Climate Imaginaries and Human Mobility: Complicating Climate Mobility as Adaptation in Thailand

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จินตนาการภูมิอากาศและการเคลื่อนย้ายของมนุษย์: ความซับซ้อนของการเปลี่ยนแปลงภูมิอากาศในฐานะการปรับตัวในประเทศไทย

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ในหลายศตวรรษที่ผ่านมา กสิกรไทยเคลื่อนย้ายครอบครัวตามความเปลี่ยนแปลงของภูมิอากาศและสิ่งแวดล้อม อย่างไรก็ตามในปัจจุบันในกรอบของ “ภูมิอากาศการเคลื่อนย้ายเพื่อปรับตัว” มีความคลุมเครือในการประกอบนโยบายเพราะแรงดันในความสัมพันธ์ของหน่วยอำนาจผู้ต้องรับผิดชอบกับความไม่เสมอภาคของกลุ่มชน

วิทยานิพนธ์นี้ใช้แนวคิดของ”จินตนาการ”แยกโครงสร้างเพื่อแสดงให้เห็นว่าความรู้และคุณค่าเป็นปัจจัยสำคัญในการพิจรณาต่อรองเพื่ออนาคต กรณีศึกษาจากหมู่บ้านโนนแดง จังหวัดอุบลราชธานี ประเทศไทยใช้สองแนวทางเพื่อวิเคราะห์จินตนาการอิทธิพลในประเทศไทยและการ

ทำงานรวมถึงข้อจำกัดของการตัดสินใจโดยกสิกรในหมู่บ้านที่จะเคลื่อนย้ายในกรณีเกียวกับภาวะการเปลี่ยนแปลงของสิ่งแวดล้อม ทางแรกพิจารณาวาทกรรมในนโยบายของภูมิอากาศเปลี่ยนแปลง, การเคลื่อนย้ายและการพัฒนาในประเทศพบว่าผู้กำหนดนโยบายปล่อยให้เหล่ากสิกรใช้ทรัพยากรที่มีอยู่เป็นเครื่องประกอบการของการพัฒนาการอยู่อาศัย อีกข้อหนึ่งจินตนาการเคลื่อนย้ายตามภูมิอากาศขึ้นอยู่กับเหล่าผู้อพยพที่มีฐานะสามารถโยกย้ายไปที่ไกลเพื่อการเปลี่ยนแปลงชีวิตในชนบท ทางที่สองวิเคราะห์โดยการสัมภาษณ์กสิกรในหมู่บ้านโนนแดงเพื่อแสดงถึงความซับซ้อนของจินตนาการและการร่วมมือเพื่อสร้างนโยบายทางเศรษฐกิจที่เป็นแรงผลักดันการเคลื่อนย้าย(หรือไม่) ผลการวิเคราะห์พบว่าความเหลื่อมล้ำในฐานะของครอบครัวมีอิทธิพลในการรับรู้ถึงความเสี่ยงจากสิ่งแวดล้อมและทรัพยากรและการตัดสินใจที่จะเคลื่อนย้าย

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For centuries, agricultural households in Thailand have engaged in mobility to adapt to environmental change and climate shocks. However, current framings of "climate migration as adaptation" obscure how these adaptation pathways are constructed by existing power relations, leaving institutions liable to re-enforce inequality. This thesis uses the concept of "imaginaries" to de-construct how certain knowledge and values advance over others in the process of negotiating and acting towards a preferable future. It employs a dual methodological approach with a case study of Baan Non Daeng in Ubon Ratchathani, Thailand to analyze dominant imaginaries in Thailand and their function and limitations in assessing smallholder farmer mobility decision-making in the context of slow on-set environmental change. The thesis first performs a discourse analysis of institutional policy texts on climate change, migration, and development in Thailand to find that institutions value futures that encourage smallholder farmers to leverage their existing resources and act as entrepreneurial agents of development. It also finds that climate mobility imaginaries are founded on the idea of the well-resourced migrant who has access to longer distance mobilities that can transform rural livelihoods. The thesis then uses interviews conducted in Baan Non Daeng to complicate these imaginaries and engage with structural political economy factors driving relative (im)mobilities. It finds that relative positioning influences household perceptions of environmental risks and resources that contribute towards differing practices and scales of mobility. The thesis ends by arguing for processes like knowledge co-production and translocal visioning that better address root issues of marginalization in policy and practice.

