghana's structural adjustment programme in the 1980s led to further shifts in production to cassava, or, in the case of farmers with more permanent access to land, tree crops such as cashew. The land holdings of migrant tenant farmers at the research site were smaller than in the other two case study communities, reflecting the more fragmented nature of land in this area, which is in the vicinity of now defunct state-led farming plantations developed in the 1960s, which had the unintended effect of also stimulating private farming operations and smallholder agriculture in the district (see Chapter 4.4).

Qualitative interviews with farmers at this research site repeatedly referenced erratic rainfall as a significant problem that farmers have faced in recent years. As one Sissala migrant who moved to the community in the late 1960s remarked,

> [At] this time, we don't even understand the weather pattern. Sometimes it will rain in the house, but not in the bush. It did not used to be so. Formerly, any rain coming in March and into April, you could depend on it. Now if you are a farmer and you go to get a loan for farming you will be arrested because you cannot pay it back! (Wenchi interview 9).

Thus, as with the interviews conducted at the site in Nkoranza South District, the increasing lack of predictable rainfall was often singled out as the primary cause of crop failure and declining yields among migrant farmers.

However, a decline in soil quality was also repeatedly referenced by farmers at this site, along with other problems such as pests. As one Wala migrant who came from Upper West Region in the 1960s remarked,

> The land is…not fertile as it used to be. These days, if you farm and you don't apply fertilizer, you will not get anything. When we were first farming, we didn't even know what fertilizer was! Now, I am using chemical fertilizer (Wenchi interview 1).

This points to the fact that environmental challenges faced by farmers are not merely the result of environmental shocks and stresses, but are also due to human-environment interactions as a result of changes in farming practices and land use.

In contrast to the Nkoranza research site, where the main 'adaptive' measures being undertaken by farmers centred around shifting to new lands for cultivation, as well as adopting more 'modern' and intensive farming techniques, in Wenchi, possibly due to more fragmented nature of land available to migrants, a slightly different set of responses emerged, according to interview data. In addition to switching to different plots of land, some farmers were increasingly engaging in the production of cassava, which coincided with growth in local *gari* production in recent years[42]. These 'adaptations' were accompanied by the long-running practice of charcoal production, which was initially introduced by Sissala migrants from Upper West Region, but has been practiced by other migrants and locals for the past 20 years. As the same Sissala elder as previously cited remarked regarding local responses to failed harvests:

> When they [local farmers] have a very bad harvest, they go to look for firewood, and sell it for charcoal, and by that they survive. … At first it was only the Sissala who were burning the charcoal, but now they all do it, because they need to do it to survive (Wenchi interview 9).

6.3.3 Pru: Delayed rains and reduced farming opportunities

Although the site in Pru District is the most arid and has the least attractive soils of the three sites, the less commercialised land market and the relative abundance of available land in the area meant that a number of migrants were able to acquire access to plots in excess of ten acres – which was more difficult in the other two sites. While these larger holdings were arguably partly negated by the poorer agro-ecological conditions, they did give many tenant farmers at least the potential for achieving considerable harvests in years with favourable rainfall. However, a similar narrative of declining rainfall linked with worsening yields was evident at the research site in Pru District. As one Dagomba migrant who moved to the area 30 years previously remarked, 'The rainfall pattern has been reducing: In the past we used to have two rainy seasons, now we only have one' (Pru

[42] *Gari* is a cassava based flour – its production enhances the market value in comparison to raw cassava.

interview 7). Some farmers testified that an increasing lack of predictability related to the start of the rainy season meant that it was difficult to determine the correct time to sow their fields (Pru interview 14). In interviews, most migrant farmers who had previously been attempting to cultivate separate crop harvests during the major and minor growing seasons indicated that they had instead opted to switch to a single growing season – on a par with what is practiced in Northern Ghana – around five years previously. As with other sites, these shifts appear to have occurred concurrently with the use of chemical fertilizer becoming more or less the norm among migrant tenant farmers – increasing both tenant farmers' potential harvests but also the costs of farming.

A further complicating factor in this location is an ongoing conflict over land use between smallholder farmers and cattle herders, who often vie for use of the same lands. As summed up by a Konkomba migrant who had been in the area for some 20 years, 'The land has lost its fertility and the rains are not coming as they are supposed to. We also have cattle that graze on the land, which hardens it' (Pru interview 25). The narrative of more erratic rains contrasts markedly with perceptions of more predictable past precipitation patterns. As one Mamprusi migrant, who had been resident at the site for 25 years remarked of the rains in the years following his arrival: '…the yield I was getting was very good. In those times, I was even able to build a house' (Pru interview 16). However, some farmers have evidently succeeded in adapting to these agro-ecological challenges. For example, adaptive measures undertaken by one of the more successful migrant farmers in Pru District included preparing his farm well in advance of the arrival of the rainy season, so that he could respond quickly when the rains did arrive. Moreover, according to interview data, some migrant farmers have long been farming just one season, in order to consolidate their resources in the face of later-arriving rainy seasons.

6.3.4 Making sense of migrant narratives of environmental change within Brong Ahafo's wider 'complex adaptive system'

How are we to make sense of these narratives of a worsening climate across the three sites, in terms of migrant tenant farmers' place in the local 'complex adaptive system' in Brong Ahafo? Across all three sites, there were gendered and generational dimensions of

migrant perceptions of environmental change. It was clear that discourses around worsening farming outcomes due to less favourable rainfall conditions in recent years were shared by both men and women were cultivators. Additionally, in cases where women were successfully working as market traders, poor growing seasons also directly impacted on their livelihoods, as it limited the availability of tradeable good in surrounding communities. Environmental shocks could also affect migrants' off-farm ventures. In the case of one female migrant interviewed in Wenchi, for example, recent flooding had destroyed the metal container that housed her small business, devastating her off-farm earning potential in the short term. Long-time migrant residents also had distinct perceptions of the local climate, based on having spent relatively longer at the respective case study communities than more recent arrivals.

Overall, as Adger et al. (2013) observe, people's reactions to climate change are mediated by social and cultural understandings of the environment. In Brong Ahafo, migrants' narratives express a particular type of relationship to the environment, defined by a high degree of sensitivity to changing environmental conditions, owing to rain-fed farming being the main livelihood activity of most farmers. At a broader level of analysis, however, I argue that migrant narratives of insecurity regarding environmental change also express a wider migrant positionality at their destination, which includes possessing relative tenure insecurity as outsiders within the local customary tenure framework (as discussed at length in Chapter 5), as well as increased livelihood vulnerability due to decreasing farm yields in recent years. These factors, taken together, constitute part of the socially-constructed migrant identity of Northern Ghanaian tenant farmers in Brong Ahafo.

The empirical data collected during my fieldwork suggests that migrants are part of a complex and changing web of relations involving land use and farming practices in Brong Ahafo. In this context – despite a shared narrative that 'migrants are struggling' – changes in rainfall or soil fertility led different migrant actors to undertake different approaches to farming, or to adopt alternate livelihood activities. This included pathways that were arguably more positive, or 'adaptive', such as switching to drought-resistant food crops or improving planting strategies, or potentially more 'mal-adaptive' (i.e. potentially less sustainable over the medium- to long-term) such as more intensive farming practices relying on chemical inputs, or charcoal production. Other responses, such as shifting

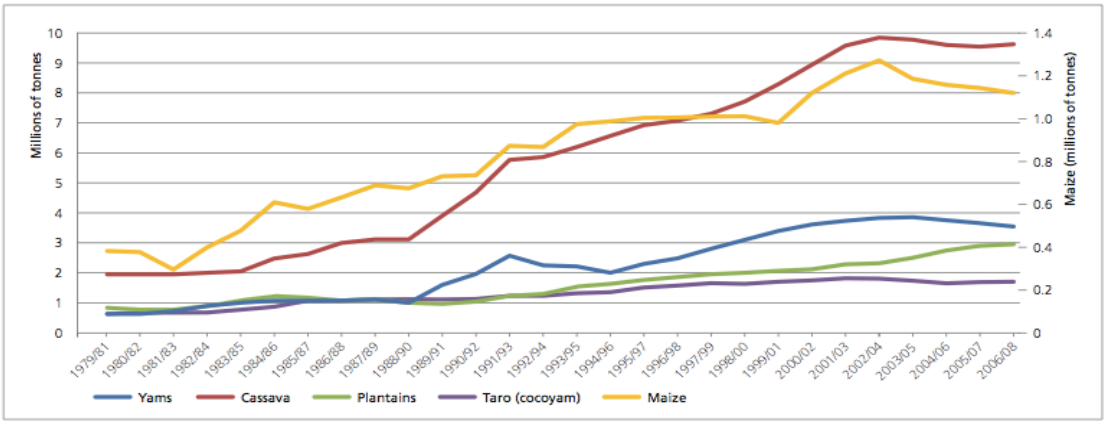
between different plots of land, or even moving to new communities for the purposes of farming or other livelihood activities, also exist. These responses are occurring against the backdrop of wider changes affecting tenant farmers' potential vulnerability. Thus, as I shall explore further in Section 6.4, these narratives in part relate to actual environmental changes observed at the local level. But they also convey a deeper sense of migrant tenant farmers' positionality within a continuously evolving 'complex adaptive system' in Brong Ahafo Region, which includes not only environmental changes, but also significant shifts in agricultural production trends, as well as other human-led 'systems', which have tended to compound farmers' exposure to environmental and other types of 'shocks'.

Section 6.4 Putting migrant narratives of climate vulnerability into a wider context of agricultural change

As Rammel et al. (2007) observe, qualitative insights are valuable to wider research involving complex adaptive systems, because they enable micro-level insights that illuminate meso- and macro-level processes. Section 6.3 of this chapter highlighted the perceptions of environmental change at destination among migrant tenant farmers from Northern Ghana who have moved to Brong Ahafo to get access to comparatively better farmland, in order to pursue small-scale commercial farming. I argue that these narratives offer insights into how environmental change can affect migrants *at destination* – in addition to being a factor which can encourage out-migration from areas that are experiencing environmental shocks (drought, flooding, bushfires, etc.) or stresses (land degradation, etc.), such as Northern Ghana and elsewhere in the West African Sahel.

However, it is also important to situate these narratives within wider trends that are occurring in Brong Ahafo's 'socio-ecological system'. For one thing, the increased in-migration of farmers from Northern Ghana into Brong Ahafo Region since the 1970s has occurred alongside an important wider shift in the production of staple food crops in Ghana, more generally. As Wiggins and Leturque (2011: 18) observe, production of cassava and maize has increased significantly since the early 1980s, with cassava experiencing a five-fold increase over this period and maize experiencing a similar, though slightly less spectacular, rise (see Fig 6.1). As already highlighted in Section 6.3, both of these crops are important in all three case study communities. Maize is the main crop cultivated by most farmers at the Nkoranza research site, and the main or secondary option of most farmers in Wenchi and Pru. As highlighted previously, too, cassava has been of particular importance at the research site located in Wenchi Municipal District, while it is grown on a lesser scale for both commercial purposes and consumption at the other two case study sites. At the research site in Pru District, yam, rice and maize are locally important crops for migrant tenant farmers.

Fig 6.1 Rapid growth in production of staple crops in Ghana, 1979/81-2005/07[43]



Note: Three-year moving average.
Source: FAOSTAT dataset.

The rise of maize as a cash crop of choice among smallholder producers in Ghana reflects a wider trend across Sub-Saharan Africa. As Brooks et al. (2009: 2) note, an increased emphasis on maize production has taken place in recent decades across much of the region, due to a confluence of factors that include international agriculture policy priorities, national agriculture research and development programmes focusing on maize, and changing domestic consumer tastes in growing African urban markets. In the context of smallholder farming in Brong Ahafo, this crop offers the prospect of fairly lucrative short-term returns for farmers, but also a high risk of crop failure in the event of rainfall variability, with rainfall being particularly crucial during its flowering stages, according to interview data from fieldwork sites. Intensive farming practices that have accompanied the emergence of maize (including the use of tractors and chemical inputs) also potentially pose longer-term issues in terms of the viability of this crop in areas of mid-Ghana with more marginal levels of soil quality.

Cassava – which as Wiggins and Leturque (2011) note is by comparison a relatively 'unpopular' crop – involves a different sort of engagement between smallholder farmers and agricultural markets. Although new, quicker maturing varieties of cassava are being developed, in general the crop takes between 18 months to two years to fully mature. Its

[43] Reprinted from Wiggins and Leturque (2011: 18) [open source].

appeal is primarily domestic: for example, it is one of the primary ingredients for the popular Ghanaian dish *fufu*. Once planted, it needs relatively little care or maintenance, and – as previously mentioned – is more resilient to seasonal fluctuations in rainfall. However, it often offers relatively small, albeit stable, returns in comparison to maize[44].

Overall, the seemingly positive picture of increasing agriculture production highlighted by Wiggins and Leturque (2011: 18) belies the fact that in the post-structural adjustment era, conditions have largely become more difficult for smallholder agricultural producers in Ghana, in particular, and in the Global South, more generally. Weis (2007) notes that in the current era of globalisation, smallholders increasingly participate in agricultural markets via high-risk engagements which often involve them taking on greater debt. Gibbon and Ponte (2005) suggest that one element of this is the rise of global-value chains that have displaced much of the market risk on to producers in developing countries, including smallholder farmers. In the specific case of Ghana, while production in maize, cassava and various other crops has increased, the country's historically important cocoa sector has struggled, as the global cocoa price collapsed between 1987-1992 (Berry 2008: 44).

It is against this wider backdrop of shifting patterns of cultivation that narratives about environmental change amongst farmers in Brong Ahafo need to be properly contextualised. It is not simply that the 'rains have failed' – it is what this means given migrant tenant farmers' increased integration into markets, which depending on different farmers' resources can constitute anything from a potentially ruinous gamble to a calculated investment. In the case of more marginal farmers, seasonal crop failure can push them further into poverty if the right mix of environmental and other factors does not lead to the production of at least a decent harvest. This in turn has significant repercussions for debates about the wider climate-migration nexus and about the potential for migration to serve as a form of adaptation to environmental change or a pathway out of poverty (a topic I return to in more detail in Chapter 7). In the particular

[44] However, as already noted in Footnote 40, *gari* production – whereby cassava is processed into a flour – is one way of enhancing the crop's market value, and is practiced by some migrant farmers at the Wenchi research site.

context of the migration of Northern Ghanaian farmers to Brong Ahafo, this livelihood strategy, while typically offering the promise of more lucrative economic opportunities than are available to migrants in their communities of origin, is also constrained by risks that stem not only from environmental variability, but also from many migrants' relatively marginal position in local land tenure regimes and their integration in increasingly risky food production supply chains.

Thus, the qualitative insights from the case study communities highlighted in Section 6.3 provide a ground-level picture of the 'complex adaptive system' that is emerging in Brong Ahafo Region. I argue that changes in the environment are understood by migrant tenant farmers at destination as having a bearing on their social positionality within a 'complex adaptive system', where the majority are relative outsiders within local customary tenure hierarchies. This positionality as 'outsiders' is exacerbated by increasingly exploitative conditions that have been experienced by small-scale farmers in Sub-Saharan Africa in their interactions with global agriculture markets. In this respect, narratives about worsening climatic factors are filtered through a cultural subjectivity of migrant farmers that is characterised by overlapping climatic and social forms of precariousness, with these affecting migrants' risk perception regarding environmental conditions, as argued by Jones et al. (2014: 202). Moreover, as Zickgraf et al. (2016) note, this is typical of available evidence of rural inhabitants' perceptions of rainfall reduction across West Africa more generally, with residents' perception of decreasing rainfall exceeding observed changes, which the authors conclude is likely influenced by non-climatic factors such as population increase and pressure on farmland.

Section 6.5 Conclusion: Assessing migrant perceptions of environmental change in the context of overlapping social and environmental 'feedbacks'

This chapter has explored the topic of how migrants leaving environmentally 'marginal' areas in Northern Ghana may also experience environmental changes at migration destinations in Brong Ahafo Region that affect their livelihood outcomes there. As was explored in Section 6.2, despite a growing literature on the relationship between migration and environmental climate change, much of this literature in the West African context has focused on why people migrate *out* of particular areas, such as drylands, with a much more limited focus on the implications on how environmental change affects migrant livelihoods at destination. This research bias ignores a key aspect of the migration-environment nexus, as highlighted by the *Foresight Report* (Foresight 2011): That migrants are likely to be increasingly moving into areas that are affected by significant environmental change in the coming decades. This is true not only in the case of rural-urban migration to cities, where migrants often move into informal settlements that are at risk of flooding or sea-level rise, but also in the case of migration to 'agricultural frontiers'. In the case of the latter, which is a long-standing pattern of human mobility in Ghana and in neighbouring West African countries, migrants may also face a range of new environmental shocks and stresses including rainfall variability and declining soil quality.

This chapter investigated this issue with a specific focus on migrant perceptions of environmental change in Brong Ahafo, which is one of the foremost sites of migration to 'agricultural frontiers', with significant net migration of Northern Ghanaians since the 1970s. IPCC predictions show that this part of the country is likely to experience decreased precipitation in the coming century (Black et al. 2008: 37), with rainfall records also showing a reduction in rainfall across mid-Ghana over the latter half of the twentieth century (Owusu and Waylen 2013). As discussed in Section 6.3, qualitative research at three migrant settler communities in Brong Ahafo, which were sited in areas with differing ecological conditions as well as distinct migration histories, revealed common narratives about environmental change among migrant farmers. These consisted of narratives of worsening rainfall patterns across all three sites, linked to declining crop

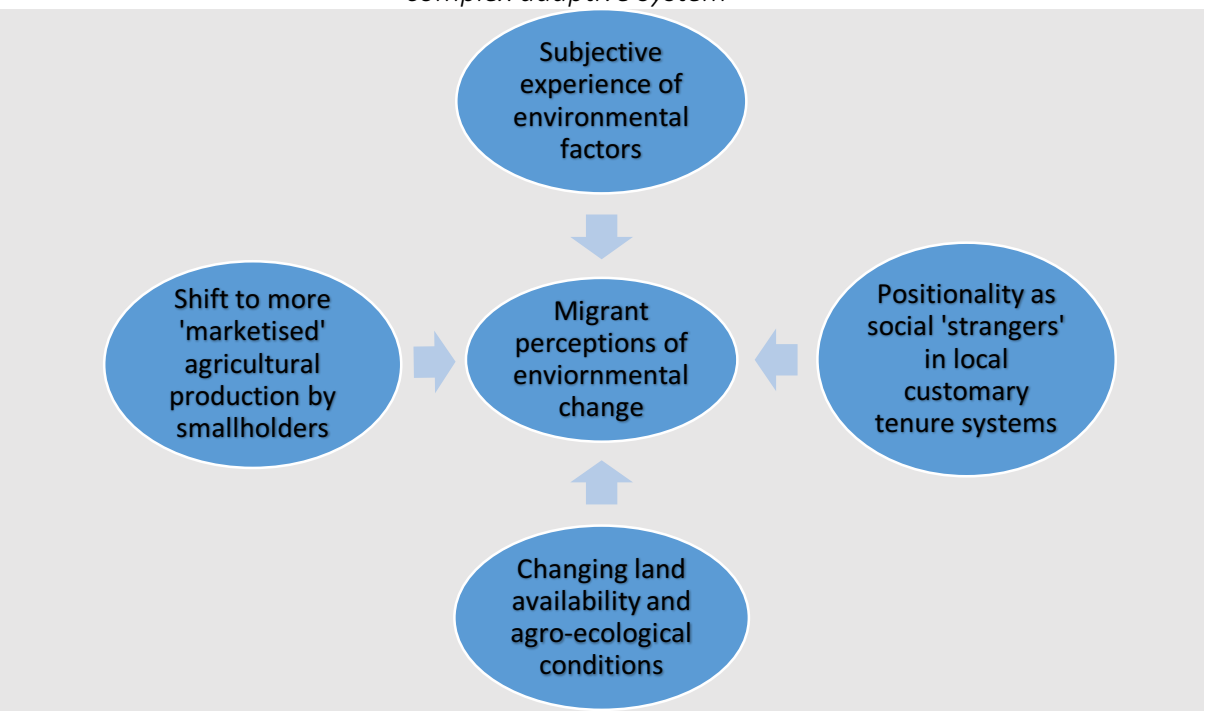
yields. There were also repeated references to declines in soil fertility, coupled with farmers often undertaking more intensive 'modern' farming methods, including use of tractors and chemical inputs. Section 6.4 sought to place these narratives within a wider regional and historical context of agricultural change. This revealed that recent shifts in production and land use practices, and the increased integration of smallholders into modern markets, make tenant farming at locations across Brong Ahafo potentially more profitable, but also riskier.