Field of Study:	International Development Studies	Student's Signature .....
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ABBREVIATIONS

Bank for Agriculture and Agricultural Cooperatives
BAAC

Charoen Pokphand Group CP

Department of Disaster Prevention and Mitigation
DDPM

Department of Water Resources
DWR

German Federal Ministry of Education and Research
BMBF

International Labor Organization
ILO

Land Development Department
LDD

Ministry of Agriculture and Cooperatives
MOAC

Ministry of Environment
MOE

Ministry of Interior
MOI

Ministry of Labor
MOL

National Economic and Social Development Plan
NESDP

Participatory Rural Appraisal
PRA

Raks Thai Foundation
RTF

Royal Irrigation Department
RID

Sustainable Development Goals

SDGs

Thailand Development Research Institute

TDRI

United Nations Development Program

UNDP

United Nations Economic and Social Commission for Asia and the Pacific

UNESCAP

United Nations Children's Fund

UNICEF

CHAPTER 1: INTRODUCTION

1.1 Problem Statement

For centuries, agricultural households in Thailand have engaged in mobility to adapt to economic crises, land shortage, agricultural seasonality, and adverse environmental change (Barrott, 2017). However, these mobilities are taking place in an increasingly globalized world with worsening climate impacts (Waldinger, 2015). Climate change can act as both a direct stressor for migration (e.g. disaster displacement) and as a force that contributes towards migration alongside other factors (e.g. labor migration due to lower crop productivity caused by drought). Unlike sudden-onset events, slow on-set environmental change is less immediately visible and its impacts are produced over a longer period. It includes phenomena such as increasing climate variability, greater frequency of droughts or flooding, sea level rise, biodiversity loss, and riverbank erosion (Zickgraf, 2021).

Perceptions of the climate crisis and resulting climate regimes are constantly evolving through processes of re-negotiation, resistance, and changing landscapes (Paprocki, 2019; Rey-Valette et al, 2019; Scott et al, 2020). Human-nature relations across communities intersect with identities like age, gender, class, and race to produce varied climate risks, responses, and mobilities (Boas et al, 2022; Sultana, 2014; Tuana, 2013). Particularly for more mobile communities, individuals learn to live with certain levels of environmental risk, which practitioners may assess as risks that need to be managed (Adger et al, 2013). These differences in value orientation also produce imaginings of climate adaptation that can obscure local experiences and oversimplify mobilities (Sakdapolrak et al, 2016; Wiegel et al, 2021). For example, expert framing of the climate crisis often focuses on top-down strategies like relocation or “migration as adaptation” towards what is deemed a “preferable” future (Afifi et al, 2016). Proponents of migration as adaptation express that climate migration can improve sustainable development progress, reduce income inequalities through remittances, and serve as an adaptive climate response (Bardsley and Hugo, 2010; Bhula-or, 2020). Development practitioners also tend to prioritize neoliberalist adaptation policies, using adaptation projects as opportunities for livelihood

diversification that increase capital across changing spatial boundaries (Paprocki, 2019; Sakdapolrak et al, 2016). These imaginations of the climate future, however, are based in historical understandings and institutions, which leave it liable to re-enforce inequality and produce maladaptations. Being critical about how climate futures are discussed in the context of human mobility will provide insight on how regimes can be reshaped and reorganized to alleviate present inequalities.

As the impacts of slow-onset environmental change increase, there needs to be a greater understanding of how mobilities are constructed relationally through a web of economic, political, social, bio-physical, and legal processes, where risks are distributed unevenly (Wiegel et al, 2019). Identities can also compound to produce different values and framing related to climate change and adaptation, and intersectionality can draw out it the ways power and access to processes shaping mobility. By examining how actors perceive what *is* and what *ought to be* related to climate change, this thesis seeks to highlight how climate mobilities are related to issues of access and resources that are deeply connected to adaptation discourses produced on how to address the impacts of climate variability on local livelihoods (Jacobson et al., 2019). This thesis contributes to the discussion by assessing how climate mobilities constructed and complicated by power relations embedded in the production of climate imaginaries in Thailand. It uses a dual methodological approach towards this goal. It first examines prominent institutional adaptation discourses and assesses how these discourses encourage reformist problem-solving approaches to climate mobility for rural communities in Thailand. The thesis then contextualizes climate mobility in Thailand using the case study of Baan Non Daeng in Ubon Ratchathani province to demonstrate how climate mobilities are products of existing structural inequalities. The thesis concludes by arguing for a re-imagining of institutional policy and practice that can better address root systemic issues creating differential and often competing adaptation pathways.

1.2 Research Questions

How are climate mobilities constructed and complicated by climate imaginaries being produced in Thailand?

a) What climate imaginaries are (the three) institutional development actor collectives producing? How do these imaginaries influence adaptation discourses on climate mobilities in Thailand?
b) In the Baan Non Daeng case study, how are structural factors shaping adaptation pathways for smallholder farmer households in the village, and what are the implications for migration as adaptation?
c) How are institutional climate imaginaries complicated by the findings in the Baan Non Daeng case study? How can institutional policies in Thailand better address structural issues shaping climate mobility?

1.3 Research Objectives

a) The objective will be to organize and analyze discourses underlying policies addressing human mobility in the context of climate change from institutional development actor collectives in Thailand. These discourses will be used to understand dominant climate imaginaries being produced at the international, national, and NGO level.
b) The objective will be to collect, organize, and analyze local interviews on climate change and adaptation in Baan Non Daeng. Interviews will be conducted from a diverse sample that includes a range of agricultural farmers impacted by climate change as well as community leaders to draw out the ways in which climate mobilities are constructed in the context of power relations. The objective will be to understand how differential adaptation pathways are constructed and implications for mobilities and resilience across households.

c) The objective will be to understand how the case study complicates institutional imaginaries around climate mobility. This will include assessing how households are rendered responsible for their own adaptation by leveraging their existing resources. The objective will be to examine how institutional policies could be improved to better conceptualize climate mobilities towards practices that address structural factors marginalizing households and pushing them towards migration as adaptation.

1.4 Conceptual Framework

Climate Imaginaries Framework	
Dimension	**Components**
Knowledge	Information or awareness upon which imaginaries are based, cognitive and epistemic ways of understanding that inform the meanings and boundaries of what *is*
Values	Normative claims about how the future *ought* or *ought not to be*
Actions	Material commitments or practices produced as a function of resources, access, and ability
Positioning	Relative power in organizing, mobilizing, and governing towards a future, configured across political, social, economic, and ecological dimensions as well as time and space

Table 1. Climate Imaginaries Framework

The thesis uses the concept of "imaginaries" to analyze how knowledge and assumptions guide action towards a preferable future within a system (see Table 1). The development of the framework relies on two conceptualizations of the imaginary in the context of human-nature relations. Sheila Jassanoff (2010) contends that a climate imaginary is built around what *is* and what *ought* and that tensions arise when apolitical and universal imaginaries come in conflict with subjective, situated, and normative imaginations at the local level. Longhurst and Chilvers (2019) build on this research to create their own framework of energy futures analysis, suggesting that a vision is "shaped by, co-produces, and projects a range of meanings, knowings, doings, and modes of organizing." They use these dimensions to analyze the UK energy transition, using groupings of interests to analyze and map their relative visions of the future. Both frameworks focus on how imaginaries are constructed within sociomaterial settings and existing collective practices, as well as how imaginaries have real material consequences. This thesis draws from these frameworks to focus on how climate mobility is constructed and confined by imaginaries that ultimately prioritize certain interests over others in producing actions towards the future.