I conclude that despite the potential of migration to 'agricultural frontiers' to provide migrants from Northern Ghana with access to better livelihood opportunities, there are nevertheless significant, overlapping environmental and financial risks involved in such smallholder farming in Brong Ahafo. For migrants, these relate in part to the rising costs of investment in crops and inputs, the use of tractors and/or hired labour, and – in areas with commercial land rental markets such as the Nkoranza and Wenchi sites – recurring seasonal investment in access to farmland itself. In this context, the dependence on rain-fed agriculture – and the risks that come with 'down' years – are arguably more acute than in more conventional 'subsistence' agriculture. Thus I argue that narratives about climate change among migrant tenant farmers in Brong Ahafo reflect the complex web of co-evolving relationships between farming practices, the environment, and migration in mid-Ghana. Therefore, the climate-migration nexus in Brong Ahafo can be usefully conceptualised as part of a 'complex adaptive system', which features co-evolving human and social systems. In this context, migrant farmers' narratives about vulnerability to environmental change intersect with other social and economic cleavages, highlighting a wider sense of marginality in the face of transformations that are simultaneously occurring across multiple, inter-related scales.

Thus, as illustrated in Fig 6.2, migrant perceptions of environmental change are apparently influenced by overlapping 'feedbacks', which are both social and environmental in their nature. These include changing ecological conditions that affect farming harvests, the increasingly risky nature of farming itself in a more commercially-driven agriculture sector, as well as changes to land's availability and terms of access under customary tenure. Together, these 'feedbacks' help to account for how migrant tenant farmers perceive climate change, per Adger et al.'s (2013) argument that

perceptions of climate change are fundamentally cultural productions. However, despite these shared narratives of worsening environmental conditions, the existence of differentiated livelihood trajectories of Northern Ghanaian migrants in Brong Ahafo means that the *in situ* adaptation options available to different individual migrants vary widely, as shall be explored in Chapter 7.

Fig 6.2 Key dimensions of migrant perceptions of environmental change in Brong Ahafo's 'complex adaptive system'



This analysis helps to explain how migration at rural agricultural destinations can be highly sensitive to changing environmental conditions, especially in the West African context where smallholder farming is often reliant on rainfall and other favourable agro-ecological conditions in order to achieve good yields and ensure the commercial success of farmers. The qualitative research evidence from the three field sites presented in this chapter – as well as in Chapters 4 and 5 – illustrates the multiple and over-lapping nature of the climate-migration nexus in Brong Ahafo, as conceptualised as part of a wider 'complex adaptive system'. While in-migration can help to actively shape – and is subsequently effected by – changes to social perceptions of land, and can contribute to bottom-up changes in terms of shifts in farming practices and land use changes at the community-level, it is also evident that more far-reaching processes of social and

environmental change, ranging from shifts in global agricultural markets to changing rainfall levels, can also have a profound effect on migrant livelihoods at migration destinations in Brong Ahafo.

Chapter 7. Differentiated migrant livelihoods and complexity in Brong Ahafo's transition zone: What are the lessons for thinking about migration as a route out of poverty?

Section 7.1 Introduction: Synthesising findings on in-migration to Brong Ahafo as part of a 'complex adaptive system'

As Chapters 4-6 of this thesis have shown, migration from Northern Ghana to rural destinations in Brong Ahafo interacts with a wide array of social and environmental factors. As highlighted in Chapter 4, different districts of the region have distinct migration histories, and draw migrants from different parts of Northern Ghana, in part reflecting overlapping trans-local social networks that facilitate migration from different origin areas, in response to livelihood opportunities at different destinations. Chapter 5, meanwhile, showed that in-migration to different districts has variously influenced a change in land tenure norms in recent decades, while Chapter 6 explored migrants' perceptions of environmental change, and argued that these interpretations of the local climate are linked to migrants' broader social positionality as 'outsiders' in Brong Ahafo Region. The research questions investigated by these chapters all provide potential entry points for thinking about how migration is influencing – and being influenced – by the wider 'complex adaptive system' in Brong Ahafo.

This chapter attempts to synthesise a more concrete theorisation of how migration interacts with Brong Ahafo's 'social-ecological system' at different levels, by exploring migrant livelihood trajectories at the three case study locations included in my research. It seeks answer the following research questions: What are the livelihood outcomes for migrant tenant farmers, when considered from a Sustainable Livelihoods Approach (SLA) perspective, and how is this reflected in land access, ability to support kin in Northern Ghana and adapt to changes *in situ*? What are the most important factors linked to successful livelihood outcomes? Mirroring the findings of a range of other recent studies on rural smallholder farmers in the Global South (see, for example, Harrison and Chiroro 2016 for Malawi, Li 2014 for highland Indonesia, and Scoones et al. 2012 for Zimbabwe) my qualitative research shows that the livelihood trajectories of Northern Ghanaian migrant tenant farmers in Brong Ahafo are highly differentiated. This chapter explores

the emergence of such distinct livelihood trajectories in Brong Ahafo, presenting a typology that includes three livelihood categories, which cover a wide spectrum of migrant experiences across the three case study communities: 'transformative', 'adaptive' and 'coping/struggling'. Based on the sustainable livelihoods approach (SLA), this typology helps to explain how the distinct livelihood trajectories of migrants affect small-scale interactions between migrants, hosts and the local environment. Furthermore, the chapter explores the implications of such divergent migrant livelihoods in terms of thinking about potential future migration to the region, as well as migration's potential role in poverty reduction or as a form of adaptation to climate change.

As already highlighted earlier in this thesis (see Chapter 4, in particular), internal migration from Northern Ghana to both rural and urban destinations elsewhere in the country tends to be undertaken by members of relatively less well-off households, according to recent analysis of household survey data (see Marchetta 2013 and Awumbila et al. 2015). Given the fact that this is a type of migration that is likely to be pursued by poor people, coming from a context in Northern Ghana characterized by what Nyantakyi-Frimpong and Bezner-Kerr (2015) refer to as an ongoing 'development paradox', analysing the emergence of differentiated migrant livelihoods at destinations in Brong Ahafo is an important element of understanding how, and under what circumstances, migration can reduce poverty and/or enhance the resilience of communities of origin, as well as producing positive outcomes for migrants themselves.

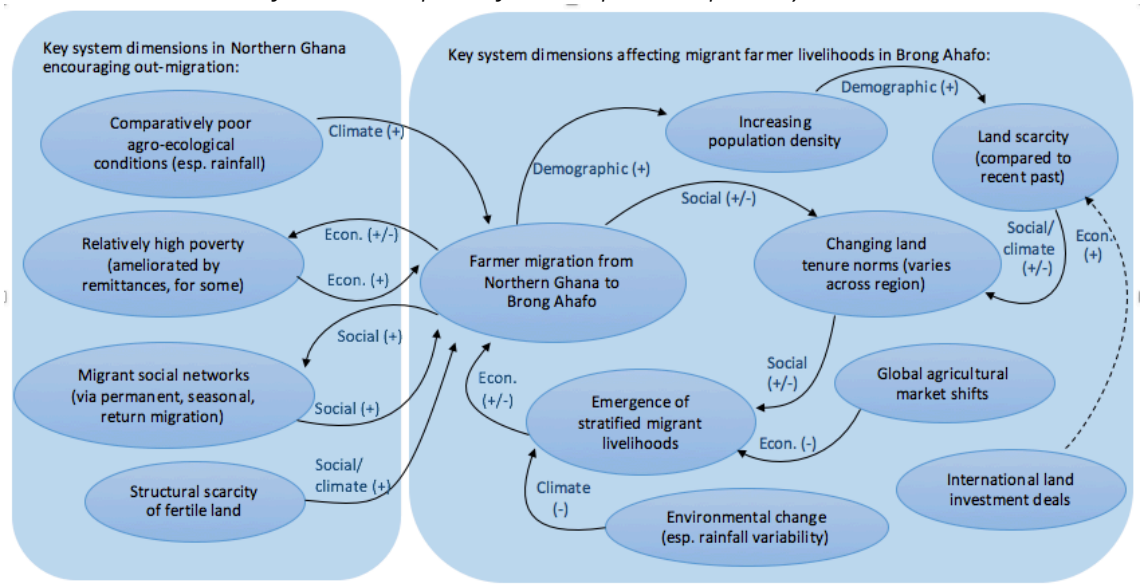
This analysis chapter synthesises findings on migrant livelihoods across the three case study sites, in order to present an argument about the implications of differentiated livelihood trajectories among migrants in Brong Ahafo's transition zone, in terms of framing migrants' agency within a larger 'complex adaptive system'. Thus, Section 7.2 positions migrant livelihoods in the context of the wider 'complex adaptive system' in Brong Ahafo, and presents a typology of migrant livelihood trajectories that reflects the inequalities encountered in Brong Ahafo at my field research sites. Section 7.3 highlights the ways in which differentiated migrant livelihood trajectories are reflected in stratified trends of migrant access to land holdings in settler communities, and considers them with respect to migrants' varying capacity to adapt to environmental changes and absorb climatic and other types of 'shocks'. It also considers how particular livelihood trajectories

may have diverse 'feedbacks' in terms of encouraging return or onward migration of migrants, as well as potentially affecting their ability to provide financial support for kin in Northern Ghana. The chapter concludes in Section 7.4 with an analysis of the implications of such varied small-scale interactions between migrants, hosts and land in Brong Ahafo in terms of theorising migration's potential to act as a route out of poverty.

Section 7.2 In-migration and complexity in Brong Ahafo: Explaining differentiated migrant livelihood 'trajectories'

As noted in Chapter 1, in this thesis I seek to develop a theorisation of in-migration as forming part of a wider 'complex adaptive system' in Brong Ahafo by examining the small-scale interactions occurring between migrants from Northern Ghana and the wider 'human-nature system' in Brong Ahafo. In Fig 7.1, a wider extrapolation of migration's position within this 'complex adaptive system' is posited – based on the empirical findings presented in Chapters 4-6. In this systems diagram, some of the underlying conditions that have accounted for the emergence of Northern Ghana's culture of migration, with a particular focus on factors that have led people to migrate to Brong Ahafo in recent decades are highlighted, with arrows showing the 'flow' of these relationships, and the positive and negative symbols describing whether this relationship can be seen as positive (+), negative (-) or mixed (+/-). Thus, it attempts to create a 'roadmap' that shows the relationship between in-migration and Brong Ahafo's CAS.

Fig 7.1. Systems diagram: Migration from Northern Ghana to Brong Ahafo's agricultural 'frontier' as part of a 'complex adaptive system'



NB: Text alongside connectors (arrows) describes both the nature of the nature of these dimensions (whether they are social, economic, climatic, and so on), how they interact with other elements, and also whether they have a positive (+), negative (-), or mixed (+/-) effect as a result of this interaction.

One aspect of this is the dynamic nature of trans-local migrant social networks that exist between Northern Ghana and Brong Ahafo. In addition to more permanent migratory movements, this includes ongoing circular and seasonal migration flows, flows of internal

remittances from Brong Ahafo to Northern Ghana, and food crops and other forms of in-kind support. Meanwhile, in terms of Brong Ahafo's 'social-ecological system', farmer in-migration – when viewed at the macro-level – has constituted a 'feedback' that has contributed to relatively higher population density and greater land scarcity in Brong Ahafo, which is a part of Ghana that as recently as the early 1990s had been relatively sparsely settled in comparison to other regions in the country[45]. It has also been a 'feedback' that has contributed to changing land tenure norms in some parts of the region. Given these local-level interactions that are occurring in Brong Ahafo between migration and the 'human-nature system', what can we say about the implications of such 'feedbacks' in terms of migrant farmers' livelihood trajectories? As already mentioned in the empirical chapters of this thesis, the interactions between in-migration and Brong Ahafo's social-ecological system in turn have potential implications for migrants themselves. As suggested in Fig 7.1, the processes outlined above may have the effect of either positively or negatively impacting migrant livelihood trajectories. Additionally, factors such as global market factors and environmental change, which don't directly involve the matrix of interactions between migrants and hosts in Brong Ahafo, can also have important implications for migrant livelihoods. All of these factors combine to inform migrant livelihood trajectories in Brong Ahafo, and influence for better or worse the prevailing perception among migrant tenant farmers from Northern Ghana that farming opportunities in the transition zone are better than in their communities of origin.

The aim of this chapter is to explore migrant livelihood trajectories in the three case study communities where I conducted my fieldwork, and to highlight the linkages between these stratified trajectories and distinct elements of migrants' interaction with Brong Ahafo's 'complex adaptive system'. Qualitative research in the case study sites indicated that at the level of individual migrants, the 'success' of their migration was fairly

[45] However, across the three districts where the fieldwork sites were siutated, the population density varied considerably, according to the 2010 national census: Nkoranza South District had a population density of 109.3 persons/sq km, while Wenchi Municipal District had a population desnity of 69.2 persons/sq km and Pru District had just 40.1 persons/sq km. Of course, such figures offer only a partial glimpse into changing realities at the three field sites.

differentiated, according to their own accounts of their current livelihood situations. Whilst the qualitative research was not representative, these distinct trajectories nevertheless offer insights into the diverse outcomes for migrants that are occurring within these communities. Thus they have implications for migration's potential impact on poverty reduction for both migrants and, by extension, their kin in Northern Ghana. This section outlines a typology of livelihood trajectories amongst Northern Ghanaian migrant farmers in Brong Ahafo, based on empirical findings from the three field sites. This livelihood typology is heavily influenced by the sustainable livelihoods approach (see for example, Scoones 1998), in particular the notion that in order to assess rural livelihoods, analysis must go beyond income (or 'economic capital') and consider other factors that affect the overall 'durability' of livelihoods.

As Scoones (1998: 3) observes, sustainable livelihoods analysis consists of asking, 'Given a particular *context*... what combination of *livelihood resources* (different types of 'capital') result in the ability to follow what combination of *livelihood strategies*…with what *outcomes*?' (emphasis in original). Thus, the sustainable livelihoods approach incorporates analysis of not only access to land (which constitutes a form of 'natural' capital within the framework), but also other forms of capital (including human and social capital) that affect rural livelihoods (Scoones, 1998: 4; see also Scoones 2009). This is because, according to Chambers (1989), poor people in rural areas tend to reduce vulnerability not by maximising their income, but by diversifying their portfolio of assets, which in turn often implies trade-offs between livelihood security and income levels. Overall, the sustainable livelihoods approach views livelihoods as being 'formed in complex ways, with multiple and dynamic portfolios of different activities, often improvised as part of an on-going 'performance'' (Scoones, 1998: 8). Thus, the framework posits rural livelihoods to be based not on financial capital, but rather on a combination of this and other forms of capital (social, natural, etc.). A key aspect of this framework is an explicit focus on what institutional processes (for example, land tenure systems) mediate different livelihoods pathways – either for better or worse (Scoones, 1998: 3).

Within the literature on sustainable livelihoods, the precise definition of what constitutes a 'sustainable livelihood' and what the appropriate metrics are to measure whether

livelihoods are sustainable have been widely contested. Scoones (1998), drawing off Chambers and Conway (1992), in particular, suggests that in general, 'a livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base' (Scoones, 1998: 5). However, the relative sustainability of livelihoods can oscillate widely within the same sites, owing to socio-economic differences, which may impact on access to various forms of livelihood capital. Scoones (1998: 11) argues that, 'A wide number of axes of difference are relevant, including contrasts in asset ownership, income levels, gender, age, religious affiliation, caste, social or political status and so on'.

The framework can also be modified to assess adaptive capacity to climate change. For example, Below et al. (2012) developed an 'adaptation activities index' for farmers in rural Tanzania, with the importance of different activities being weighted in focus group discussions, in a study that was in part inspired by the sustainable livelihoods approach. As noted by Scoones (2009), the framework has also been used in assessing diversification of livelihoods, migration and non-farm rural income (see, for examples, Tacoli 1998; De Haan 1999; Ellis 2000). However, Tanle observes that the sustainable livelihoods approach has also been subjected to numerous critiques, including the assertion that it has 'glossed over power relations and inequalities within or between households or communities' (Tanle 2015: 260). In this same vein, De Haan (2012) observes that livelihood approaches cannot be neutral towards power relations, as they determine access to resources and inclusion or exclusion in livelihood activities and hence livelihood outcomes. These critical insights – which highlight the potential challenges of applying the sustainable livelihoods approach to empirical findings – were taken into account when using this approach to inform analysis of my own fieldwork findings.

Building on SLA's conceptual foundation, I developed the following typology, which accounted for the various forms of economic, social, natural and human capital possessed by Northern Ghanaian migrants in Brong Ahafo who formed part of my research sample. Analysis of each of these types of capital was based on the following data gathered during my research interviews:

- *Economic capital:* analysis of on-farm and off-farm employment activities undertaken by migrants, as reported during qualitative interviews.
- *Natural capital:* size of migrants' land access agreements with locals, as well as the nature of the tenure terms associated with these agreements.
- *Social capital:* migrants' positionality within their social networks was considered, including their relative seniority, the size of their networks locally, and their ability to access land or other employment pathways via kin links or through investing in relationships with local intermediaries.
- *Human capital:* this included the pursuit of higher education or professional qualifications, as – for example – some young men were farming in order to pay for post-secondary education and others were supporting their children in similar further education endeavours.

All of these different types of 'capital' were evaluated for each of the migrant interviewees across the three case study communities.

Based on this analysis, I developed three main livelihood 'trajectories' to account for the livelihood positions of migrants, based on their access to the above-mentioned types of capital. These 'trajectories' provide only a snapshot of migrants' livelihood situation at the time of the study, and it is important to acknowledge from the outset that people moved between these different categories. Nevertheless, these constructs are useful in capturing the stratified livelihoods that I encountered among migrant tenant farmers from Northern Ghana at all three of the case study communities at the time of the study in 2014:

(1) Transformative: There was a small minority of migrants who had apparently experienced a genuine transformation of their fortunes since moving to Brong Ahafo. These were highly successful farmers who – through the commercial success of their farming ventures – had been able to significantly increase the acreage of farmland that they rented, and had also been able to make productive investments that yielded significant non-farm income, for example through building rental properties in nearby towns, starting businesses, investing in livestock, or pursuing their own higher education (or investing in the higher

education of their children). As shall be explored in more detail in Section 7.3, migrants who were included in this livelihood trajectory tended to have much larger land access agreements than their migrant counterparts.

(2) Adaptive: By contrast, a substantial number of migrants I interviewed were generally experiencing success through farming, or in some cases had established significant off-farm ventures (including a handful of highly successful female market traders in the Wenchi and Pru case study sites). However, in comparison to the 'transformative' grouping, many migrants in this group were relatively vulnerable to the environmental variability that characterizes mid-Ghana in cases where their livelihoods remained mostly dependent on annual farming harvests, as their reliance on agriculture could potentially be undermined by risks posed by rainfall variability, bushfires and declining soil quality. Nevertheless, these migrants had generally experienced a subjective improvement in their livelihoods as the result of migration, and were often providing significant levels of material support for kin in the north through sending remittances and/or food crops.

(3) Coping/struggling: A final group of interviewees were struggling to eke out a living in Brong Ahafo. Worryingly, a significant number of migrants who I interviewed fell into this livelihood trajectory, which made up between 40 to 50 per cent of the sample across the three case study sites. These migrants' farm plots were usually small and they were often just breaking even or, worse, continually 'farming at a loss' (as some migrants explained it). Thus they were oftentimes in debt either to landlords or to other migrant members of their communities. If they were involved in off-farm work, the income they earned from it was fairly small. With limited sources of income, and access to other forms of capital, they were particularly vulnerable to seasonal environmental variability as well as economic 'shocks', and were often were able to provide only meagre levels of support to kin in the north.

The reasons for these stratified livelihood trajectories were numerous and over-lapping. However, while the small number of migrants with 'transformative' livelihoods were all male farmers, the other two livelihood statuses cut across ethnic, generational and

gender lines. Factors such as migrants' access to land or – in the case of some women – successful market trading, appeared to be partly a function of certain migrants' exploitation of opportunities at destination, linked to fairly concrete entrepreneurship strategies. This was sometimes buoyed by particularly strong kin links, favourable time of arrival at destination (when environmental or land access conditions were comparatively good), or the ability to curry favour with local landowners. In general, migrants who had 'transformative' or 'adaptive' livelihood trajectories were often more senior members of their communities (of either gender), and/or had strong social links within the sites. Conversely, many 'coping/struggling' migrants were, relatively speaking, newer arrivals to their communities or were part of less robust ethnic social networks. However, as already mentioned, such advantages did not completely explain migrant outcomes, possibly because they had little influence over a range of other factors that affected livelihood outcomes, including environmental variability, shifting market conditions, or competing claims to land. Thus, the reasons migrants ended up having different statuses can be summed up as resulting at least in part from ongoing interactions between migrant agents and Brong Ahafo's 'complex adaptive system'. Indeed, in some cases migrants who had initially been experiencing success in farming saw their livelihoods beginning to erode over time, due to (reportedly) more erratic rains, declining soil fertility, and increasing rental costs of land (see Chapters 5 and 6). In other instances, migrants who started out farming small plots were able to greatly expand their farming operations over time, in some cases using profits from farming to invest in successful off-farm ventures.

It is clear from my empirical research that the differentiated livelihood trajectories of migrants had important implications in terms of their ability to access land, their wider livelihood strategies (including the ability to pursue off-farm ventures in addition to farming), and the levels of support that they were able to provide for kin in Northern Ghana. In the context of thinking about in-migration to Brong Ahafo Region as part of a 'complex adaptive system', I argue that such different livelihood trajectories of migrant 'agents' in turn affects the small-scale interactions between migrants, hosts and the environment in Brong Ahafo. This is so because different livelihood trajectories enable or constrain migrants' scope of potential activity, creating subsequent 'feedbacks' – a topic

I shall discuss further in Section 7.4. Firstly, however, Section 7.3 investigates the ways in which such divergent livelihood trajectories impact different aspects of the relationship between in-migration and the social-ecological system in Brong Ahafo, as outlined in Fig 7.1. In conducting this analysis, the chapter attempts to outline the ways in which the stratified livelihood trajectories of Northern Ghanaian migrants in Brong Ahafo may have wider social and environmental implications.