To understand how mobilities are constructed by power relations influencing imaginaries, this thesis will draw from concepts in human mobility and political ecology. Dominant climate discourses tend to emphasize humans as either drivers of climate change or recipients of its impacts, oversimplifying heterogeneous relationships with climate change in communities (Yusoff and Gabrys, 2011). This paper recognizes that households are exposed to differing levels of risk and have varying ability to be resilient because of larger structural factors that produce inequality (Marks, 2015). Resiliency is often relational as elites might have the capacity to prepare for an envisioned climate future, while non-elites might have limited capacity to prepare outside of the everyday (Arnell and Kothari, 2015). It is important to avoid deterministic perceptions of the local community; rather, this thesis will focus on individual agency and relative access to resources (e.g. loans,

machinery) that inform imaginaries (Phillipo et. al, 2015). However, these strategies can contribute to degradation or place families in situations of additional risk where they become indebted (Bastakoti et. al, 2014; Entwisle et al, 2005; Vanwey, 2003). Neoliberalist institutions drive responses towards climate adaptation and resilience that are often structured within capitalist and market-based imaginaries (Newell and Paterson, 2010; Szerszynski and Urry, 2010). Discourse around vulnerability, defined as a function of exposure and lack of capacity to adapt, can also encourage development solutions that focus on making individuals more productive and entrepreneurial (Felli, 2012). This expectation that individuals can accumulate capital through climate migration obscures how climate resiliency is relational and often exclusionary (Bayrak et al, 2022; Marks et al, 2022) Since climate change imposes uncertainties that demand transformation (Milkoreit, 2017), imaginaries can either uphold either the status quo or make present the need for something "otherwise" (Haiven and Khasnabish, 2010). The following framework will allow for a critical perspective of discourses driving institutional imaginaries, while climate mobilities will be assessed using critical concepts from human mobility and political ecology.

1.5 Methodology

1.5.1 Overview

This thesis will use a qualitative research methodology and rely on two forms of primary data collection: discourse analysis of key documents produced by institutional development actors and in-depth interviews and observations conducted at the case study location of Baan Non Daeng. The first method will provide an overview of relevant discourses driving institutional approaches to climate change and migration in Thailand. This will be used to analyze how imaginaries are being produced and the resulting solutions being advocated to support climate migrants. The argument will be supported by contextualizing findings within existing discourses on climate adaptation and migration influencing institutions in Thailand. The second method will use a case study to provide a grounded understanding of a Thai community experiencing environmental change to analyze how and why migration is used as an adaptation strategy. Interviews and observations will be used to assess the

relationship between environmental changes and livelihood changes, as well as how migration is tied to resource access and opportunity. Findings from the case study will be triangulated with relevant articles and reports connecting analysis to existing research in Thailand. This will be used to complicate the discourses and imaginaries being produced at the institutional level, and the paper will conclude with synthesis and analysis drawing out how to bridge understandings of the issue for more transformative action.

1.5.2 Discourse Analysis

This primary data collection will seek to understand underlying discourses guiding institutional action on climate change and human mobilities in Thailand. The analysis will use institutional policy documents guiding action on climate change and human mobility in Thailand to understand how group imaginaries articulate and manage this issue. Documents from IOM, the Thai state, and NGO practitioners have been selected because these groups are influential in framing and institutionalizing narratives related to development, climate change, and migration in Thailand. Institutional policy documents, rather than articles or other forms of media, have been chosen for analysis because they offer a comprehensive and systematic framing of how these groups are acting towards a specific desirable future (see Table 2 below).

Table 2. Selected Institutional Documents for Discourse Analysis

Author	**Title**	**Year**	**Type of Institutional Imaginary**	**Objective**	**Key Frameworks and Projects Influencing Output**	**Reference**
International Organization on Migration	Institutional Strategy on Migration, Environment and Climate Change 2021–2030	2021	International	The document aims to guide IOM efforts in developing and implementing its strategy on migration in the context of climate change, environmental degradation, and natural hazards.	2030 Agenda on Sustainable Development, the Paris Agreement on Climate Change, the Global Compact for Safe, Orderly and Regular Migration, the Sendai Framework for Disaster Risk Reduction and the Nansen Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change	Institutional Strategy on Migration, Environment and Climate Change 2021–2030 (pp. 1–56). (2021). International Organization on Migration. https://publications.iom.int/books/institutional-strategy-migration-environment-and-climate-change-2021-2030.
Thai Office of	The Twelfth	2016	National	The plan provides an	20-year National	*Twelfth National*

the National Economic and Social Development Board, Office of the Prime Minister	National Economic and Social Development Plan (2017-2021) - Summary			overview of national priorities for preparing human capital, society, and the economy for upcoming challenges in Thailand.	Strategy framework (2017- 2036), Thai Sustainable Development Goals (SDGs), the Thailand 4.0 Policy	*Economic and Social Development Plan—Summary* (pp. 1–33). (2016). Office of the National Economic and Social Development Board, Office of the Prime Minister. https://www.nesdc.go.th/ewt_dl_link.php?nid=9640
TransRe Project and Raks Thai Foundation (with authors based in Germany, Thailand, and Australia)	Migration for Adaptation: A Guidebook for Integrating Migration and Translocality into Community-Based Adaptation	2018	NGO	This guidebook was developed by the TransRe Project to familiarize development practitioners with a new perspective on migration and translocality with tools and suggested activities developed in Thailand.	"Building Resilience through Translocality: Climate Change, Migration, and Social Resilience of Rural Communities in Thailand" (2013-2018), supported by the German Federal Ministry of Education and	*Migration for Adaptation: A Guidebook for Integrating Migration and Translocality into Community-Based Adaptation*. (2018). TransRe Project. http://www.transre.org/application/files/5715/3296/4247/Migr

					Research (BMBF)	ation_for_Adaptation_Guidebook_online_english.pdf

This thesis uses a Foucauldian approach to analyze discourses embedded in these documents. This method of analysis involves looking critically at the institutional context of its production to understand why certain present solutions advance over others (Foucault, 1980; Hajer, 1995). By organizing the way knowledge is produced, discourse is fundamentally material, "making real" processes and objects through their conceptualization and management (Escobar, 1992). Dryzek (2013) explains that "stories" are constructed from certain elements and resulting discourses enable stories to be told (p. 17). To structure the discourse analysis, the thesis uses Dryzek's (2013) checklist of elements for content analysis:

1) Basic entities recognized or constructed
2) Assumptions about natural relationships
3) Agents and their motives
4) Key metaphors and rhetorical devices

Selected codes (displayed in Table 3 below) were derived from an understanding of existing theories and concepts from literature in environment and migration studies, and new codes were dynamically added as discourse analysis was conducted. QDA Miner was used to store, collect, and analyze data collected. These three dominant discourses were chosen because they reflect knowledge and assumptions about the environment related to human-environment relations. This provides information about how each organization perceives environmental risk and the ability of institutions to turn risk into opportunities for development. These discourses also highlight or counter how the issue of climate mobility has been rendered technical and apolitical while legitimizing existing systems to reveal institutional values at each level. Resulting actions and interventions are driven by an understanding of how institutions can function or control the environment towards a preferable future. Lastly, these dominant discourses situate the relative positioning of the organization to the migrants themselves by demonstrating which experiences are at the forefront of policy and practice. A summary of analysis is provided for each institutional actor collective to ground a discussion of competing and complementing concepts in Thailand. The purpose of the discourse analysis is to provide an understanding of how climate

mobility is constructed before complicating these institutional visions through the case study.