Section 7.3 Migrant livelihoods in Brong Ahafo's 'complex adaptive system': Assessing differences in land access, adaptation approaches, remittances and future migration intentions

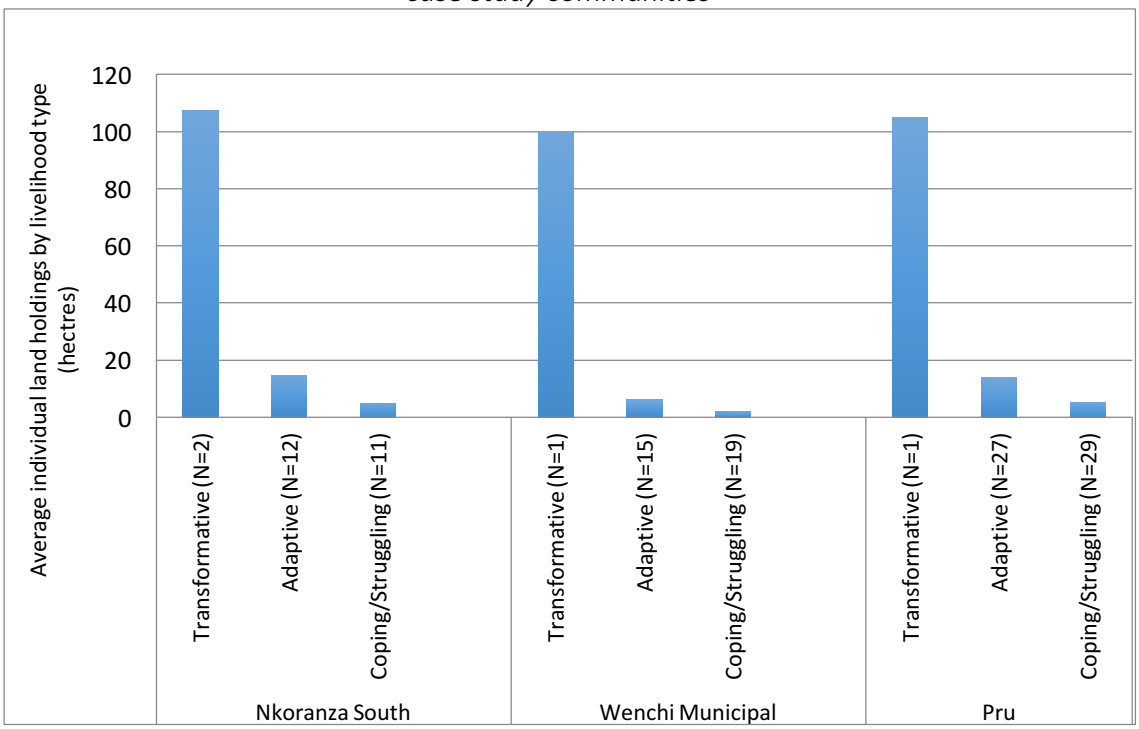
With the over-arching livelihoods typology presented in Section 7.2 in mind, I now look in more detail at how different migrant livelihood outcomes at each case study site interfaced with a wider set of issues related to migration, development concerns, land access and the environment. This analysis will illuminate the extent to which the stratified livelihood trajectories at each site had implications in terms of migration's potential to serve as a route out of poverty for Northern Ghanaian migrants and their kin. Firstly, I look at how differentiated livelihood trajectories are reflected in the amount of land that migrants typically access. Secondly, the analysis takes stock of the extent to which migrants' different livelihood trajectories affected the adaptations that farmers were able to undertake in the face of environmental change and variability. Finally, I assess how different livelihood trajectories were related to varying levels of support that migrants provided to their kin in Northern Ghana, as well as how different trajectories were linked to migrant farmers' future migration intentions (i.e. whether they intended to stay in Brong Ahafo, return to Northern Ghana, or move to a third location). This analysis will reveal some of the concrete ways in which different livelihood trajectories help to structure the agency of migrant actors within Brong Ahafo's wider 'complex adaptive system'.

7.3.1 Land access as an expression of inequality of livelihood trajectories for migrant tenant farmers in Brong Ahafo

In all three of the case study communities, livelihood groupings were reflected in migrants' access to land. Migrants with 'transformative' livelihood trajectories, in particular, tended to have much larger land holdings (whether rented or partially owned) than other migrants (see Fig 7.2). At the other end of the spectrum, 'coping/struggling' migrants often had comparatively very small farming plots, underlining the meagre earning potential that they had as tenant farmers in Brong Ahafo in comparison to other

migrant tenant farmers. Migrants who were categorized as 'adaptive' at each site, meanwhile, usually had more substantial land access than those who were 'coping/struggling', and their livelihood prospects were often also augmented by substantial off-farm earnings, as shall be explored in Section 7.3.2.

Fig 7.2 Stratified individual land access (rented and owned) among migrants at the three case study communities[46]



Against the backdrop of these generalities, there were various local specificities around migrant land access at each site. At the Nkoranza site, those who were 'adaptive' tended to have cash rental agreements or own part of their plots, in comparison to those who were 'coping/struggling', who tended to be engaged in sharecropping land access arrangements. At the Wenchi site, plots of land accessed by migrants were smaller, in general, pointing to the fragmented nature of land holdings in this relatively densely populated corridor of the district. The migrants here with 'adaptive' livelihood trajectories tended to have more favourable land access arrangements (such as land that had been gifted to them by locals as part of patronage exchanges, at times due to intermarriage, or access to 'family land' that they shared with other migrant relatives) or

[46](NB: N = number of interviewees in each livelihood grouping, per site)

fruitful off-farm ventures. By comparison, migrants who had 'coping/struggling' livelihood trajectories had smaller farming plots, and/or more marginal off-farm livelihood activities.

At the Pru site, migrants were often able to access comparatively large plots of land, although this was perhaps offset by poorer rainfall and land quality in this part of the region. Those migrants with access to greater than ten acres – who were typically classed as having 'adaptive' livelihood trajectories – had often acquired their land directly from chiefs or other landlords, while those with smaller land holdings often had more marginal livelihoods and in many cases were farming a plot of their relatives' land. Significantly, in both Wenchi and Pru, some female migrants earned substantial off-farm income through market trading – and were thus seen as having 'adaptive' livelihood trajectories – but this was apparently absent among female migrants who were part of the interview sample at the Nkoranza site. In some cases, such women had plots of land – typically less than 10 acres – that they used to produce crop harvests that they then used for market trading.

The positive relationship between land access and livelihood outcomes points to the fact that, as discussed in Chapter 5, more commercially successful migrants were able to greatly expand their operations, but that this was certainly not the norm for the migrants who formed part of my study sample across the three migrant settler communities. It also shows that although 'adaptive' migrants had often seen a substantial subjective improvement in their livelihoods since moving to Brong Ahafo, this was a potentially fragile improvement that was not immune to what Nyantakyi-Frimpong and Bezner-Kerr (2015) have referred to as *double exposure* to market or environmental shocks. Meanwhile, the relatively meagre land-holdings of migrants who were coping or struggling across the three sites provides an important illustration of the fact that, even in the best case scenario of good rainfall levels yielding bumper harvests, the capacity of such migrants to earn income through farming was limited, although qualitative accounts from my fieldwork showed that in some cases farmers were able to expand their farming operations over time if they had year-on-year success with their harvests.

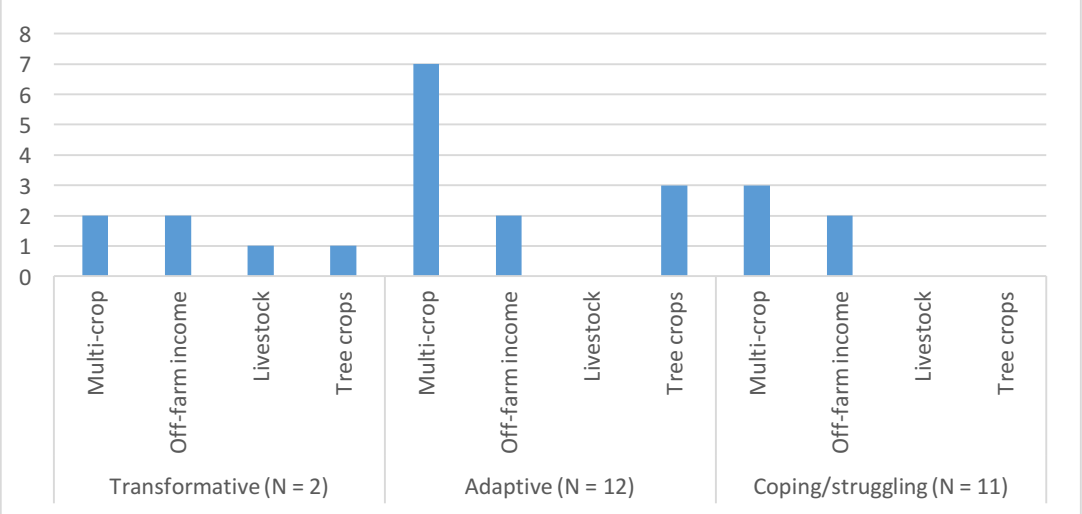
7.3.2 Livelihood trajectories and farmers' adaptation strategies to environmental change in situ

As already alluded to in the livelihood typology presented in Section 7.2, the differentiated livelihood trajectories of migrant farmers in Brong Ahafo affected their potential capacity to be resilient in the face of environmental shocks and stresses, including rainfall variability, declining soil quality and pests (which could drastically affect seasonal crop yields) as well as bushfires (which could at times destroy crop stores or farmers' other key possessions). Indeed, the divergent resilience among migrant tenant farmers was reflected in different adaptation approaches that migrants across the three livelihood groupings adopted, according my qualitative research at the three case study sites. As with the question of access to land, adaptation approaches were often more robust for those with better livelihood trajectories, reflecting the fact that they had the flexibility to adopt new approaches and thus diversify their range of income-generating activities. Various strategies to adapt to ongoing environmental variability included: (1) the adoption of tree crops that did not need to be replanted seasonally; (2) planting a wide variety of seasonal food crops in order to hedge one's bets against rainfall variability; (3) livestock rearing or trading; and (4) other off-farm activities, which ranged from fairly lucrative off-farm ventures to petty trading. Farmers' deployment of these strategies was variously dependent on their access to different forms of capital (cf. Scoones 1998), including 'economic capital' (to invest in farming inputs, or in diversifying livelihood sources through the purchase livestock or establishing off-farm ventures) and 'natural capital' (more permanent types of land access deals were needed in order to plant tree crops, for example). Where migrants lacked these types of capital, their opportunities to invest in adaptive measures was relatively limited in comparison to other better-positioned migrants.

In the case of Nkoranza, a number of farmers practiced multi-cropping approaches to farming, with maize and watermelon being important commercial crops, which were often augmented by groundnuts, cassava and plantain (see Fig 7.3). Some farmers were able to pursue tree crops – mainly cashew – if they had access to family land or had been successful enough to purchase their own plots for this purpose. Tree crops had the

advantage of being relatively resilient to erratic rainfall, in comparison to maize and other seasonal crops – according to my fieldwork data. In other cases, farmers pursued off-farm income, ranging from renting out properties they had constructed in neighbouring towns, to practicing off-farm professions such as masonry or construction, to petty trade or other small-scale businesses. While one of the farmers who was classed as 'transformative' had acquired a significant amount of livestock, for the specific purpose of acting as a sort of insurance against seasonal variation in rain-fed agricultural harvests, this was not widely pursued by other members of the community. However, migrants who had 'coping/struggling' livelihood trajectories in this community often had limited capacity to adapt to seasonal environmental variability, and many of them stuck to planting maize on relatively small rented plots of land, with this often constituting their sole or majority source of income. They were, thus, relatively vulnerable to both climatic and market shocks.

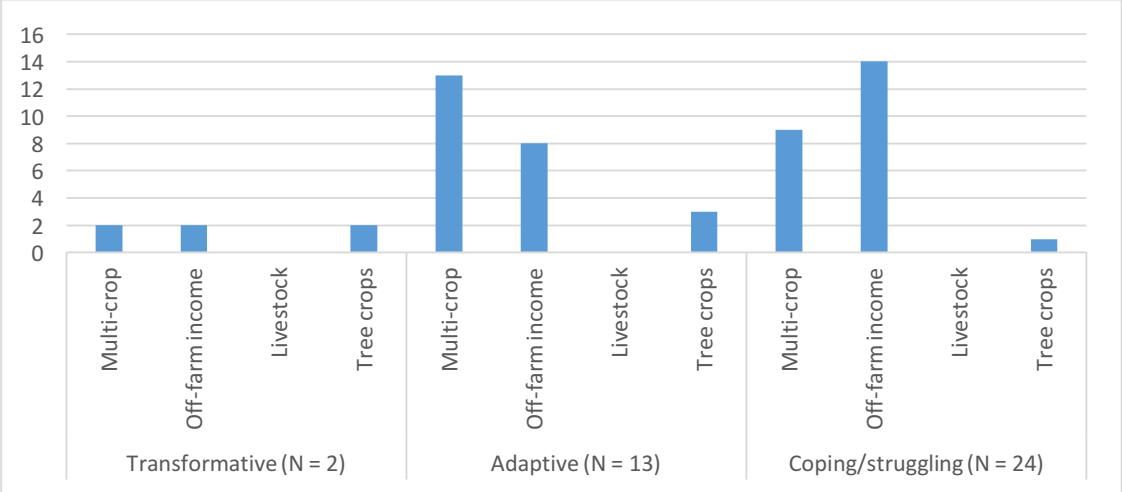
Fig 7.3 Adaptation approaches, by livelihood trajectory, Nkoranza case study site



At the Wenchi case study site, meanwhile, the majority of migrant tenant farmers practiced intercropping of seasonal food crops, especially maize, yam, cassava and millet (see Fig 7.4). A handful of migrants had also established tree crops such as cashew – which required relatively permanent access to land – while in the case of a number of other migrants, their off-farm income-generating activities were significant. In the case of a number of women, farming was effectively a small-scale subsistence activity that augmented their main livelihoods as market traders or small business owners. For migrants in the 'adaptive' trajectory, such off-farm activities were often substantial,

whereas for those classed as 'coping/struggling' their off-farm earnings were fairly meagre and derived from petty trade or other small-scale operations. Livestock ownership was not a strategy pursued by migrants in the interview sample at this case study community.

Fig 7.4 Adaptation approaches, by livelihood trajectory, Wenchi case study site

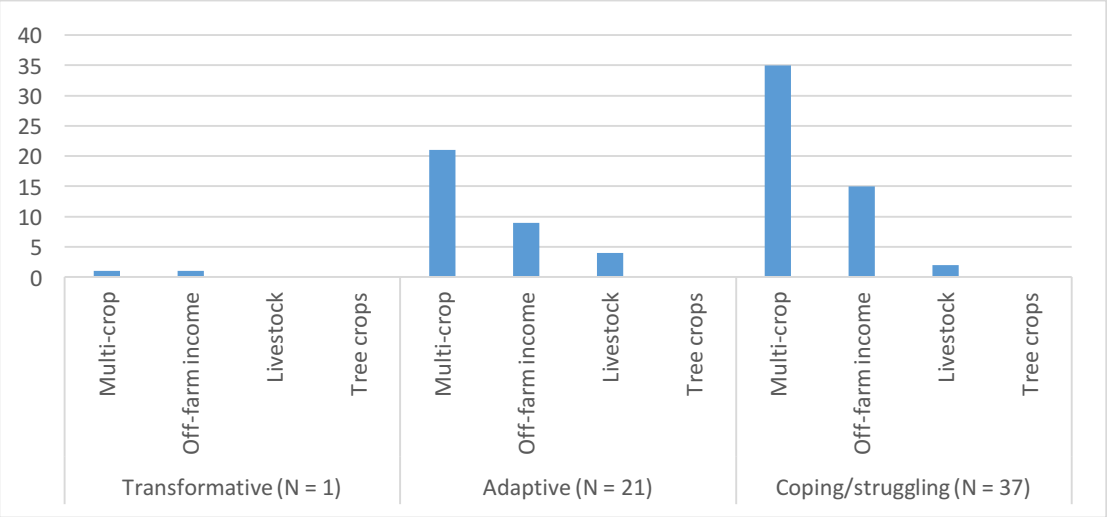


At the Pru case study site, multi-cropping was a widely practiced adaptation approach, possibly due to the more 'traditional' land access arrangements (see Fig 7.5). This included crops such as maize, yam, cassava and rice. Some local farmers in the area also produced teak, but in general tree crops were less common in this case study community than in the other two sites. In comparison to the other sites, livestock rearing was a comparatively important secondary source of income for migrants at the Pru case study community, particularly among those who were classed as 'adaptive'. Additionally, many benefitted from off-farm employment at the nearby market. This ranged from significant to meagre sources of income – from highly adept market trading to rather meagre income from petty trading – as was the case at Wenchi.

Across the three sites, those with 'transformative' livelihood trajectories often had fairly substantial off-farm ventures, and/or had invested in tree crops, highlighting their capacity to diversify their income-generating activities. Those who had 'adaptive' livelihood trajectories often had substantial 'off-farm' sources of income and/or relatively substantial farms where they produced multiple seasonal food crops, thus hedging their bets against seasonal environmental fluctuations. Migrants who had 'coping/struggling' livelihood trajectories, by contrast, often relied on meagre farming operations,

sometimes in combination with fairly paltry off-farm earnings. These generalities show significant heterogeneity in terms of how migrants' livelihood outcomes dictated the ways in which they were able to adopt different adaptive approaches to the changing environmental conditions that had affected smallholder farming in Brong Ahafo at the time of the field research in 2014.

Fig 7.5 Adaptation approaches, by livelihood trajectory, Pru case study site



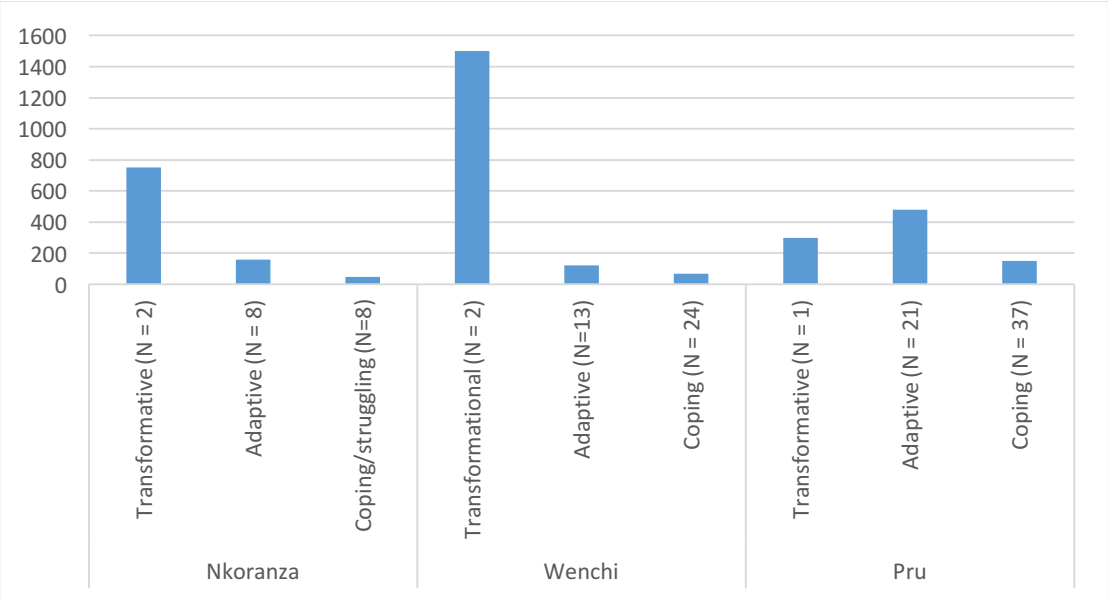
7.3.3 Livelihood trajectories, migrant remittances and future migration intentions

From the point of view of economic theories of migration in particular, migration has often been viewed as a potential means for migrants to access better economic prospects than those that exist in their communities of origin. However, in terms of internal migration in particular, there is quite limited data and research evidence on the extent to which this actually occurs. However, as noted in Chapter 4, at the macro-level, household data from Ghana suggests that money sent via internal remittances is greater than the country's substantial international remittances (Castaldo et al. 2012). Thus, as with international remittances, such transfers represent one measurement of migration's poverty reduction potential, as this support can provide a new income source for kin of migrants who remain in communities of origin.

The qualitative research I conducted at the three case study sites in Brong Ahafo suggests that there is a wide variation in the level of remittances that migrants send to kin in

Northern Ghana (see Fig 7.6 for a summary of this across the three research sites). While there is not necessarily a linear relationship between livelihood trajectories and remittance amounts – as the latter are also affected by the extent to which migrants have less economically well-off relatives who remain in Northern Ghana – they do provide some insights into how the stratified livelihoods of migrants in Brong Ahafo have implications at the other end of the migration chain for kin who have remained behind.

Fig 7.6 Average annual remittances (Ghanaian cedis) sent by Northern Ghanaian migrants (disaggregated by livelihood trajectory), across three field-sites

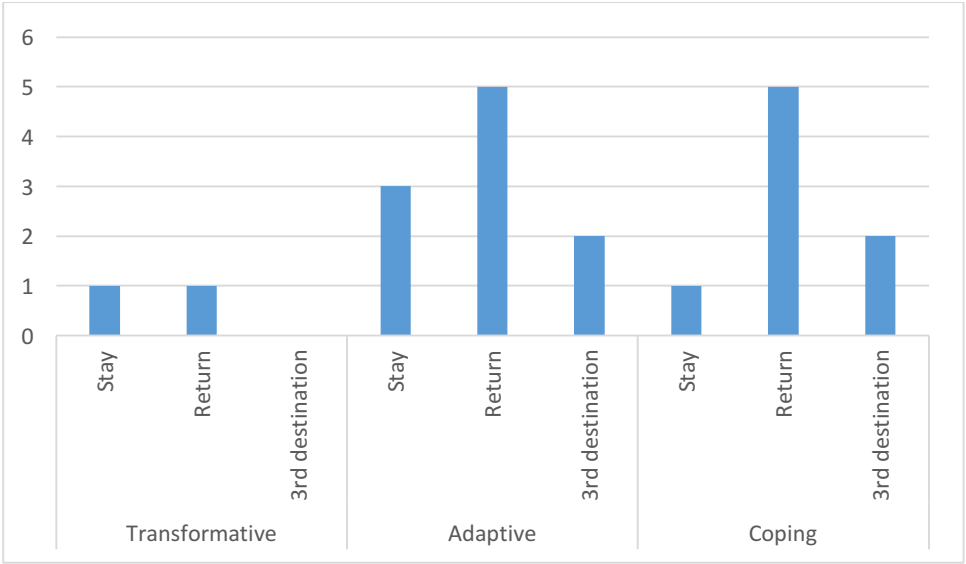


As already mentioned in Chapter 4, there were differences in remittance behaviour across the three case study sites that are important to take into account in this analysis. In the case of Pru District, the majority of migrants sent cash remittances to kin, in comparison to the other two sites where cash transfers were often complimented by high levels of in-kind support, including food crops, clothes and other items. This was because sending food to relatives via Lake Volta was more expensive than simply sending cash for relatives to buy food or other goods at markets in Northern Region, according to interview data. In Nkoranza, many migrants who sent remittances also sent foodstuffs or other in-kind support, and in some cases migrants (including some of those in the 'adaptive' livelihood trajectory) sent food exclusively. At the Wenchi case study site, meanwhile, many of the migrants were already of the second-generation. This affected the size of remittances they sent – which were generally smaller than at the other two sites – owing the 'weaker' nature of kin linkages with relatives in Northern Ghana. Such

transfers were often augmented by sending local crops such as maize, yam or cassava and constituted a small but significant form of ongoing social exchanges with relatives in Northern Ghana.

Meanwhile, qualitative data across the three sites also showed site-specific trends in terms of the proportion of migrants who had future migration intentions, and how these varied among different livelihood cohorts. At the Nkoranza field-site, both return migration intentions and onward migration to third destinations were relatively more common in comparison to those who said they would definitely stay (see Fig 7.7). In the case of those who intended to return, a number planned to return to take up the position of head of the family in their communities of origin in Upper East Region. Others planned to move to 'third destinations', including other locations in Brong Ahafo or nearby Ashanti Region in order to pursue farming or to try their hand at off-farm ventures, or Western Region to pursue gold-mining or temporary work in plantation agriculture.

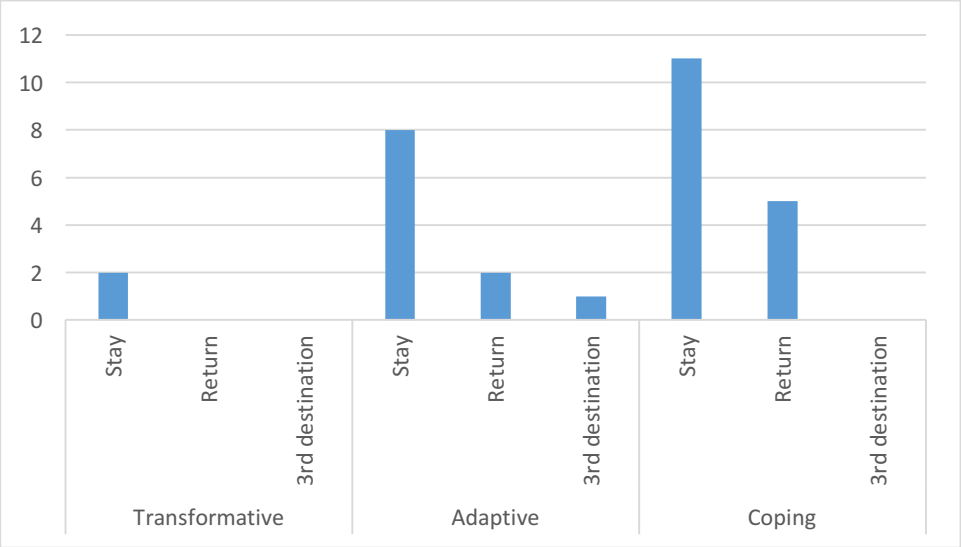
Fig 7.7 Future migration intentions by livelihood trajectory, Nkoranza case study site



In the case of the Wenchi case study research site, by comparison (see Fig 7.8), the majority of migrants indicated that they planned to stay in the community, although return intentions were relatively more common among those with more marginal livelihoods (as was the case in Nkoranza, although by a smaller margin). The prospect of migration to third destinations was less common in this community. In addition to being influenced by livelihood trajectories, in this case study site future migration intentions were also likely influenced by the fact that many migrant interviewees were second-

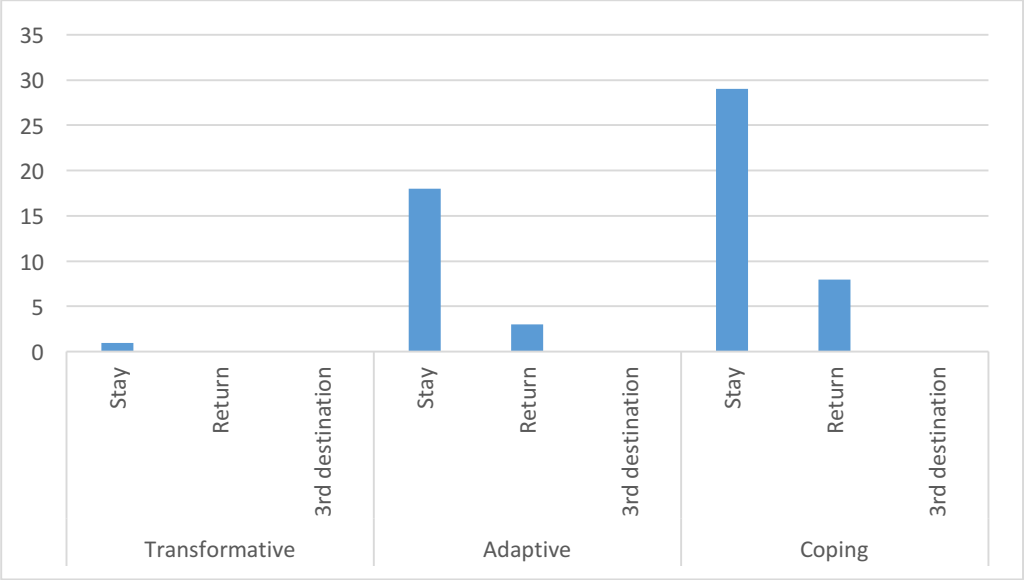
generation migrants. This not only meant that they had potentially stronger roots in their community of residence, but that they were also less likely to be to be pressured to return to Northern Ghana due to family reasons. They also often had land access arrangements in Brong Ahafo Region – which they had sometimes inherited – that they were reluctant to give up.

Fig 7.8 Future migration intentions, by livelihood trajectory, Wenchi case study site



At the Pru case study site (see Fig 7.9), meanwhile, an even greater proportion of migrants favoured staying in the community as opposed to returning to their communities of origin in Northern Region. Many had established houses in the community and were reluctant to return, except in cases where they ascended to the role of 'head of the family'. In the case of groups that were affected by ongoing conflicts over land in Northern Region, such as the Gonja, Dagomba and Konkomba, return migration intentions were particularly rare. However, in general this trend spanned the majority of migrants across all ethnic groups in this case study community, perhaps validating Tonah's (2007) claim that farming opportunities in Pru District are comparatively rosy in comparison to Northern Region. However, return intentions were relatively higher among those who had more marginal livelihood trajectories, suggesting that for those who were experiencing poor farming outcomes, the desire to stay on was, understandably, less robust.

Fig 7.9 Future migration intentions, by livelihood trajectory, Pru case study site



Across the three sites there were commonalities related to how differentiated livelihood trajectories related to future migration intentions. Those migrants who had 'marginal/struggling' livelihood trajectories were far more likely to have intentions to return home, although paradoxically this was often dependent on them acquiring enough money to prepare for their return, which this group had the greatest difficulty achieving. By contrast, those who were enjoying substantially improved livelihoods in Brong Ahafo were often more committed to staying, although in some cases family duties – especially for men who ascended to the role of head of their extended family – compelled them to return home to Northern Ghana. In other cases, such as at the Nkoranza site, some migrants were open to the notion of onward migration to potentially better destinations. This mirrors the sort of 'step-migration' documented by Abdul-Korah (2007) among the Dagaba who had initially moved from Upper West Region to urban areas in Southern Ghana, before relocating to Brong Ahafo. In that case, migrants who had failed to improve their livelihoods upon moving to cities often chose to move to new destinations in Brong Ahafo rather than return home to Northern Ghana empty-handed.

Section 7.4 Discussion: Livelihood trajectories, 'feedbacks', and 'emergence' in Brong Ahafo's 'complex adaptive system'

The stratified livelihood trajectories of Northern Ghanaian migrants in Brong Ahafo's 'transition zone' clearly have implications for theorising in-migration to the region as part of a 'complex adaptive system'. As demonstrated in Section 7.3, the divergent livelihood trajectories of migrants had a direct bearing on the nature of migrants' interactions with local hosts and the environment, with more successful migrants being more likely to greatly expand their farming operations in order to take on a much more commercial approach to farming. Relatively more successful migrants also often had a broader portfolio of livelihood activities, which helped to increase their resilience in the face of environmental shocks and stresses.

Such livelihood trajectories can be interpreted as being a product of the migrants' interaction with the 'social-ecological system' in Brong Ahafo. Migrants with better livelihood trajectories, in general, were male migrants who had arrived in their host communities when farmland was relatively plentiful, and had been able to secure favourable access agreements, or possessed social capital that allowed them to gain access to better terms of land access (either through migrant forbearers, by receiving land as a gift). By contrast, successful women, who could access land through the rental market but were often excluded from more favourable land access arrangements, often were more dependent on trading or other market activities in the pursuit of resilience livelihood trajectories, in addition to, or instead of, farming. Those with less resilient livelihoods were typically more recent arrivals to destinations areas, or longer term migrants (i.e. those who had been present in the research sites for more than a decade), who had experienced setbacks and had relatively less diverse livelihood 'portfolios'. These migrants had also sometimes had their farming ambitions squeezed by changing terms of access to land, such as rising rental costs (in the case of the Nkoranza and Wenchi research sites).

The implications of such differentiation are relatively tangible. The analysis in Section 7.3 shows that migrants who had 'transformative' or 'adaptive' livelihood trajectories were more likely to stay *in situ* at least until pursuing some form of retirement migration to

their communities of origin in Northern Ghana. They were also more likely to be providing significant remittances or in-kind support to migrant kin in Northern Ghana, and they were more likely to be resilient to environmental – or economic – shocks that emerge at their migration destinations. By contrast, the converse was true of 'coping/struggling' migrants, which – quite worryingly – made up around half of the interview sample across the three case study sites. This cohort was more likely to have migration intentions in the relatively short-term future, either to return to their communities of origin or to pursue onward migration. They had relatively meagre income from farming and/or off-farm employment, and this limited the support they were able to provide to kin in Northern Ghana, and also made them less resilient to shocks. Thus, different migrant social agents had different 'trajectories' which were defined by their ability to access different types of livelihood activities, by virtue of their social, economic or other capital. These different livelihood trajectories in turn affected the nature of their interactions with Brong Ahafo's 'complex adaptive system', both in terms of their interactions with local hosts as well as the local environment. These insights show that Northern Ghanaian migrant farmers in Brong Ahafo are not a monolithic group, with differentiated livelihood trajectories framing the livelihood, adaptive and mobility pathways that were available to them.

Chapter 8. Conclusion: Assessing key research findings on migration, land tenure and environmental change as part of 'complex adaptive system' in Brong Ahafo, Ghana, and their implications for academic research debates and policy

8.1 Introduction: Assessing the key contributions of the thesis

This thesis has investigated the migration of Northern Ghanaian migrant tenant farmers to Brong Ahafo Region's 'transition zone'. It has theorised this migration flow as part of a wider 'complex adaptive system', where migrant actors are seen to be interacting with social and environmental conditions at their migration destinations. In order to interrogate this set of interactions, the thesis focused on community-level migration flows (Chapter 4), the relationship between in-migration and changing land tenure norms (Chapter 5), and migrants' perceptions and experiences of environmental change at destination (Chapter 6). Each of these three research themes provides a different entry point for conceptualising how migration is part of a wider 'complex adaptive system' at this agricultural frontier. Furthermore, the thesis analysed differentiated migrant livelihood trajectories in the three case study communities (Chapter 7) to illuminate how their divergent livelihood pathways in turn influence how they engage with the wider CAS in Brong Ahafo. This has important implications both for migrants' livelihood resilience, and for migration's potential to serve as a route out of poverty, and thus be an adaptation strategy for Northern Ghanaian migrants and their families.

This concluding chapter reflects further on the key findings of the thesis, drawing on the material presented in the empirical and analysis chapters mentioned above, while also highlighting the limitations of the research findings. It then positions these key findings within wider academic debates on the climate-migration nexus and rural development, in order to highlight the contribution made by the thesis's findings to these existing areas of research. The chapter also reflects on the policy implications of this research, given the fact that – as discussed in previous chapters – migration to rural 'frontier' areas is fairly marginalised in policy discourse. Finally, the chapter identifies areas of potential future research that stem from the findings of the thesis.

The chapter is thus structured as follows: Section 8.2 will summarise the key findings of the thesis, drawing on the empirical findings associated with the three research questions of the thesis (covered in Chapters 4-6), and well as the analysis of migrant livelihood trajectories presented in Chapter 7. Section 8.3 will discuss the particular contribution that these findings make to the emerging knowledge base on the 'migration-climate nexus' in particular, while also noting their implications for broader debates concerning migration and development, more generally. These include: (1) debates about the extent to which migration can serve as a form of adaptation to climate change; (2) the relevance of land tenure to scholarship on the climate-migration nexus; and (3) the implications of environmental conditions at rural migration destinations in the wider theorisation of the climate-migration nexus. Section 8.4 then turns to the policy relevance of the findings, with respect to relevant policy discourses on migration's role in development efforts and climate change adaptation, as well as policy on rural land administration. Section 8.5 concludes by recapping the key arguments put forward in the chapter regarding the thesis's key findings and their wider relevance.

Section 8.2 Summary of the key contribution and research findings: Conceptualising migration as part of a 'complex adaptive system'

This thesis makes a novel theoretical contribution to the emerging body of research on the climate-migration nexus by adopting complex adaptive systems theory in order to view in-migration to rural areas of Brong Ahafo Region, Ghana, as part of a wider 'human-nature system' (Rammel et al. 2007: 10) or 'social-ecological system' (Oliver-Smith 2009). While this approach shares some commonalities with other recent theoretical approaches to research on migration and environmental change (which are outlined in Chapter 3), this thesis develops the CAS framework to provide a fresh perspective on how migration interacts with social and environmental factors *at migration destinations*, as opposed to previous work, which has tended to focus on how environmental factors contribute to patterns of out-migration. In adopting this framework, the thesis seeks to position in-migration within a wider set of evolving relationships in Brong Ahafo. In particular, it uses key analytical entry points to try to illuminate the role of migrant agents within the wider complex adaptive system. Overall, this theoretical perspective allows for a wider assessment of how migration interacts with social and environmental factors at destination, arguably presenting a more complete picture of the climate-migration nexus as it applies to rural West African destinations. Such an approach can incorporate within it anthropogenic climate change, local adaptations to it, and how these relate to wider social conditions and environmental processes.

In terms of research findings, this thesis addresses an existing research gap related to a dearth of evidence about migration to rural agricultural frontiers in the Global South (Carr 2009), despite the fact that this is a common occurrence, and has implications for land-use change and changing agricultural practices in rural areas. The empirical research conducted for this thesis demonstrated that diverse local-level migration patterns exist across Brong Ahafo Region, reflecting overlapping trans-local migrant social networks, which help to facilitate migration from different origin regions in Northern Ghana to different destinations in Brong Ahafo (see Chapter 4). The anticipation of 'greener pastures' in Brong Ahafo (i.e. better farmland availability and agro-ecological conditions) is a key motivation for such flows, with the permanent migration of many Northern

Ghanaians to the region in recent decades facilitating ongoing seasonal migration of relatives and other relations from Northern Ghana to Brong Ahafo, as well as significant levels of financial and in-kind support flowing from 'settler communities' to communities of origin. At the level of individual migrants, there are important factors that have facilitated these flows, including membership in ethnically-rooted social networks which has led to the emergence of 'chain migration' from particular origin communities in Northern Ghana to particular destinations in Brong Ahafo Region. As opposed to seasonal migration flows, which have historically tended to be dominated by male flows especially in terms of migration to rural destinations, one significant feature of my interview samples across the three case study sites was that a significant number of families were living together as part of complete conjugal units in Brong Ahafo.

As already discussed at length in Chapters 4 and 7, at different levels, in-migration interacts in different ways with the 'social-ecological system' in Brong Ahafo. At one level of analysis, migration is itself a 'feedback', which affects a range of social and environmental processes in the region. In turn, such 'emergence' has the potential to change the very conditions that define relationships between migrants, local hosts and the environment, potentially leading to onward migration, or causing would-be migrants from Northern Ghana to move elsewhere. Thus, while Amanor (1994) noted that in-migration to the area from the 1970s to the early 1990s was in part due to the relative abundance of farmland and low land rental prices in comparison to the rest of the forest zone, my comparative research across three settler communities suggests that in-migration has contributed to significant changes in the demographic make-up of the receiving areas in recent decades and increased demand for land in the vicinity of each of the research areas.

Relatedly, the thesis interrogates the question of how in-migration has affected changes in land tenure norms across the three case study sites in Brong Ahafo Region in recent decades (as discussed at length in Chapter 5). A key finding of this strand of the research is that across the region, there is significant heterogeneity in terms of how Northern Ghanaian migrant farmers are able to access land. These differing terms of land access for migrants reflecting distinct local customary tenure practices, as well as variations in demand for land and land's perceived value at the three case study locations. Moreover,

while in-migration plays an important role in influencing local perceptions of land in the three case study communities, it is clearly just one of a range of factors that have contributed to increasing demand for land in the region, relative to previous decades, with – for example – logging operations, charcoal production and international land agreements occurring in the direct vicinity of the three sites. However, despite these differences, across the three sites there was a pattern of significant inequalities in terms of migrants' access to land, based on the relative commercial success of their farming. As discussed in Chapter 7, farmers who were highly commercially successful often had relatively large land holdings in comparison to their less successful migrant counterparts, suggesting that migrant tenant farmers themselves are a group characterized by significant economic cleavages.

The thesis also illustrated that environmental change and variability can have an important bearing on migrant livelihood trajectories *at destination*, which it investigated through an exploration of migrants' perceptions of environmental change and how these affected farming outcomes across the three case study sites. In all three communities, environmental conditions were perceived by migrants to be becoming more erratic and to be negatively affecting their farming operations, especially with respect to increasingly erratic rainfall and declining soil quality (see Chapter 6). I argue that these perceptions of the environment are refracted through Northern Ghanaian migrants' particular social positionality as outsiders in the region, as well as their increased incorporation into national and international markets, which has created a potential *double exposure* to market and climatic shocks (see Nyantakyi-Frimpong and Bezner-Kerr 2015), leading to overlapping forms of precariousness for many migrant smallholders. This points to the need to consider environmental forms of risk alongside other potential forms of risk that migrants may experience at destination. In the specific instance of my research findings, these include potential market-based shocks and changing conditions of access to farmland.