Table 3. Final Code System for Discourse Analysis

Institutional Actor Collective	**Dominant Discourse**	**Checklist**	**Codes**	**Theoretical and Conceptual Underpinnings**
International Organization for Migration	Positive Migration	Basic entities recognized or constructed	administrative state, global migration regime, global migration and climate change frameworks, human rights, human security, national governments	Rights-Based Approach, Migration as Adaptation Framework, Administrative Rationalism
		Assumptions about natural relationships	hierarchy, management, science and technology managing risk	
		Agents and their motives	international institutions, migrants, technical experts, states economic growth, partnerships, facilitating migration, migration	

			management, rational resource investment	
		Key metaphors and other rhetorical devices	large-scale statistics, migrant voices, the “new era of human mobility,” orderly and well-managed migration	
Thai National Government	Self-Sufficiency	Basic entities recognized or constructed	bureaucracy, cities, entrepreneurs, global markets	Sustainable Development, Sufficiency Economy Philosophy, Administrative Rationalism
		Assumptions about natural relationships	carrying capacity, competition, hierarchy, management, science and technology managing risk	
		Agents and their motives	bureaucrats, private sector, civil society economic growth, investment, leveraging existing resources, sustainability	
		Key metaphors	green growth, “intense	

		and other rhetorical devices	globalization," leap frogging, the Thai "entrepreneur," the "Thai person"	
TransRe Project	Migration as Community Adaptation	Basic entities recognized or constructed	remittances, translocal households	Resilience, Political Ecology, Democratic Pragmatism
		Assumptions about natural relationships	communal use, equality, participatory management	
		Agents and their motives	community organizations, development practitioners, households, government agencies, NGOs, smallholder farmers	
			community interests, connectivity, deliberation, dialogue, flexibility, participation	
		Key metaphors	information and resource	

		and other rhetorical devices	networks, migrant as an agent of development, “retirement farmer,” tapping potential	

1.5.3 In-depth Interviews and Observations

Applying a case study method, observations and in-depth individual interviews from members of agricultural households were conducted in Baan Non Daeng, which is a village in Ubon Ratchathani province, Thailand. This process lasted six days until research saturation (Binder et al, 2015). A student at Ubon Ratchathani University fluent in Isaan Thai (a dialect of Northeastern Thailand) and central Thai served as a translator during the fieldwork. Interviews were primarily conducted in Isaan Thai,[1] and translated into English using consecutive translation. Interview data was collected using a field journal without a recording device. Included quotes have been edited lightly for clarity but remain essentially how they were explained.

The sampling size was 32 individuals, and the sample comprised of rice farmers, non-agricultural workers, village leadership, and subdistrict authorities (see Table 4 and 5 below). Interviews Special attention was given to obtaining a diverse sample of villagers in terms of gender, age, land size, and land location. To limit biased participant selection, participants were chosen at random from walking around the village and traveling to different streets using a motorbike. The researcher obtained help from villagers in finding specific demographics that were difficult to find from traveling around the village. This group included both younger and middle-aged day non-agricultural workers and younger farmers. Interviews ranged from approximately 30 minutes to 2 hours, averaging around 1 hour. While interviews were conducted one-on-one, there were times that other villagers or family members would group around the participant, which is a common phenomenon of ethnographic research. All responses were recorded at the individual level.

[1] Villager P had moved to the village 7 years ago and did not know Isaan Thai. Villager P was the only participant interviewed in the central Thai language.

Table 4. Villager Interview List[2]

Date of Interview	Code	Occupation	Gender	Age	Farm Size (Rai)	Crops
25 April 2023	A	Shop owner	F	43	7	Rice
	B	Farmer	M	55-56	30	Rice, Corn
	C	Farmer	F	55-56	40	Rice, Cassava
26 April 2023	D	Shop owner	M	36	8	Rice, Corn
	E	Farmer	F	59	6	Rice
	F	Farmer	F	47	5	Rice
	G	Farmer	F	54	30	Rice
	H	Farmer	F	50	12	Rice
	I	Shop owner	F	44	21	Rice
	J	Farmer	F	47	6	Rice
	K	Farmer	M	46	16	Rice, Cassava
	L	Day Laborer	M	50	1	Rice
27 April 2023	M	Farmer	M	28	13-14	Vegetables, Chilis
	N	Farmer	F	49	15	Rice, Trees
	O	Farmer	F	51	18.5	Rice, Trees, Tomatoes, Chilis
28 April 2023	P	Barber/Online Seller	F	38	6	Rice
	Q	Daily Clerk	F	24	33	Rice
	R	Farmer	M	45	7	Rice
29 April 2023	S	Farmer/Contractor	M	46	5	Rice
	T	Farmer	F	52	6	Rice

[2] All participants interviewed identified as Thai ethnicity and nationality. All participants also identified as Buddhist (with the exception of Villager B, who identified as Atheist).