Finally, the thesis analysed the implications of migration to Brong Ahafo in terms of individual migrant livelihood trajectories (the main subject of Chapter 7). There were highly stratified livelihoods among Northern Ghanaian migrant tenant farmers across the three case study sites, and these lead to divergent 'feedbacks' in terms of migrants'

subsequent interactions with the local 'social-ecological system'. More successful migrants were more likely to intend to stay in Brong Ahafo, and had typically been able to expand their farming operations and/or their off-farm ventures. As mentioned above, this was reflected in the more commercially successful migrants having quite significant land holdings, which they sometimes owned at least in part. In comparison, migrant farmers with more marginalised livelihood outcomes, which constituted around half of the total interview sample across the three sites, were more likely to have intentions to migrate again in the short-term future, and to have a limited capacity to earn income and provide support for kin in Northern Ghana. It is evident that these divergent livelihood trajectories have important implications for thinking about how migration relates to the wider 'social-ecological system' in the region – with different migrant actors having widely varying scope for pursuing different potential livelihood pathways that require access to economic and other types of capital. Such cleavages are also relevant for conceptualizing the potential of migration to rural agricultural destinations to act as a potential route out of poverty for Northern Ghanaian migrants.

8.2.1 Limitations of the thesis and possibilities for future research

As was highlighted in Chapter 3, although care was taken in selecting the three comparative fieldwork sites for this thesis, the empirical findings remain rooted in qualitative data that is suggestive of larger processes emerging as part of Northern Ghanaian flows to Brong Ahafo, rather than being fully representative of such flows. While the case study communities were located in different districts, and were selected owing to the fact that they had distinct migration histories, varying land access norms, and variable environmental conditions, all three sites were relatively easily accessible by road. However, as noted by van der Geest (2011b) migrant farmer settlements have also been established in more remote areas of Brong Ahafo in recent decades. It is possible that a different set of issues are emerging for migrants at such sites, including less local demand on farmland as well as potentially greater difficulties in getting commercial food crops to market. Such sites may in some cases also be newer settlements, meaning that social relations between migrants and locals are more nascent in their development.

Moreover, the study was also conducted over a relatively short duration, meaning that its insights about how conditions in each settler community have changed over time are based on recall among interview participants, rather than on continued empirical research (as in the case of panel data that is gathered among the same research participants at two separate points in time, for example). As was discussed in Chapter 3, the sensitive nature of land access – which has resulted in recent violent conflicts in Ghana and elsewhere in West Africa – meant that for research ethics reasons the study avoided a focus on intra-communal conflict, and thus missed any potential relevance of this to the research questions that were investigated. It was also difficult for the study to disentangle migrants' livelihood trajectories in Brong Ahafo from potential pre-migration inequalities in sending communities in Northern Ghana, as it lacked concrete data in this latter area. Finally, the study did not have access to accurate rainfall data at the local level, and was rather dependent on proxy weather stations that gave only partial insights into how migrant perceptions of environmental change – notably reduced rainfall – related to actual changes in precipitation across the region.

These limitations are related to potential future research questions that have been brought to light by the thesis, including:

(1) What are the ethnic dimensions of land access among migrant tenant farmers in Brong Ahafo and other rural destinations? Such a research question could focus on how ethnic belonging frames access to different parallel types of land tenure agreements. While the research addressed this in part, research ethics considerations meant that it was an area that was largely neglected by the thesis.
(2) What are the key differences in the individual characteristics of migrants who move internally to rural areas, vis-à-vis those who move to cities? Are these essentially the same populations, or are there significant differences which might be relevant for research and policy?
(3) How are international market fluctuations affecting migrant livelihoods at rural locations, for example among small-holder producers (including contract farmers), migrants working as waged labour in plantation agriculture, and migrants practicing small-scale 'artisanal' mining? What are the overlaps between such 'shocks' and environmental stress? Such a research question could attempt to

build on Nyantakyi-Frimpong and Bezner-Kerr's (2015) theorisation of rural populations facing double exposure to climate change, related to economic and environmental shocks and stresses.

With these limitations acknowledged, I now turn to a discussion of the key contribution the thesis makes to existing academic debates and policy discourses about the climate-migration nexus and rural development.

8.3 Contribution to the research base on the climate-migration nexus and academic debates on migration and development

This section highlights the key contributions to existing research debates made by the thesis, based on the key research findings outlined in Section 8.2. It looks at the specific relevance of the findings of my comparative, qualitative research for (1) theorising migration as a potential form of adaptation to anthropogenic climate change; (2) the relevance of land tenure to debates on the 'climate migration nexus' and rural development; and (3) the implications of environmental conditions at rural migration destinations in the wider theorisation of the climate migration nexus. In undertaking this discussion, this section highlights the original contribution the thesis makes to academic knowledge.

8.3.1 Rethinking 'migration as adaptation'? Reflections on stratified migrant livelihood trajectories in Brong Ahafo

As already discussed in Chapter 1, much of the existing research on the 'climate-migration nexus' has focused on the extent to which environmental factors play a role in influencing migration decisions in communities of origin. A particular debate evident in this strand of the literature concerns the extent to which migration can be viewed as an 'adaptation' to environmental change, and, if so, under what conditions. For example, the *Foresight Report on Migration and Global Environmental Change* (Foresight 2011; referred to for the remainder of this chapter as the *Foresight Report*) noted that in instances where migrants have adequate financial, social, or other forms of capital, migration can act as an adaptation to changing ecological conditions, and can enhance the resilience of migrants and their households. In other cases, migration is likely to be a 'last resort' of less well-endowed households, and in some cases the poorest may lack the ability to migrate in search of new livelihood opportunities, thus becoming 'trapped' in areas affected by climate change impacts. Similarly, the Where the Rain Falls project produced a typology based on its findings that explained the characteristics of households who were more likely to use migration as form of adaptation, as opposed to those households

whose situations actually got worse as a result of migration, and those who lacked the capacity to take on migration at all (Afifi et al. 2016). A shortcoming of such approaches, as noted by Felli and Castree (2012), is that they risk portraying migrants as potentially 'adaptable' subjects, ignoring the role of neoliberal markets in disadvantaging certain groups, as well as marginalising more collective social responses to environmental change beyond the level of individuals or households.

The findings of this thesis contribute to this ongoing debate, by pointing to the need to better understand livelihood trajectories at the other end of the migratory chain, in order to assess the potential viability of migration as an 'adaptation' to climate change. The findings highlighted in Chapter 7 of this thesis demonstrate the highly stratified livelihoods of migrants at the three case study communities where I conducted my fieldwork in Brong Ahafo. These findings illustrate the highly unequal outcomes of migration, both in terms of the resilience of migrants at their destination communities in Brong Ahafo, as well as the levels of support that migrants are able to provide for kin in Northern Ghana, which can in turn potentially enhance their resilience to environmental shocks and stresses. In this context, changing land tenure norms and environmental change at migration destinations have the potential to act as 'feedbacks' that can either positively or negatively influence migrant livelihood trajectories, depending on whether they are more or less favourable across temporal and spatial scales. These findings suggest that the potential of migration to act as a positive influence in terms of poverty reduction and/or resilience in the face of environmental change is not only based on the characteristics of migrants or their households prior to migration, but is also determined in part by the interaction between migrants and the 'social-ecological system' that they encounter at migration destinations.

Considered alongside the *Foresight Report* (Foresight 2011) and the Where the Rain Falls project findings (Afifi et al. 2016), my research in Brong Ahafo clearly illustrates that migration does not produce equal outcomes for all migrants. Such findings chime with a much larger development literature on differentiated livelihood outcomes, which in turn have implications for livelihood resilience (see for examples Harrison and Chiroro 2016 and Scoones et al. 2012). As already argued in Chapter 6 of this thesis, rural smallholder

livelihoods are becoming increasingly precarious, with global agricultural production chains increasingly passing risks on to small producers (Ponte and Gibbon 2005). However, a critique of the role of neoliberal markets is often absent from debates about migration and adaptation, as pointed out by Felli and Castree (2012) in their aforementioned critique of the *Foresight Report* (Foresight 2011). My research attempts to account for the potential influence of such global forces, suggesting that internal migration to rural agricultural frontiers cannot make winners out of everyone in a context where migrant tenant farmer livelihoods are being compromised by over-lapping market and environmental risks, as well as changing conditions surrounding access to land – and that this has important implications for thinking about the adaptive potential of migration.

8.3.2 Land tenure and the climate-migration nexus

Morrissey (2012a) has argued that research on the climate-migration nexus needs to do a better job of understanding the linkages between land tenure and migration. As already discussed in Chapter 5 as well as in Section 8.2, my research findings suggest that the relationship between the in-migration of Northern Ghanaian migrant tenant farmers to Brong Ahafo and land tenure norms constitutes part of a wider set of processes related to changing land tenure norms across Ghana more generally. Brong Ahafo was a site that as recently as the 1990s was characterised by a relative abundance of available arable land, and lower rents than existed in the rest of the forest zone (Amanor 1994). My comparative research suggests that the situation is changing fairly dramatically in the sites where I conducted my fieldwork, with the relative scarcity of land in some sites now preventing the traditional practice of fallow farming and the emergence of more commercialised rental agreements making tenant farming an increasingly financially risky proposition for many Northern Ghanaian migrants.

Thus, while in-migration in general, and the small-scale interactions between migrants and local hosts, in particular, are forces which can result in a 'feedback' which changes local perceptions of land's value, thus leading to more financially orientated land tenure norms, such changes in turn can alter the perceptions of migration to Brong Ahafo as an

attractive proposition, more generally. In some sites, increasingly costly land rental prices are creating new barriers to migration serving as a pathway out of poverty for Northern Ghana migrants, although this is just one change migrants point to in narratives about increasingly low yields and difficult experiences in recent years. At the same time, the most successful migrant cultivators have succeeded in greatly expanding their farming operations in Brong Ahafo, as highlighted in Chapter 7, pointing to significant inequalities in terms of access to land emerging within the Northern Ghanaian migrant population itself.

Ultimately, these research findings have larger relevance for debates about the extent to which customary land administration can facilitate access for all groups, including relatively marginal ones within rural political power configurations, including women, migrants, and the poor (an academic debate which was discussed at length in Chapter 5). Whitehead notes that there is an interconnectedness between global processes and land tenure, land holding and land use in the Global South (Whitehead 2010: vii). She argues that the contentious nature of land access in many contexts is at an all-time high due to a series of inter-related drivers, including demographic growth, urbanisation and decades of commitment to market liberalisation, which have shaped processes of global demand for land (Whitehead 2010: vii). Whitehead and Tsikata (2003: 67) argue that in the case of women in Sub-Saharan Africa, the return to customary tenure in many rural areas has not improved women's terms of access to land, as they are largely excluded from 'power relations in the countryside'. Migrants are another group that is relatively marginal in the 'power relations of the countryside', as they lack customary tenure rights to farmland, based on 'first-comer' narratives. Their ability to cultivate favourable terms of land access, through investing in social capital and/or various livelihood strategies, is highly variable across my three research sites – and in some cases had changed significantly in recent decades due to changing local land tenure norms.

Thus, my research findings highlight that land tenure is one key mediating factor that can help to shape migrant livelihood trajectories, together with a range of other social and environmental factors. This contributes to what we know about the wider relevance of land tenure to research on the climate-migration nexus in Sub-Saharan Africa from the

few studies that have focused on this topic. As van der Geest (2011a) has argued, land scarcity is a key reason for out-migration from Northern Ghana. Meanwhile, Morrissey (2012b) has shown that in rural Ethiopia those who have secure land tenure in areas of origin are more likely to remain *in situ* than those who have less secure claims to land. A similar parallel can be drawn in terms of thinking about the significance of land tenure at migration destinations. Those who have been able to secure large areas of land, or who have secured favourable land access agreements with local hosts, are those generally more likely to have successful livelihood trajectories and to have intentions to remain permanently settled in Brong Ahafo. By contrast, those with small, fragmented plots are more likely to be coping or struggling, and to potentially have intentions to move, either back to their communities of origin in Northern Ghana or to onward destinations in Brong Ahafo or elsewhere.

Ultimately, my research provides one case study into ongoing changes across the Global South in terms of people's access to land, in this case highlighting the specific relevance to internal migrant farmers. In the case of Southeast Asia, Hall et al. (2011) argue that conservation efforts, the global land rush, in-migration, and changing demographic factors are part of a context characterised by new 'enclosures' which have eliminated much of the reserve wilderness in many countries across the region, marking the closure of rural frontiers. Brong Ahafo's 'transition zone' represents a West African corollary to this, with 'feedbacks' created by recent in-migration and international investment deals contributing to changing demands for and availability of land. I argue that such transformations are part of what Awumbila and Tsikata (2010) have labelled 'contradictory processes' of fragmentation and accumulation of land holdings that have occurred in different parts of Ghana in the wake of the country's experience of 'structural adjustment' in the 1980s, which have in general created greater inequalities in land access, particularly among the rural poor.

8.3.3 Migration to rural destinations: Considering the role of the environment

As Carr (2009) observes, migration to rural agricultural frontiers is a relatively under-studied phenomenon, in comparison to international or rural-urban migration, despite the fact that such flows remain common across much of the Global South and have important implications for rural land use change. As illustrated in Chapter 4, which catalogued the emergence of local migration histories across the three field-sites, migration to rural destinations is an attractive prospect for many erstwhile residents of Northern Ghana, a fact that is also borne out at the macro-scale by data from the 2000 and 2010 Ghana national censuses, which both show migration to rural destinations to be a significant secondary internal migration flow in the country, in addition to rural-urban migration to cities such as Accra, Kumasi and other emerging urban centres in Ghana (see Moller-Jensen and Knudsen 2008). Indeed, in the case of central and western Ghana, as illustrated by the time-series analysis conducted by van der Geest et al. (2010), migration tends to be directed towards relatively sparsely populated rural areas. Moreover, in the specific example of migration to Brong Ahafo from Northern Ghana, this is an extremely low-cost migration option relative to costlier migration to Kumasi, Accra or other urban zones, with *tro-tros* (or public taxis) offering affordable transport from Northern Ghana to various destinations in Brong Ahafo's 'transition zone'. Thus, there are few initial financial hurdles to arriving in Brong Ahafo, even if, as illustrated in Chapter 7, establishing a fruitful livelihood there is another matter.

Given the nature of these migration flows, what can we make about the relationship between migration and the environment at rural agricultural frontiers? As noted by the *Foresight Report* (Foresight 2011), migrants are likely to be moving into contexts affected by environmental change in the coming decades – although the report mainly considers this possibility with respect to migration to cities in the Global South, where migrant settlements are often sited in areas that are at risk of environmental impacts such as flooding or sea-level rise. The research findings presented in this thesis highlight the ways in which migrant tenant farmers in Brong Ahafo have been affected by changing environmental conditions in recent years, with farmers' livelihood trajectories being particularly sensitive to seasonal rainfall variability and its impact on their practice of rain-

fed agriculture of seasonal commercial food crops, which is the dominant livelihood activity in the three case study communities, as highlighted in Chapters 6 and 7. However, despite rainfall records across Brong Ahafo indicating a relative decrease in annual precipitation across the region over the second half of the twentieth century (Owusu and Waylen 2013), and IPCC predictions pointing to significant a decrease in rainfall across mid-Ghana between now and 2100 (Black et al. 2008), there remains significant uncertainty about the impacts that this will have on smallholder farmers across the region owing to lingering uncertainty about the severity of such changes. Moreover, as highlighted in Chapter 7, some migrant tenant farmers are likely to be better placed to adapt to such changes, reflecting significant intra-community inequalities in terms of access to economic, social and other forms of capital.

Section 8.4 Implications for migration-related policy

Given the relationship between migration and the 'human-nature-system' articulated in the preceding sections, what are the wider implications for policy? Overall, the migration of farmers from Northern Ghana into the 'agricultural frontier' in Brong Ahafo's transition zone raises questions about three common policy assumptions that are typical in Ghana, and in many other countries in Sub-Saharan Africa. These include: (1) that out-migration from ecologically fragile areas (such as Northern Ghana) constitutes a type of forced migration, prompted by a failure to adapt to changing climatic factors *in situ*; (2) the assumption that internal migration is disruptive to 'development' efforts in both origin and destination areas*;* and (3) the notion that customary land tenure and administration can provide equitable access for marginal land users. This section shall assess these three policy assumptions, which tend to emerge in distinct areas of development and climate change policy discourse on both national and international scales, in the sections below.

The perspective of migration as occurring as part of a 'complex adaptive system' in Brong Ahafo, as discussed in the sections above, helps to illuminate why these policy assumptions are problematic. I argue that such assumptions do not rest on an empirical understanding of migration to rural destinations, and thus ignore the potential benefits that migration to 'agricultural frontiers' can have for poverty reduction and resilience for some migrants, as well as the significant livelihood challenges faced by other migrants. Viewing migration as part of a 'complex adaptive system' in mid-Ghana gives us a perspective from which to critique these common policy assumptions, and to begin to think through alternative interventions that are not based on such ill-founded assumptions, but rather on the complex interaction between different agents, institutions and ecological factors. In all of these policy narratives, migration to Brong Ahafo Region is either ignored, misunderstood or otherwise not adequately accounted for. An evidence-based perspective of this mobility – provided in this thesis as well as other recent research highlighted in Chapter 4 – is needed in order to fruitfully incorporate migrants into development, climate change and land administration policies that are fit for purpose.

8.4.1 Challenging the policy myth that out-migration from ecologically marginal areas constitutes a type of 'forced migration'

In terms of climate change policy discourse, out-migration from ecologically fragile zones, such as Northern Ghana in particular and the West African Sahel in general, is oftentimes glossed over in policy debates as 'forced migration' due to factors such as drought, land degradation or desertification. This is often linked to a perceived failure of local adaptation efforts in the face of environmental change, with out-migration seen as a last resort of people whose livelihoods are no longer viable. As with other areas of policy, it largely ignores migration to rural destinations, and the implications that potentially has for adaptation efforts. For example, in the Government of Ghana's *2nd National Communication to the UNFCCC*, migration is mainly described as being linked to 'climatic stress' in the more arid north:

> The poverty situation is exacerbated by climatic stress in northern regions where temperatures are already relatively high. Lower agricultural productivity and periodic flooding are also increasing the pressure on the vulnerable youth from the north to migrate to the south (Government of Ghana 2011: 23).

Among the potential concerns related to climate change impacts are, 'Increased rural-urban migration, with increased pressure on urban services' (Government of Ghana 2011: 23). Similarly, the document refers to out-migration as one of the coping strategies being adopted by farmers in the face of changing environmental conditions (Government of Ghana 2011: 117). Elsewhere, the annual migration of pastoralist Fulani herdsmen is seen as one of a number of factors that contribute to environmental deterioration (Government of Ghana 2011: 119).

This discourse is mirrored elsewhere in the West African policy landscape on climate change adaptation. A review of the region's National Adaptation Programmes of Action (NAPAs) (Sward and Codjoe 2012) – which are national adaptation plans created by nations classified as Least Developed Countries (LDCs) – found common themes across the region, with most NAPAs viewing migration as a problem to be solved in one way or another. The themes included:

> (1) increased transhumance and rural exodus in response to drought affecting agricultural and pastoral activities; (2) sea-level rise and flooding leading to potential population displacement and/or the resettlement of at-risk communities; and (3) negative impacts associated with human mobility, including environmental degradation, pressure on urban services and links between migration and disease (Sward and Codjoe 2012: 27).

As the authors note, these plans largely fail to take into account a livelihoods-based assessment of adaptation, especially with respect to internal migration (Sward and Codjoe 2012: 31). However, such policy assumptions ignore the complex relationship between migration, the environment, and other co-evolving factors, including the socio-economic characteristics of households and individuals, and land access and availability. As already discussed earlier in this chapter, while ecological factors certainly play a key role in out-migration from Northern Ghana, this is hardly the only factor that affects migration decisions. Structural factors, such as spatial inequality between Northern Ghana and the rest of the country, as well as a long history of seasonal and permanent out-migration from the region are central to understanding present-day migration patterns.

Relatedly, my research explores the extent to which factors *at destination* are also essential to explaining why and how people move, with social networks serving as conduits for information about opportunities at destinations such as Brong Ahafo. As van der Geest (2011) argues, out-migration from Northern Ghana is best conceptualised as a migration to 'greener pastures'. In other words, the marginal environment and structural scarcity of good quality farmland in Northern Ghana are only part of the equation: Migration patterns also emerge due to Northern Ghanaian migrants perceiving the existence of better opportunities at potential destinations, including Brong Ahafo's transition zone. This view of migration invites us to think about the ways in which ecological factors affect migrant livelihoods at destination, as well as at origin – an area ignored in much climate change policy, particularly in the case of migration to agricultural frontiers. This thesis demonstrates that there are variable livelihood trajectories for migrant tenant farmers in Brong Ahafo: migration can in some cases act as a type of 'adaptation' to environmental change, but in the case of migrant tenant farmers this is limited – paradoxically – by deteriorating environmental conditions at destination, as well

as changing land tenure norms and the increasing risk of market 'shocks'. Climate change adaptation policies would thus benefit from a more complete perspective of such linkages between migration and environmental change. As Armitage et al. (2008) observe, utilising CAS for policy ultimately involves confronting the unequal risks and general inequality that characterises different social actors within a given system. In the specific case of in-migration to rural locations, the subjectivities of migrants are typically ignored or invisible in key areas of policy, as discussed below.

8.4.2 Re-thinking the notion of internal migration as disruptive to development efforts

UN data shows that the majority of countries in Sub-Saharan Africa have policies to restrict the internal mobility of people, with out-migration from rural areas generally seen as being due to the failure of local development efforts (UNDESA 2013). Policy attitudes towards internal migration in Ghana have until recently been similarly hostile, with internal migration generally being viewed as a 'problem' that needs to be solved – especially in the case of migration to urban areas. Encouragingly, Ghana's newly created National Migration Policy sees internal migration as potentially contributing to poverty reduction, while noting that it also often creates new risks and costs for migrants and their families:

> Internal migration has both positive and negative impacts on the prospects of achieving the national development objectives of Ghana. Remittances from internal migrants to their families back home help to reduce poverty in these areas. The high rate of outward youth migration, however, increases pressure on public services in urban centres; and creates a range of socio-economic and general welfare challenges for communities that send and/or receive internal migrants (Government of Ghana 2016: 32).

However, despite acknowledging the existence of significant flows of internal migration to rural destinations such as Brong Ahafo (Government of Ghana 2016: 20), the policy document offers no specific policy interventions for this type of migration, highlighting the fact that migration to rural areas remains a blind spot for policy.

Previously, Ghana's most recent national development plan, the *Ghana Shared Growth and Development Agenda 2014-2017*, suggested that rural out-migration constituted

part of cycle of failed rural development:

> The prevailing situation has resulted in low level of agro-based industrial development, poor rural transportation network, limited local economic development micro, small & medium scale enterprises (MSMEs); inadequate infrastructure, [and] decimation of rural communities resulting from the high rate of migration of people from rural to urban areas (Government of Ghana 2014: 93).

The plan viewed the migration of rural youth to cities as particularly problematic: 'The phenomenon of urbanisation is contributing to the increasing migration of the rural youth to urban areas with negative implications for rural agriculture and poverty levels.' (Government of Ghana 2014: 100). In the area of 'Migration and Development', increasing rural-urban flows are again seen as a key area where policy intervention is needed:

> The lack of effective institutional and regulatory framework for the management of migration; and increasing internal migration flows into urban centres have been identified as the main challenges for promoting migration for development (Government of Ghana 2014: 133).

Specific policies designed to ameliorate rural-urban migration flows include promoting re-distribution of population between urban and rural areas, including 'the development of new growth centres to serve as holding points for migrants … and … local economic development policy initiatives to improve livelihoods in places of origin' (Government of Ghana 2014: 134). These policy views of internal migration mirror previous trends observed by Black and Sward (2009) in their review of Ghana's Poverty Reduction Strategy Papers (PRSPs), which saw Ghana's 2006 PRSP mainly portray rural-urban migration as a problem for urban receiving areas; the country's 2003 plan also made similar claims, but added that internal migration can sometimes help to alleviate poverty in sending communities. Significantly, Ghana's national development plans are almost completely silent on migration to rural agricultural areas, re-affirming the notion that this type of migration is marginalised not only in research, but also in policy. Broadly, creation of rural jobs is seen by Ghanaian policymakers as a way to limit undesirable types of migration, especially rural-urban migration and the clandestine migration of youth to Europe via North Africa. As Ghana's president John Mahama told Italian Prime Minister Matteo Renzi during the latter's state visit to Ghana in February 2016, more investment

in rural jobs is needed in order to stop youth fleeing rural areas for North Africa (GhanaWeb 2016).

However, such policy views contradict the emerging evidence base on how migration is actually taking place in Africa. For example, Flahaux and de Haas argue that international migration is actually linked positively with development levels in many instances, as opposed to being driven by poverty:

> Contradicting conventional interpretations of African migration being essentially driven by poverty, violence and underdevelopment, increasing migration out of Africa seems rather to be driven by processes of development and social transformation which have increased Africans' capabilities and aspirations to migrate, a trend which is likely to continue in the future (Flahaux and de Haas 2014: 2).

The same analysis can to a certain degree be extended to internal migration, which often allows Northern Ghanaians' the ability to access better livelihood prospects than are available to them *in situ* – as my research illustrates. It also ignores the emergence of trans-local migrant social networks, as well as the long history of North-South migration patterns in Ghana, that link communities and groups in Northern Ghana to various migration destinations elsewhere in the country, including to 'agricultural frontiers' such as Brong Ahafo.

Thus, this policy assumption ignores the potential benefits of migration for origin communities, destination areas, and for development and poverty reduction on both national and regional scales. Just one metric of this is the substantial amount of internal cash transfers sent in Ghana, which on aggregate exceed international remittances, according to household survey data (Castaldo et al. 2012). Yet while the importance of international remittances has been increasingly acknowledged, the potential impact of internal migration on poverty reduction and household resilience is less emphasised in policy discourse. My research helps to illuminate this in the specific case of migration to Brong Ahafo, showing that in some cases migrants are providing significant levels of financial and in-kind support for relatives in the north. This is particularly significant as recent analysis of household data by Marchetta (2013) and Awumbila et al. (2015) suggests that the households that pursue internal migration from Northern Ghana to

other parts of the country are often poorer than their non-migrant counterparts who remain *in situ*. Rather than viewing migration as a problem to be solved, policy efforts across different areas of government would be better served by viewing migration as a *part of* wider ongoing social and development processes.

8.4.3 Migration and customary land tenure – reflections on policy implications

Wolford (2015) has noted that rural lands in Sub-Sharan Africa are often central to how development efforts are conceived throughout the region. In the current context, such rural development efforts exist alongside a new international 'rush' to invest in Sub-Saharan African lands. Such processes have only intensified claims to land in rural areas through Sub-Saharan Africa, and ignited new debates about ensuring land access for the rural poor within the region. Within this context, groups that have marginal land access claims are in many cases further disadvantaged. As Whitehead and Tsikata (2003) observe, women are often included among these excluded groups. However, Whitehead (2009) also identified that women who were in poverty were also often doubly-excluded, and that broader policy efforts which were 'pro-poor' were needed to ensure their land access. Whitehead and Tsikata's (2003) critique ultimately succeeded in influencing policy thinking in this area, with gendered inequalities in land access being a key concern of the International Development Law Organization's Community Land Titling initiative, for example (Knight et al. 2012).

Similar efforts to safeguard migrants' access would potentially be appropriate in areas such as Brong Ahafo Region, where there are now well-established migrant farmer populations. However, the extremely contentious nature of land access under customary tenure means that any policy interventions in this area would have to be handled with extreme sensitivity. Indeed, Quan et al. (2008) observe that the Land Administration Project Ghana, the country's most recent attempt to create more secure forms of tenure for land users in Ghana who access land under customary tenure, initially yielded worrisome results for migrant tenant farmers who were affected by pilot projects of the initiative in Eastern and Western Region. In Eastern Region, the enumeration of existing

claims to land was subsequently followed by chiefs divesting land that was previous held by migrant tenant cocoa farmers, and converting it to new commercial and residential purposes, with chiefs pocketing the transaction costs of these exchanges (Quan et al. 2008: 190). In Western Region, meanwhile, chiefs initially proposed converting migrant tenant farmers' sharecropping agreements (which were often historical oral agreements with locals) to annual rental agreements that would be renewed at the discretion of chiefs (Quan et al. 2008: 191). Although this suggestion was rebuffed, the process of trying to record land use agreements in this region exposed contested claims to land between migrants and locals (Quan et al. 2008: 192). Ghana's Land Administration Project entered its second phase in 2011, with the possibility of erosion of tenant farmers' tenure security highlighted as a key risk of the second phase of the project (World Bank 2011). My research on the ongoing fluidity of migrants' access rights across Brong Ahafo Region shows the inherent difficulties of implementing policies that ensure secure tenure for migrant tenant farmers in Northern Ghana – but also the importance of carefully crafted interventions, in order to safeguard the significant subjective livelihood improvements attained by some Northern Ghanaian migrant tenant farmers.

Section 8.5 Conclusion: Reflections on a CAS theory perspective of the climate-migration nexus at rural destinations in West Africa

This thesis has introduced a new theoretical perspective of migration to rural 'agricultural frontiers', arguing that viewing such migration as part of a wider 'complex adaptive system' can allow for new insights into the climate-migration nexus at such migration destinations. This final section recaps the key points made in this chapter, which has highlighted the key empirical findings of the thesis, discussed their contribution to wider academic debates on migration and rural development, and highlighted their relevance to key policy debates related to migration to rural areas in Ghana, in particular.

This concluding chapter has highlighted the key empirical findings of the thesis, as well as the limitations of the research. As discussed in Section 8.2, these include: (1) a comparative focus on how local-level migration trends from Northern Ghana have emerged in different migration destinations within Brong Ahafo's 'transition zone', revealing parallel trans-local migrant social networks across the region; (2) the extent to which such patterns of in-migration have influenced changing land tenure norms across the region; and (3) migrants' perceptions and experiences of environmental change at destination, in a context where their farming livelihoods are highly sensitive to environmental conditions, including rainfall variability, soil quality and bushfires. A key finding of the thesis was that across the three research sites, there were highly stratified livelihood 'trajectories' among migrant tenant farmers from Northern Ghana, with some migrants achieving significant subjective livelihood improvements as a result of migration to Brong Ahafo – as they were able to expand their farming operations and/or diversify into off-farm income-generating activities – while others were struggling to eke out a living through relatively meagre farming operations or limited off-farm ventures.

The chapter also discussed the thesis's contribution to three existing academic debates, as was elaborated on in Section 8.3. The thesis makes an important intervention in the debate about the extent to which migration can be conceptualised as a form of 'adaptation' to climate change, with the differentiated livelihood outcomes of migrant farmers who formed part of my sample suggesting that migration to Brong Ahafo does not improve the resilience of all migrants and their families. This finding to an extent re-

affirms previous work on the climate-migration nexus (Afifi et al. 2016; Foresight 2011) about the potential limitations of migration to improve livelihoods in the context of environmental change, and also resonates with recent development research which has pointed to the increasing emergence of stratified rural livelihoods across the Global South (Scoones et al. 2012; Li 2014; Harrison and Chiroro 2016). It also provides a concrete empirical case study of how customary land tenure and migration interact, which has been an understudied dimension of the climate-migration nexus (Morrissey 2012a). Finally, the study sheds light on the importance of considering environmental conditions at migration destinations as part of research on the climate-migration nexus, as opposed to only considering environmental factors' relevance in patterns of out-migration from communities of origin. It highlights these in the particular case of West African rural agricultural frontiers, where farmer livelihoods are highly sensitive to environmental conditions, in particular rainfall variability.

Finally, Section 8.4 highlighted three key areas of policy where the key findings of the thesis challenge prevailing policy discourse. Firstly, it pointed out that climate change adaptation plans in Ghana, as well as in the wider West African region, tend to see migration as a problem to be solved, ignoring the potential of migration to significantly improve the livelihoods of many migrants and their extended Northern Ghanaian kin – even if this is not the case for all migrants. The chapter also pointed out that similar views have prevailed over time in Ghana's national development policies, with out-migration essentially viewed as both a failure of development and a threat to future development initiatives in sending areas such as Northern Ghana. Although the country's newly released National Migration Policy (Government of Ghana 2016), takes a more balanced approach – at least highlighting the potential for internal migration to ease poverty in communities of origin – it is does not include any specific policies on migration to rural areas in Ghana, despite acknowledging the existence of such flows. This again points to the fact that migration to rural frontiers remains a blind-spot for policy as well as research. Finally, the ability of customary land administration to equitably provide access for all users is discussed, in light of recent policy in this area in Ghana, which has revealed the difficulties in trying to ensure secure tenure for migrant tenant farmers under Ghana's localised systems of customary land administration.

These sections explored the key findings of the research in terms of conceptualizing the role of in-migration from Northern Ghana within the wider 'complex adaptive system' in Brong Ahafo. Across the three case study locations, general trends of in-migration emerge as a feedback, which has the potential to contribute to changing social relations to land, as well as contributing to land use changes in rural contexts where dependence on natural resources remains high. However, at the level of migrant tenant farmers themselves, the emergence of increasingly stratified livelihood trajectories evident in interview data reflects that the 'starting conditions' which precipitated the recent trend of farmer migration to Brong Ahafo Region have begun to change at the local level.

This finding of the thesis raises the question of how to conceptualise the 'complex adaptive system' in Brong Ahafo as 'self-organising' – and what the particular implications of this are for migrant tenant farmers. As has been highlighted elsewhere is this chapter (and in this thesis more generally – see Chapter 3, in particular), in other locations in Ghana (and neighbouring Burkina Faso), conflicts between migrants and locals over claims to land have emerged, owing to changes in land's value over time (see for example Boni 2008, Berry 2008, and Quan et al. 2008). While assessing future scenarios of migrant tenant farmers' interactions with local hosts in Brong Ahafo is well beyond the scope of this thesis, the experience of migrant tenant farmers in other parts of the country, while not necessarily providing an analogue for the Brong Ahafo context, shows that migrants in Brong Ahafo potentially face considerable tenure security as 'frontier' areas characterised by low population density and few alternative claims to land become less characteristic of the region. As has been flagged by this thesis, such concerns are further complicated by top-down changes in agricultural production chains, as well as the prospect of worsening environmental conditions in future years due to anthropogenic climate change. Thus, analysis of in-migration to Brong Ahafo using the CAS framework provides a 'roadmap' for understanding the complex social and environmental 'feedbacks' informing migrant livelihood trajectories.

As Armitage et al. (2008) argue, confronting inequalities inherent among different actors within CAS is essential to building pathways to 'sustainability'. This thesis has adopted CAS theory in order to analyse farmer migration to Brong Ahafo. But, in a context where autochthony based on customary land tenure and administration reigns supreme, and

can be conceptualised as a key organizing principle of CAS, the question must be posed 'adaptive for whom?' While migrants from Northern Ghana seek to move to 'greener pastures', ultimately this study suggests an emergent pattern of stratified livelihood trajectories among migrants, showing the limits of viewing such mobility as a form of 'adaptation'. More broadly, for all but the most commercially successful migrants, who have gained a relative level of elite status at the local level, the longer-term prospect of migration to the region as a potential route of out poverty appears uncertain. Such findings ultimately provide a needed dose of reality in the debate about whether migration can facilitate poverty reduction or adaptation to climate change. While migration can in some cases be essential for significantly improving subjective livelihood conditions, as well as ameliorating poverty, it alone cannot change larger structural or environmental factors which affect rural migrant livelihoods. While policy measures – related to development or climate change adaptation – designed to stop rural out-migration are ill-conceived, at the same time migration cannot be seen as a panacea that can resolve the 'double exposure' to climatic and market factors that increasingly affect livelihoods in rural Sub-Saharan Africa, especially in a context where most migrant farmers are viewed as relative outsiders within the customary power structures of the West African countryside.

References

Abdul-Korah, G. (2007) ‘‘Where Is Not Home?’: Dagaaba migrants in the Brong Ahafo Region, 1980 to the present’. *African Affairs* 106 (422): 71-94.

Abu, M., Codjoe, S.N.A, and Sward, J. (2014) ‘Climate change and internal migration intentions in the forest-savannah transition zone of Ghana’. *Population and Environment* 35 (4): 341-364.

Acock, A.M. (1962) ‘Land policies and economic development in East and Central Africa’ *Agricultural Economic Bulletin for Africa* 1 (1): 1-20.

Action Aid International (2007) *Unjust waters: climate change, flooding and the protection of poor urban communities; experiences from six African cities.* London: Action Aid International.

Adams, H., Adger, N., Bennett, S., Deshingkar, P., Sward, J. and Waters, J. (2012) ‘Impact of migration on urban destination areas in the context of climate change’. Paper presented on behalf of Foresight, UK Government Office for Science at EU Commission roundtable on the *Development Impacts of Forced Migration*, Brussels, 4-5 September.

Adger, N., Barnett, J., Brown, K., Marshall, N., and O’Brien, K (2013) ‘Cultural dimensions of climate change impacts and adaptation’. *Nature* 3: 112-117.

Adida, C.L. (2014) *Immigrant Exclusion and Insecurity in Africa: Coethnic Strangers.* New York and Cambridge, UK: Cambridge University Press.

Afifi, T. (2011) ‘Economic or environmental migration? Push factors in Niger’. *International Migration* 49 (s1): e95-e124.

Afifi, T., Milan, A. Etzold, B., Schraven, B., Rademacher-Schulz, C., Sakdapolrak, P., Reif, A., van der Geest, K, and Warner, K. (2016) ‘Human mobility in response to rainfall variability: opportunities for migration as a successful adaptation strategy in eight case studies’. *Migration and Development* 5 (2): 254-274.

Afikorah-Danquah, S. (1997). ‘Local Resource Management in the Forest-Savanna Transition-Zone: The Case of Wench District, Ghana’. *IDS Bulletin* 28 (4): 36-46.

Amanor, K. (1994) The New Frontier; Farmers’ Response to Land Degradation: A West African Case Study. Geneva: UNRISD/London & New Jersey: Zed Books.

Amanor, K. (2005) 'Night harvesters, forest hoods and saboteurs: Struggles over land expropriation in Ghana'. In: Moyo, S. and Yeros, P. (eds) *Reclaiming the Land: The Resurgence of Rural Movements in Africa, Asia and Latin America*. London: Zed Books, 102-117.

Amanor, K. (2007) 'Conflicts and the Reinterpretation of Customary Tenure in Ghana.' In: Dorman, B., Odgaard, R., and Sjaastad, E. (eds.) *Conflicts over Land and Water in Africa*. Oxford: James Currey, 33-59.

Amanor, K. (2008). 'The changing face of customary land tenure'. In: Ubink, J., and Amanor, K., (eds), *Contesting Land and Custom in Ghana: State, Chief and Citizen*. Leiden: Leiden University Press, 55-79.

Amanor, K. (2012) 'Global resource grabs, agribusiness concentration and the smallholder: two West African case studies'. *The Journal of Peasant Studies* 39 (3-4): 731-749.

Amanor, K. (2013) 'Dynamics of Maize Seed Production Systems in the Brong Ahafo Region of Ghana: Agricultural Modernisation, Farmer Adaptive Experimentation and Domestic Food Markets'. Future Agricultures Consortium Working Paper 61. Brighton: Future Agricultures Consortium, Institute of Development Studies.

Amanor, K. and Pabi, O. (2007). 'Space, Time, Rhetoric and Agricultural Change in the Transition Zone of Ghana'. *Journal of Human Ecology* 35: 51-67.

Anarfi, J., Kwankye, S., Ofuso-Mensah A. and Tiemoko, R. (2003) 'Migration from and to Ghana: A Background Paper'. Migration, Globalisation and Poverty DRC Working Paper C-4. Brighton: Development Research Centre on Migration, Globalisation and Poverty, University of Sussex.

Armitage, D., Marschke, M. and Plummer, D. (2008) 'Adaptive co-management and the paradox of learning.' *Global Environmental Change* 18: 86-98.

Austin, G. (2006) 'The Political Economy of the Natural Environment in West African History: Asante and its Savannah Neighbors in the Nineteenth and Twentieth Centuries'. In: *Land and the Politics of Belonging in West Africa* (Kuba, R. and Lentz, C. eds). Leiden: Koninklijke Brill NV, 187-212.

Awedoba, A.K. and Hahn, H.P. (2014) 'Wealth, consumption and migration in a West African Society: New lifestyles and social obligations among the Kasena, Northern Ghana'. *Anthropos* 109 (1): 45-55.

Awumbila, M., and Ardayfio-Schandorf, E. (2008) 'Gendered poverty, migration and livelihood strategies of female porters in Accra, Ghana'. *Norsk Geogrfisk Tidsskrift – Norwegian Journal of Geography* 62 (3): 171-179.

Awumbila, M., Teye, J.K., Litchfield, J., Boakye-Yiadom, L., Deshingkar, P., and Quartey, P. al (2015) 'Are Migrant Households Better Off than Non-Migrant Households? Evidence from Ghana'. Migrating out of Poverty Working Paper 28. Brighton: Migrating out of Poverty RPC, University of Sussex.

Awumbila, M., and Tsikata, D. (2010) 'Economic Liberalization, Changing Resource Tenures and Gendered Livelihoods; A Study of Small-Scale Gold Mining and Mangrove Exploitation in Rural Ghana.' In: Tsikata, D., and Golah, P., (eds.), *Land Tenure, Gender and Globalisation: Research and Analysis from Africa, Asia and Latin America.* Ottawa: International Development Research Centre.

Bakewell, O., de Haas, H., and A. Kubal (2011) 'Migration systems, pioneers, and the role of agency' IMI WP-2011-48. Oxford: International Migration Institute, University of Oxford.

Bakewell, O., and Jolivet, D. (2015) 'Broadcast feedback as casual mechanisms for migration'. IMI WP-2015-113. Oxford: International Migration Institute, University of Oxford.

Bawakyillenuo, S., Yaro, J.A., and Teye, J. (2014). 'Exploring the autonomous adaptation strategies to climate change and climate variability in selected villages in the rural northern savannah zone of Ghana'. *Local Environment* [online paper].

Below, T.B., Mutabazi, K.D., Kirschke, D., Franke, C., Sieber, S., Siebert, R., and Tscherning, K. (2012) 'Can farmers' adaptation to climate change be explained by socio-economic house-level variables?' *Global Environmental Change* 22: 223-235.

Bernstein, H. (2004) 'Changing before Our Very Eyes: Agrarian Questions and the Politics of Land in Capitalism Today.' *Journal of Agrarian Change* 4 (1–2): 190-225.

Berriane, M. and de Haas, H. (2012) 'Introduction: New Questions for Innovative Migration Research'. In: Berriane, M. and de Haas, H. (eds.) *African Migrations*

Research: Innovative Methods and Methodologies. Trenton: Africa World Press, 1-14.

Berry, S. (1993) *No Condition is Permanent. The Social Dynamics of Agrarian Change in Sub-Saharan Africa*. Madison: University of Wisconsin Press.

Berry, S. (2008). 'Ancestral property: Land, politics, and the 'deeds of ancestors' in Ghana and Cote d'Ivoire'. In: Ubink and Amanor (eds), *Contesting Land and Custom in Ghana*. Leiden: University of Leiden Press; 27-53.

Berry, S. (2013) 'Questions of Ownership: Proprietorship and Control in a Changing Rural Terrain – A Case Study from Ghana'. *Africa: The Journal of the International African Institute,* 83 (1): 36-56.

Bettini, G. (2013) 'Climate barbarians at the gate: a critique of apocalyptic narratives on climate refugees'. *Geoforum* 45: 63-72.

Black, R. (2001): 'Environmental Refugees: myth or reality?'. UNCR Working Paper 34. Geneva: UNHCR.

Black, R., Adger, W.N., Arnell, N.W., Dercon, S., Geddes, A., Thomas, D.S.G., (2011). 'The effect of environmental change on human migration'. *Global Environmental Change* 21: 3–11.

Black, R., Arnell, N., Adger, N., Thomas, D., and Geddes, A. (2013) 'Migration, immobility and displacement outcomes following extreme events'. *Environmental Science and Policy* 27 (S1): S32-S43.

Black, R., and Collyer, M. (2014) 'Populations 'trapped' at times of crisis'. *Forced Migration Review* 45: 52-56.

Black, R., Kniveton, D., Skeldon, R., Coppard, D., Murata, A., and Schmidt-Verkerk, K. (2008) 'Demographics and Climate Change: Future Trends and their Policy Implications for Migration'. Migration DRC Working Paper T-27. Brighton: Development Research Centre on Migration, Globalisation and Poverty, University of Sussex.

Black, R., and Sessay, M. (1997) 'Forced migration, environmental change and woodfuel issues in the Senegal River Valley'. *Environmental Conservation* 24 (3): 251-260.

Black R., and Sward J. (2009). 'Migration, Poverty Reduction Strategies and Human Development'. Human Development Research Paper 2009/38. New York: United Nations Development Programme.

Boni, S. (2008) 'Traditional ambiguities and authoritarian interpretations in Sefwi land disputes'. In: Ubink, J., and Amanor, K., (eds), *Contesting Land and Custom in Ghana: State, Chief and Citizen*. Leiden: Leiden University Press, 81-111.

Boone, C. (2015) 'Land tenure regimes and state structure in rural Africa: implications for forms of resistance to large-scale land acquisitions by outsiders'. *Journal of Contemporary African Studies*, 33 (2): 171-190.

Brooks, S., Thompson, J., Odame, H., Kibaara, B., Nderitu, S., Karin, F. and Millstone, E. (2009) 'Environmental Change and Maize Innovation in Kenya: Exploring Pathways in and Out of Maize.' STEPS Working Paper 36. Brighton: STEPS Centre.

Burns, D. and Worsley, S. (2015). *Navigating Complexity in International Development: Facilitating Sustainable Change at Scale*. Rugby, UK: Practical Action Publishing.

Carr, D. (2009) 'Population and deforestation: why rural migration matters'. *Progress in Human Geography* 33 (3): 355-378.

Castaldo, A., Deshingkar, P. and McKay, A. (2012). 'Internal Migration Remittances and Poverty'. Migrating out of Poverty RPC Working Paper 7. Brighton: Migrating out of Poverty Research Programme Consortium, University of Sussex.

Castles, S. (2012) 'Methodology and Methods: Conceptual Issues'. In: Berriane, M. and de Haas, H. (eds.) *African Migrations Research: Innovative Methods and Methodologies*. Trenton: Africa World Press, 15-36.

Chambers, R. (1989) 'Editorial Introduction: Vulnerability, Coping and Policy'. *IDS Bulletin* 20: 1-7.

Chambers, R. and Conway, G. (1992) 'Sustainable rural livelihoods: practical concepts for the 21st century'. IDS Discussion Paper 296. Brighton: Institute of Development Studies.

Christian Aid (2007) *Human tide: the real migration crisis*. London: Christian Aid.

Codjoe, S. (2006) 'Migrant versus indigenous farmers. An analysis of factors affecting agricultural land use in the transitional agro-ecological zone of Ghana, 1984-2000'. *Geografisk Tidsskrift – Danish Journal of Geography* 106 (1): 103-113.

Conisbee, M., and Simms, A. (2003) *Environmental Refugees: The case for recognition*. London: New Economics Foundation.

Cotula, L. (2013) *The Great African Land Grab? Agricultural Investments and the Global Food System*. London: Zed Books.

Daley, E., and Hobley, M. (2005) *Land: Changing Contexts, Changing Relationships, Changing Rights.* Paper for the Rural-Urban Change Team, DFID.

DECCMA (2016) *Delta, Vulnerability and Climate Change project website home page*. [online] Available at: <http://www.geodata.soton.ac.uk/deccma/> [accessed 12 August 2016].

De Haan, A., Brock, K. and Coulibaly, N. (2002) 'Migration, livelihoods and institutions: Contrasting patterns of migration in Mali'. *Journal of Development Studies* 38(5): 37-58.

De Haan, L.J. (2012) 'The livelihood approach: A critical exploration'. *Erdkunde* 66: 345-357.

De Haas, H. (2014). 'Migration Theory: *Quo Vadis?*' IMI Working Paper 100-2014. Oxford: International Immigration Institute, University of Oxford.

Doevenspeck, M. (2011) 'The thin line between choice and flight: Environment and migration rural Benin'. *International Migration* 49 (s1): e50-e68.

Drees, L., and Liehr, S. (2015) 'Using Bayesian belief networks to analyse social-ecological conditions for migration in the Sahel'. *Global Environmental Change* 35: 323-339.

Dun, O. and Gemenne, F. (2008) 'Defining 'environmental migration'.' *Forced Migration Review* 31: 10-11.

El-Hinnawi, E. (1985) *Environmental Refugees.* Nairobi: United Nations Environment Programme.

Fairhead, J. and Leach, M. (1998) *Reframing Deforestation; Global analysis and local realities: studies in West Africa*. London & New York: Routledge.

Fairhead, J., Leach, M. and Scoones, I. (2012) 'Green Grabbing: a new appropriation of nature?' *Journal of Peasant Studies* 39 (2): 237-261.

Faist, T., and Schade, J. (2013). 'The Climate-Migration Nexus: A Reorientation'. *Disentangling Migration and Climate Change: Toward an Analysis*

of Methodologies (Faist, T., and Schade, J. eds). Dordrecht/Heidelberg/New York/London: Springer, 3-25.

FAO (2014). *FAO Statistical Yearbook 2014. Africa: Food and Agriculture.* Accra: Food and Agriculture Organization of the United Nations, Regional Office for Africa.

Feder, G., and Noronha, R. (1987) 'Land-rights systems and agricultural development in sub-Saharan Africa'. *Research Observer* 2 (2): 143-169.

Felli, R. and Castree, N. (2012) 'Neoliberalising adaptation to environmental change: foresight or foreclosure?' *Environment and Planning A: International Journal of Urban and Regional Research* 44 (1), 1-4.

Findley, S. (1994) 'Does drought increase migration? A study on migration from rural Mali during the 1983-1985 drought'. *International Migration Review* 28 (3): 539-553.

Flahaux, M.-L. and de Haas, H. (2014) 'African migration: Exploring the role of development and states'. IMI Working Paper 105. Oxford: International Migration Institute, University of Oxford.

Ghana Ministry of Interior (2014) *National Migration Policy (Draft).* Accra: Ghana Ministry of the Interior, Government of Ghana.

Ghana National Peace Council (2016) *National Conflict Map – Yeji*. [online] Available at: <http://conflictmap.mint.gov.gh/Home/Brong-Ahafo/Yeji> [accessed 6 June 2016].

GhanaDistricts.com (2017) 'Pru District: Physical Characteristics'. [Online article] Available at: <http://ghanadistricts.com/DistrictSublinks.aspx?s=7444&distID=47> [accessed 5 July 2017].

GhanaWeb (2016) 'Create Jobs – Italian PM tells Mahama'. [online article] Available at: <http://www.ghanaweb.com/GhanaHomePage/NewsArchive/Create-jobs-Italian-PM-tells-Mahama-412607> [accessed 28 September 2016].

Gibbon, P., and Ponte, S. (2005) *Trading Down: Africa, Value Chains and the Global Economy.* Philadelphia: Temple University Press.

Government of Ghana (2011) *Ghana's Second National Communication to the UNFCCC.* Accra: Ghana Environmental Protection Agency.

Government of Ghana (2014) *Ghana Shared Growth and Development Agenda (GSGDA) II, 2014-2017.* Accra: National Development Planning Commission.

GSS (2013) *2010 Population and Housing Census; Regional Report, Brong Ahafo Region*. Accra: Ghana Statistical Service, Government of Ghana.

GSS (2014a) *2010 Population and Housing Census; District Analytical Report, Nkoranza South Municipality*. Accra: Ghana Statistical Service, Government of Ghana.

GSS (2014b) *2010 Population and Housing Census; District Analytical Report, Pru District*. Accra: Ghana Statistical Service, Government of Ghana.

GSS (2014c) *2010 Population and Housing Census; District Analytical Report, Wenchi Municipality*. Accra: Ghana Statistical Service, Government of Ghana.

Guedes, G.R., VanWey, L.K., Hull, J.R., and Antigo, M. (2014) 'Poverty Dynamics, Ecological Endowments, and Land Use among Smallholders in the Brazilian Amazon.' *Social Science Research* 43: 74-91.

Hall, D., Hirsch, P., and Li, T. (2011) *Powers of Exclusion: Land Dilemmas in Southeast Asia*. Singapore: National University of Singapore Press.

Hampshire, K. (2002) 'Fulani on the move: Seasonal economic migration in the Sahel as a social process'. *Journal of Development Studies* 38 (5): 15-36.

Harrison, E., and Chiroro, C. (2016) 'Differentiated legitimacy, differentiated resilience: beyond the natural in 'natural disasters''. *Journal of Peasant Studies* [online article] Available at: <http://dx.doi.org/10.1080/03066150.2016.1193011> [accessed 10 September 2016].

Harvey, B., Burns, D., and Oswald, K. (2012) 'Linking Community, Radio, and Action Research on Climate Change: Reflections on a Systemic Approach'. *IDS Bulletin* 43 (3): 101-117.

Henry, S., Piché, V., Ouedraogo, D., Lambin, E.F. (2004a) 'Descriptive analysis of the individual migratory pathways according to environmental typologies' *Population and Environment* 25 (5): 397-422.

Henry, S. Schoumaker, B. and Beauchemin, C., (2004b) 'The impact of rainfall on the first out-migration: A multi-level event-history analysis in Burkina Faso'. *Population and Environment* 25 (5): 423-460.

Hugo, G. (2008) *Migration, Development and Environment*. Geneva: International Organization for Migration (IOM).

IPCC (2013) *Annex I: Atlas of Global and Regional Climate Projections* [van Oldenborgh,

G.J., Collins, M., Arblaster, J., Christensen, J.H., Marotzke, J., Power, S.B., Rummukainen, M., and Zhou, T. (eds.)]. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., Qin, D., Plattner, G.-K., Tignor, M., Allen, S.K., Boschung, J., Nauels, A., Xia, Y., Bex, V., and Midgley P.M. (eds.)]. Cambridge, New York: Cambridge University Press.

IPCC (2014) *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, New York: Cambridge University Press.

Jones, R.N., Patwardhan, A., Cohen, S.J., Dessai, S., Lammel, A., Lempert, R.J., Mirza, M.M.Q., and von Storch, H. (2014) 'Foundations for decision making'. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Field, C.B., Barros, V.R., Dokken, D.J., Mach, K.J., Mastrandrea, M.D., Bilir, T.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova, R.C., Girma, B., Kissel, E.S., Levy, A.N., MacCracken, S., Mastrandrea, P.R. and White, L.L. (eds.)]. Cambridge and New York: Cambridge University Press, 195-228.

Juul, K., and Lund, C. (2002) 'Negotiating Property in Africa: Introduction' In: Juul, K. and Lund, C. (eds.) *Negotiating Property in Africa*. Portsmouth: Heinemann.

Kirtman, B., Power, S.B., Adedoyin, J.A., Boer, G.J., Bojariu, R., Camilloni, I., Doblas-Reyes, F.J., Fiore, A.M., Kimoto, M., Meehl, G.A., Prather, M., Sarr, A., Schär, C., Sutton, R., van Oldenborgh, G.J., Vecchi, G., and Wang, H.J. (2013) 'Near-term Climate Change: Projections and Predictability'. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., Qin, D., Plattner, G.-K., Tignor, M., Allen, S.K., Boschung, J., Nauels, A., Xia, Y., Bex, V., and Midgley P.M. (eds.)]. Cambridge, New York: Cambridge University Press.

Knight, R., Adoko, J., Auma, T., Kaba, A., Salomao, A., Siakor, S., and Tankar, I. (2012) *Protecting Community Lands and Resources: Evidence from Liberia, Mozambique*

and Uganda. Rome and Washington DC: Namati and International Development Law Organisation.

Kniveton D., Smith C., Black R., and Schmidt-Verkerk K. (2009) 'Challenges and approaches to measuring the migration-environment nexus'. In: Laczko F., Aghazarm C.. (eds.) *Migration, Environment and Climate Change: Assessing the Evidence*. Geneva: International Organization for Migration (IOM), 41-111.

Kniveton, D., Smith, C., and Wood, S. (2011) 'Agent-Based Model Simulations of Future Changes in Migration Flows in Burkina Faso. *Global Environmental Change* 21 (1): S34-S40.

Kniveton, D., Smith, C.D. and Black, R. (2012) 'Emerging migration flows in a changing climate in dryland Africa' *Nature: Climate Change* 2 (6): 444-447.

Kopytoff, I. (1987) *The African Frontier: Reproduction of Traditional African Societies*. Bloomington: Indiana University Press.

Lee, E.S. (1966) 'A Theory of Migration'. *Demography* 3 (1): 47-57.

Lentz, C. (2013) *Land, Mobility and Belonging in West Africa*. Bloomington and Indianapolis: Indiana University Press.

Lognibe, I. (2008) 'Walking for Land, Drinking Palm Wine: Migrant Farmers and the Historicity of Land Conflict in Brong Ahafo, Ghana'. In: Falola, T. and Afolabi, N. (eds.) *Trans-Atlantic Migration, Paradoxes of Exile*. New York and Oxon: Routledge, 141-163.

Lund, C. (2000) *African Land Tenure: Questioning Basic Assumptions*. London: IIED.

Mabogunje, A.L. (1970) 'Systems Approach to a Theory of Rural-Urban Migration'. *Geographical Analysis* 2 (1): 1-18.

Maconachie, R., and Fortin, E., (2016) *Gender and Fairtrade – The stories of women cocoa farmers in Ghana*. Video produced as part of project on 'Fairtrade production and gender in Ghana: a participatory video approach'. [online] <https://vimeo.com/154721350> [accessed 2 Sept 2016].

Marchetta, F. (2013) 'Migration and nonfarm activities as income diversification strategies: The case of Northern Ghana'. *Canadian Journal of Development Studies* 34 (1): 1-21.

Marino, E. (2009) 'Imminent Threats, Impossible Moves, and Unlikely Prestige:

Understanding the Struggle for Local Control as a Means Towards Sustainability, Linking Environmental Change, Migration & Social Vulnerability'. *SOURCE* 11.

Martin, M., Billah, M., Siddiqui, T. Abrar, C.R., Black, R., and Kniveton, D. (2014) 'Climate-related migration in rural Bangladesh: a behavioural model.' *Population and Environment* 36: 85-110.

McGregor, J. (1994) 'Climate change and involuntary migration: implications for food security'. *Food Policy* 19 (2): 120-132.

McLeman, R., and Hunter, L (2010) 'Migration in the context of vulnerability and adaptation to climate change: Insights from analogues'. *Wiley Interdisciplinary Reviews Climate Change* 1 (3): 450-461.

McLeman R., Mayo D., Strebeck E., and Smit B. (2008) 'Drought adaptation in rural eastern Oklahoma in the 1930s: lessons for climate change adaptation research'. *Mitigation and Adaptation Strategies for Global Change* 13: 379-400.

McLeman, R., Schade, J., and Faist, T. (2015) 'Introduction: Environment, Migration and Inequality – A Complex Dynamic.' In: McLeman, R., Schade, J., and Faist, T. (eds) *Environmental Migration and Social Inequality*. New York, Dordrecht and London: Springer.

McLeman, R., and Smit, B. (2006) 'Migration as an adaptation to climate change' *Climatic Change* 76 (1-2): 31-53.

Moller-Jensen, L., and Knudsen, M.H. (2008). 'Patterns of Population Change in Ghana (1984-2000): Urbanization and Frontier Development'. *GeoJournal* 73 (4): 307-320.

Morrissey, J. (2012a) 'Rethinking the 'debate on environmental refugees': from 'maximalists and minimalists' to 'proponents and critics''. In: *Journal of Political Ecology* 19: 36-49.

Morrissey, J. (2012b) 'Contextualising links between migration and environmental change in northern Ethiopia'. Hastrup K. and Fog Olwig, K. (eds.) *Climate change and human mobility: Global challenges to the social sciences*. Cambridge: Cambridge University Press.

Morrissey, J. (2014) 'Environmental Change and Human Migration in Sub-Saharan Africa'. In: Piguet, E. and Laczko, F., (eds.) *People on the Move in a Changing Climate: The*

Regional Impact of Environmental Change on Migration. New York, London: Springer, 81-109.

Mortimore, M. (1989) *Adapting to drought: Farmers, famines and desertification in West Africa*. Cambridge: Cambridge University Press.

Murray Li, T. (2014) *Land's End: Capitalist Relations on an Indigenous Frontier*. Durham and London: Duke University Press.

Myers, N., and Kent, J. (1995) *Environmental Exodus: An Emergent Crisis in the Global Arena*. Washington DC: Climate Institute.

Myers N. (2001) 'Environmental refugees: A growing phenomenon of the 21st century. *Philosophical Transactions of the Royal Society B: Biological Sciences* 357 (1420): 609-613.

Myers, N. (2005) 'Environmental refugees: an emerging security issue'. 13th Economic Forum, Prague, 13-27 May.

Nyantakyi-Frimpong, H. and Bezner-Kerr, R. (2015) 'The Relative Importance of Climate Change in the Context of Multiple Stressors in Semi-Arid Ghana'. *Global Environmental Change* 32: 40-56.

Oelbaum, J. (2010) 'Spatial Poverty Traps and Ethnic Conflict Traps: Lessons from Northern Ghana's 'Blood Yams''. ODI Working Paper 324; CPRC Working Paper 164. London: Overseas Development Institute.

Oliver-Smith, A. (2009) 'Nature, Society and Population Displacement—Toward an Understanding of Environmental Migration and Social Vulnerability'. InterSecTions No. 8. Bonn: United Nations University, Institute for Environment and Human Security (UNU-EHS).

Owusu, K, and Waylen (2013) 'The changing rainy season climatology of mid-Ghana'. *Theoretical and Applied Climatology* 112 (3): 419-430.

Pedersen, J. (1995) 'Drought, migration and population growth in the Sahel: The case of Malian Gourma, 1900-1991'. *Population Studies*: 49 (1): 111-126.

Perch-Nielsen S., Battig M.B., and Imboden D. (2008) 'Exploring the link between climate change and migration'. *Climate Change* 91: 375-393.

Piguet, E. (2010) 'Linking climate change, environmental degradation, and migration: a methodological overview'. *Wiley Interdisciplinary Reviews Climate Change* 1 (4): 517-524.

Quan, J., Ubink, J. and Antwi, A. (2008) 'Risks and opportunities of state intervention in customary land management: Emergent findings of Land Administration Project Ghana'. In: Ubink, J., and Amanor, K., (eds), *Contesting Land and Custom in Ghana: State, Chief and Citizen*. Leiden: Leiden University Press, 183-208.

Rademacher-Schulz, C., Schraven, B., and Mahama, E.S. (2014) 'Time Matters: Shifting Seasonal Migration in Northern Ghana in Response to Rainfall Variability and Food Insecurity'. *Climate and Development* 6 (1): 46-52.

Ramalingam, B. (2013) *Aid on the Edge of Chaos: Rethinking International Cooperation in a Complex World*. Oxford: Oxford University Press.

Rammel, C., Stagl, S. and Wilfing, H. (2007) 'Managing complex adaptive systems — A co-evolutionary perspective on natural resource management'. *Ecological Economics,* 63: 9-21.

Ransan-Cooper, H., Farbotko, C., McNamara, K.E., Thornton, F., and Chevalier, E. (2015) 'Being(s) framed: The means and ends of framing environmental migrants'. *Global Environmental Change* 35: 106-115.

Renaud, F.G., Dun, O., Warner, K., and Bogardi, J. (2011). 'A decision framework for environmentally induced migration'. *International Migration* 49 (S1): 5-29.

Richards, P.D., and VanWey, L.K. (2015) 'A Second Act in Rural Migration in Western Pará: Rural out-migration and the legacy of Amazon colonization.' *Journal of Latin America Geography* 14(2): 53-76.

Russell, J., Talbot, M.R., and Haskell, B.J. (2003) 'Mid-Holocene climate change in Lake Bosumtwi, Ghana'. *Quaternary Research* 60: 133-141.

Schoneveld, G. (2011) 'The anatomy of large-scale farmland acquisitions in sub-Saharan Africa'. CIFOR Working Paper 85. Bogor, Indonesia: Center for International Forestry Research.

Schoneveld, G. (2013) *The Governance of Large-Scale Farmland Investments in Sub-Saharan Africa: A Comparative Analysis of the Challenges for Sustainability*. PhD

thesis, LANDac partnership, IS Academy on Land Governance for Equitable and Sustainable Development, Utrecht, The Netherlands.

Schoneveld, G., German, L., Nutakor, E. (2011) 'Land-based Investments for Rural Development? A Grounded Analysis of the Local Impacts of Biofuel Feedstock Plantations in Ghana'. *Ecology and Society*, 16(4): article 10.

Scoones, I. (1998) 'Sustainable Rural Livelihoods: A Framework for Analysis'. IDS Working Paper 72. Brighton: Institute of Development Studies.

Scoones, I. (2009) 'Livelihoods perspectives and rural development'. *The Journal of Peasant Studies*, 36 (1): 171-196.

Scoones, I., Hall, R., Borras, S.M., White, B., and Wolford, W. (2013) 'The politics of evidence: methodologies for understanding the global land rush'. *Journal of Peasant Studies* 40 (3): 469-483.

Scoones, I., Marongwe, N., Mavedzenge, B., Murimbarimba, F., Mahenehene, J. and Sukume, C. (2012) 'Livelihoods after Land Reform in Zimbabwe: Understanding Processes of Rural Differentiation'. *Journal of Agrarian Change* 12 (4): 503-527.

Shack, W.A., and Skinner, E.P. eds (1979) *Strangers in African Societies*. Berkeley: University of California Press.

Shannahan, T.M., Overpeck, J.T., Wheeler, C.W., Beck, J.W., Pigati, J.S., Talbot, M.R., Scholz, C.A., Peck, J., and King, J.W. (2006) 'Paleoclimatic variations in West Africa from a record of Pleistocene and Holocene lake level strands of Lake Bosumtwi, Ghana'. *Palaeogeography, Palaeoclimatology, Palaeoecology* 242: 287-302.

Shipton, P. (2002) 'Foreword', in Juul, K. and Lund, C. (eds.) *Negotiating Property in Africa*. Portsmouth: Heinemann.

Simmel, G. (1950) 'The Stranger.' In: *The Sociology of Georg Simmel*, ed. and trans. K. Wolff. London: Free Press, 402-408.

Skeldon, R. (2010) 'The Current Global Economic Crisis and Migration: Policies and Practice in Origin and Destination'. Migration, Globalisation and Poverty DRC Working Paper T-32. Brighton: Development Research Centre on Migration, Globalisation and Poverty, University of Sussex.

Smith, C. (2014) 'Modelling migration futures: development and testing of the rainfall agent-based climate model – Tanzania'. *Climate and Development* 6 (1): 77-91.

Sow, P., Adaawen, S.A., and Scheffran, J. (2014) 'Migration, Social Demands and Environmental Change Amongst the Frafra of Northern Ghana and the Biali in Northern Benin'. *Sustainability (Switzerland)* 6 (1): 375-398.

Stark, O. (1978) *Economic-Demographic Interactions in Agricultural Development: The Case of Rural-to-Urban Migration*. Rome: FAO.

Stark, O. (1991) *The Migration of Labour*. Cambridge and Oxford: Blackwell.

Stern, N. (2007) *The Economics of Climate Change: The Stern Review*. Cambridge: Cambridge University Press.

Sward, J. (2012) 'LAC Regional Findings of Foresight Report'. Briefing Paper published by Foresight. London: Government Office for Science.

Sward, J. (2016) 'Moving to 'greener pastures'? The complex relationship between internal migration, land tenure and poverty in mid-Ghana'. Migrating out of Poverty RPC Working Paper 33. Brighton: Migrating out of Poverty Research Programme Consortium, University of Sussex.

Sward, J., and Codjoe, S. (2012) 'Human Mobility and Climate Change Adaptation Policy: A Review of Migration in National Adaptation Programmes of Action (NAPAs)'. Migrating out of Poverty RPC Working Paper No. 6. Brighton: Migrating out of Poverty Research Programme Consortium, University of Sussex.

Talbot, M.R. and Delibrias, G. (1977) 'Holocene variations in the level of Lake Bosumtwi, Ghana' *Nature* 268: 722-724.

Talbot, M.R., and Delibrias, G., (1980) 'A new late-Holocene water-level curve for Lake Bosumtwi, Ghana'. *Earth and Planetary Science Letters* 47: 336-344.

Tanle, A. (2015) 'Towards an integrated framework for analysing the links between migration and livelihoods'. *Norsk Geografisk Tidsskrift - Norwegian Journal of Geography*, 69 (5): 257-264.

Tonah, S. (2007) 'Managing Farmer-Herder Conflicts in the Middle Volta Basin of Ghana'. In: Tonah, S. (ed.) *Ethnicity, Conflicts and Consensus in Ghana.* Accra: Woeli Publishing Services, 240-260.

Toulmin, C. and Quan, J. (2000) 'Evolving land rights, tenure and policy in sub-Saharan Africa'. In: Toulmin, C. and Quan, J. (eds.) *Evolving land rights, tenure and policy in sub-Saharan Africa*. London: DFID/IIED/NRI.

Toulmin, C., Lavigne Delville, P., and Traoré, S. (2002) 'Introduction' in Toulmin, C., Lavigne Delville, P., and Traoré, S. (eds.) *The Dynamics of Resource Tenure in West Africa*.

Ubink, J. (2009) 'Chiefs and Farmers: Social Capital and the Negotiability of Rights to Land in Ghana'. Legal Anthropology from the Low Countries. *Special Issue Recht der Werkerijkhied*. (Bocker, A., van Rossum, W., and Weyers, H. eds): 49-67.

UNDESA (2013) *World Population Policies 2013*. New York: United Nations Department of Economic and Social Affairs.

UNDP (2009) *Human Development Report 2009; Overcoming barriers: Human mobility and development*. New York: United Nations Development Programme.

USGS (2013) *West Africa Land Use and Land Cover Trends Project*. [online] Available at: <http://lca.usgs.gov/lca/africalulc/results.php> [accessed 28 September 2016].

Van Apeldoorn, G. (1981). *Perspectives on drought and famine in Nigeria.* London: George Allen and Unwin.

Van der Geest, K. (2011a) 'North-South Migration in Ghana: What Role for the Environment?'. *International Migration* 49: 69-93.

Van der Geest, K. (2011b) 'The Dagaba Farmer at Home and Away: Migration, Environment and Development in Ghana'. Leiden: African Studies Centre.

Van der Geest, K., Burger, K., Yelfaanibe, A., and Dietz, T. (2015). 'Not the usual suspects: Environmental impacts of migration in Ghana's Forest-Savanna Transition Zone'. In: Chabay, I., Frick, M. & Helgeson, J. (eds). *Land Restoration: Reclaiming Landscapes for a Sustainable Future*. Waltham, Mass.; San Diego; Oxford and London: Elsevier, 463-481.

Van der Geest, K., Vrieling, A., and Dietz, T. (2010) 'Migration and environment in Ghana: a cross-district analysis of human mobility and vegetation dynamics.' *Environment & Urbanization* 22 (1): 107-124.

VanWey, L.K., Guedes, G.R., D'Antona, A. (2012) 'Out-Migration and Land Use Change in Agricultural Frontiers: Insights from Altamira Settlement Project.' *Population and Environment* 34 (1): 44-68.

Warner, K., Ehrhart, C., Sherbinin, A., de Adamo, S., Chai-Onn, T. (2009) 'In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and

Displacement'. A policy paper prepared for the 2009 Climate Negotiations. Bonn, Germany: United Nations University, CARE, and CIESIN-Columbia University.

Weis, T. (2007) *The Global Food Economy: The Battle for the Future of Farming*. London: Zed Books.

Where the Rain Falls (2012) Project website. [online] Available at: < http://wheretherainfalls.org/mission/> [Accessed 28 September 2016].

White, B., Borras, S.M., Hall, R., Scoones, I., and Wolford, W. (2012) 'The new enclosures: critical perspectives on corporate land deals'. *Journal of Peasant Studies* 39 (3): 619-647.

Whitehead, A. (2009) 'The gendered impacts of liberalization policies on African agricultural economies and rural livelihoods'. In: Razavi, S. (ed.) *The Gendered Impacts of Liberalization*. London: Routledge and UNRISD, 37-62.

Whitehead, A. (2010). 'Foreword'. In: Tsikata, D. and Golah, P. eds., *Land Tenure, Gender and Globalisation: Research and Analysis from Africa, Asia and Latin America.* Ottawa: International Development Research Centre.

Whitehead, A. and Tsikata, D. (2003) 'Policy discourses on women's land rights in sub-Saharan Africa: the implications of the return of the customary'. *Journal of Agrarian Studies* 3 (1-2): 67-112.

Whitehouse, B. (2012) *Migrants and Strangers in an African City: Exile, Dignity and Belonging.* Bloomington: University of Indiana Press.

Wiggins, S., and Leturque, H. (2011) 'Ghana's sustained agricultural growth: Putting underused resources to work'. London: Overseas Development Institute.

Wolford, W. (2015) 'From Pangaea to Partnership: The Many Fields of Rural Development'. *Sociology of Development* 1 (2): 210-232.

Woodhouse, P. (2003) 'African enclosures: A default mode of development'. *World Development* 31 (10): 1705-1720.

World Bank (2011) *Project Appraisal Document to Republic of Ghana for a Land Administration Project – 2*. Washington DC: World Bank.

Yaro, J., Codjoe, S., Agyei-Mensah, S., Darkwah, A., Kwankye, S. (2011) 'Migration and Population Dynamics: Changing Community Formations in Ghana'. Centre for

Migration Studies, Migration Studies Technical Paper No. 2. Legon: Centre for Migration Studies, University of Ghana.

Yelsang, F.D. (2013) 'Agricultural Land Use Conflict Between Landlords and Migrant Farmers in Ghana: An Examination of Issues Affecting Dagaba Migrants in the Brong Ahafo Region'. *European Scientific Journal* 9 (29): 381-402.

Yudelman, M. (1964) 'Some aspects of African agricultural development'. In: Robinson, E.A.G. (ed.) Economic Development for Africa South of the Sahara. Proceedings of a Conference Held by the International Economic Association. London: Macmillan.

Zickgraf, C., Vigil, S., de Longueville, F., Ozer, P., and Gemenne, F. (2016) 'The Impact of Vulnerability and Resilience to Environmental Changes on Mobility Patterns in West Africa'. KNOMAD Working Paper 14. Washington DC: KNOMAD Global Knowledge Partnership on Migration and Development.

Appendix 1: Qualitative Interviews – Schedule of Questions

SCHEDULE OF QUESTIONS – QUALITATIVE INTERVIEWS

To be administered to different types of migrants in each settler community.

NB: all information will be kept strictly confidential

SECTION 1 – PERSONAL INFORMATION

1. Name:
2. Gender:
3. Year of birth:
4. Ethnic group:
5. Years of schooling:
6. Members of household & ages:

SECTION 2 – MIGRATION

1. Years in current location:

2. Previous place(s) of residence (first migration and subsequent trips; focus on 'permanent moves rather than seasonal migration!):

3. How did you first decide to move to this place? How did you hear about it? Did you consider moving to other places as well?

4. Were you influenced by previous migration decisions of relatives or friends before coming here? (Or, in case of 'pioneers' – did you influence relatives or friends to follow you? How/when did this occur?)

5. Did you move around seasonally (as a farm worker or otherwise) before you moved permanently for the first time?

6. Did you move here by yourself, or as part of a larger group? (family/household, kin, ethnic group)? If the latter, please explain. If you moved solo, have other people from your household back home migrated to other locations? If so, where?

7. Did you discuss the decision to move here with members of your household? Who took the decision?

8. Is migration common in your home community? Which types of people are most likely to migrate, and who is most likely to remain behind? (men, women, particular ages or ethnic groups?)

9. Have people from your home community moved to other destinations? If so, what are the most common ones? (in Ghana and elsewhere)

10. Are you in contact with other migrants from your home region who have moved to different spots in Brong Ahafo? If so, what type of issues do you discuss with them? Follow-up question: Are settler farmers moving around to different spots within BA?

11. Reasons for leaving home (or last place) – did any of these contribute? (Important versus not important)
    a. Social: lack of schooling or healthcare
    b. Land/farming: no land available; conflicts over land
    c. Environment: one rainy season; decline In soil fertility; drought; floods; insects; etc.
    d. Economic: Lack of income generating opportunities/ not enough income

12 Remittances: has your household sent money home in the past 12 months? How many times? What is the typical amount sent? (If not a regular sender – have you sent money in the past?)
    a. Who do you send money to?
    b. Do you know what they use it for? (Food, healthcare, debt repayment, investment [house, livestock, etc.], other])
    c. Could your relatives get by without these payments, or are they essential?
    d. Do you also send foodstuffs? If so, what and how much?
    e. Do you receive money from relatives or kin elsewhere (home community, Accra/Kumasi, abroad?)

13 Return: do you intend to return to your home community one day? Explain the reasons why or why not?
    a. If so, when?
    b. Is it typical for migrants from your home community to return?

c. Do you visit home regularly? If so, how many times have you been in the last year?

14 Future migration: do you see yourself moving to another location in the next 5 years (other than your home community)? If so, which places would you consider moving to and why?

SECTION 3 – FARMING AND LAND TENURE

1. What crops do you cultivate? (Maize, yams, cassava, cashews, groundnuts, rice, cocoa, sorghum, beans, peppers, other). What techniques do you use for planting each? (manual vs. mechanical field preparation; use of inputs, etc.).

2. What proportion of your harvest goes to: (a) sale; (b) household consumption; (c) feed for animals; (d) other uses – please explain

3. How much land do you currently farm? Has the amount increased or decreased since your arrival here?

4. What is the status of your land? (Rented, communal, you own it, other). If rented, who do you pay rents to, and how much is it per season? (Follow-up question: Who owns the land, and what is their claim to it?)

5. Have land access arrangements changed since you arrived here? Please explain…

6. Do you farm the same plot of land each season, or do you rotate to different plots? What is the reasoning behind your strategy?

7. Is there less free land available now compared to when you arrived? If so, what are the reasons for this? Does this mean that less land is left fallow?

8. How did you first access land when you arrived? Are new arrivals still able to request land? If so, how does this process work? (*more appropriate for pioneers; skip for newer arrivals*)

9. Do you use farming techniques brought from your home community, or have you adopted new farming practices?

10. What would you do if you lost access to the land you are currently farming on? (Migrate to another farming community, look for other land in the community, change occupations, etc.)

SECTION 4 - PERCEPTIONS OF ENVIRONMENTAL CHANGE

1. When you first arrived here, how did you begin to understand the rainfall patterns? Did you speak to migrant farmers, local farmers, or others about this?

2. How do you decide when to plant your fields each season? (your own experience, talking to other farmers, forecast information, signs in the landscape – flowering trees, termite mounds, well levels, river/swamp levels)

3. In recent years, have your yields declined? If so, what were the reasons for this? Please explain each, as relevant:
   a. drought
   b. flood
   c. irregular rainfall
   d. insect invasion
   e. crop disease
   f. animals/birds
   g. lack of money
   h. lack of labour
   i. rising cost of inputs/less fertile soil

4. Have rainfall patterns changed since you arrived? If so, how? What do you think is the reason for this? (Selective deforestation; moral reasons; religious explanations, etc.) *again, more appropriate for pioneers/long-term residents; skip for newer arrivals*

5. Bushfires: are they common in the area? Do they have a harmful or beneficial effect on the landscape?

SECTION 5 – LIVELIHOODS, COPING STRATEGIES & HOUSEHOLD ASSETS

1. Does your household receive income from non-farm activities? (livestock, fishing, other trades). If so, which household members are involved in these non-farm activities?
   a. What is the total amount of money your household has at its disposal every month?

2. Are things better for your household since migration to this locality? Please explain why or why not? (or, if a long-term migrant resident, whether this has changed over time)

3. Do you or others in your household own a mobile phone? How many years have you had access to it? What do you use it for? (staying in touch with family back home/elsewhere, mobile banking, getting forecast information, other?)

4. Are there any months of the year where you regularly do not have enough food to eat? If so, how do you get by during these times? (reduce household consumption, sell assets/livestock, migration of household members, borrow money/food from neighbours/relatives back home).
   a. How do you cope if fields fail and you lose your investment for the season?

5. Have you changed the types or amount of crops you plant in response to changes in rainfall? Please explain how this may has affected your strategy (e.g. a switch from maize to cassava, etc.)

6. Do you have savings/loans? Please explain.

7. Are you able to afford [all] your children's school fees?

8. Housing situation: did you build your own house, or are you staying in some else's structure?

9. Transport: do you own a…motorcycle, bicycle, other (tractor, car)?

10. Do you feel like your situation, compared with other HH in the village is better than average, worse than average, or about average?

Appendix 2: Information Sheet

University of Sussex

Project title: Land tenure, environmental change & rural livelihoods in Brong Ahafo, Ghana

What's happening?

I am conducting a PhD research project in three rural villages in the Brong Ahafo region, with the help of a research assistant. The study consists of (1) semi-structured interviews and (2) focus group discussions.

Why is this research being done?

This research is investigating the connections between land tenure, environmental change and livelihood outcomes in rural communities in the Brong-Ahafo region of Ghana. The purpose of this study is to look at the balance between land, climate change and development in different community-level settings.

What are you being asked to do?

As part of this study, I would like to invite you to take part in a: (1) semi-structured interview; (2) focus group discussion; [NB: delete as applicable]. This will involve questions about land availability in the community, recent environmental events, employment, education, and family history.

What will happen to the information you provide?

If you agree to take part in this study, everything you say and the information that you provide will be kept confidential and will be stored safely and securely, so that only myself and my research assistants will have access to it. I will use the information provided for my PhD dissertation and for other related publications. All information will be made anonymous, so that the identity of individual participants is protected.

Do you have to take part?

No. It is completely up to you whether you take part in this research. You may also choose to withdraw at any point during the course of the research.

Who has approved this study?

The research has been approved by the Social Sciences & Arts Cross-Schools Research Ethics Committee (C-REC) at the University of Sussex, United Kingdom. The Center for Migration Studies at the University of Ghana (Legon) is the host institution for this research.

Who is doing this research?

This research is being carried out by Jon Sward, a PhD student at the University of Sussex, UK, with field assistance from Rev Frank Twumasi, Scholars in Transit NGO (Nkoranza). For more information, please contact Mr Sward: js290@sussex.ac.uk or his supervisors, James Fairhead: j.r.fairhead@sussex.ac.uk and Dominic Kniveton d.kniveton@sussex.ac.uk

Thank you

Appendix 3: Consent form for qualitative interviews

University of Sussex

CONSENT FORM FOR QUALITATIVE INTERVIEW PARTICIPANTS

PROJECT TITLE:	**Land tenure, environmental change and rural livelihoods in Brong Ahafo, Ghana**
Project Reference:	ER/JS290/1

Please circle and initial as appropriate:

1. I agree to take part in the above University of Sussex research project. I have had the project explained to me and I have read and understood the Information Sheet, which I may keep for my records: **Yes / No**

2. I understand that agreeing to take part means that I am willing to be interviewed by the researcher: **Yes / No**

3. (a) I understand that any information I provide is confidential, and that no information that I disclose will lead to my identification in the written outputs of the project, either by the researcher or by any other party: **Yes / Not applicable**

OR

(b) I understand that I have given my approval for my name and/or the name of my town/community, and/or the name of my workplace to be used in the written outputs of the project, and in further publications: **Yes / Not applicable**

4. I understand that my participation is voluntary, that I can choose not to participate in part or all of the interview, and that I can withdraw at any stage without being penalised or disadvantaged in any way: **Yes / No**

5. I consent to the processing of my personal information for the purposes of this research. I understand that, in cases where anonymity has been requested, such information will be treated as strictly confidential and handled in accordance with the Data Protection Act 1998: **Yes / No**

6. I understand that data collected as part of this research project may be used in further research outputs. Requests for anonymity will be honoured in all cases: **Yes / No**

Name: _____

Signature: _____

Date: _____