	U	Factory Worker	F	26	--	--
	V	Farmer/Contractor	F	46	12.5	Rice
	W	Farmer/Produce Dealer	F	43	4.5	Rice
30 April 2023	X	Day Laborer	F	29	8	Rice
	Y	Mechanic	M	33	14	Rice
	Z	Farmer	F	31	30	Rice, Vegetables

Table 5. Village and Subdistrict Leadership Interview List

Date of Interview	**Title**	**Leadership Scope**	**Gender**	**Age**
25 April 2023	Head of the Village Health Volunteers	Baan Non Daeng	F	49
26 April 2023	Village Head	Baan Non Daeng	M	36
27 April 2023	Subdistrict Head	Pho Yai Subdistrict	M	54
28 April 2023	Head of Academic Affairs	Baan Non Daeng School	F	54
	Executive of Subdistrict Administration Organization	Pho Yai Subdistrict	M	54
29 April 2023	Deputy Executive of the Community Enterprise Organization	Baan Non Daeng	M	57

Villagers were asked questions about environmental change and mobility from the point of view of their household.[3] Members of village leadership were interviewed to gain a sense of community-level challenges, infrastructure, and adaptations related to environmental change.[4] The subdistrict authorities provided an overview of larger

[3] See Appendix 1.
[4] See Appendix 2.

issues facing the area, and key information about how national agricultural and adaptation policies have been implemented in a subdistrict context. Altogether, this sample highlighted how adaptations were differential and related to existing power relations that were both horizontal and vertical. Dependent variables for this study were perception and adaptation, aligned with similar studies on smallholder farmer climate responses and mobilities (Eitzinger et al, 2018; Fleming and Vanclay, 2010; Fosu-Mensah et al, 2015; Le Dang et al, 2014; Mutekwa, 2009). Independent variables included: gender, age, household size, farm size, education, land ownership, farming methods, and access to water resources.

After obtaining demographic information, participants were first asked about their perceptions of environmental change and their understanding of why these changes were occurring. This helped to draw out the extent to which they perceived these changes as natural or caused by humans. It also provided information on how they measured changes, and which environmental challenges they perceived as being the most significant on their livelihoods. Next, questions were asked about natural resource management and access, as well as questions about their farm and farming methods. These questions highlighted who had access to vegetable farming (which provides more profit but is water-intensive) or fish/shrimp cultivation during the off-season as an adaptation, and who had to turn to non-agricultural work to supplement or replace their agricultural livelihoods. This group of questions assessed how mobility relates to resource access and technology. It also underscored the importance of time in their decision-making related to farming strategies and pursuing non-agricultural work. Then, questions were asked about the household's non-agricultural work to understand how remittances and translocality allowed agricultural households to pay for living costs, farming costs, and invest in farm security. These questions provided insight into how mobilities improved the resiliency of the agricultural household to environmental change as well as generational dimensions to mobility within the household. Other questions sought to understand additional stresses for the household, such as loans or rising prices for farming supplies and lower rice selling price. This provided information on positionality, as relative risks and proximity to capital will drive present action (or inaction).

Observations were recorded in the field journal and through taking photos of the village and surrounding farmland. The researcher stayed in Baan Non Daeng for the duration of the fieldwork and recorded specific observations related to the environment, infrastructure, mobility, environmental change, space, and community dynamics. The researcher visited the farmlands in the village to see crops, soil quality, and land, as well as water infrastructure supplying water to individual farms. Observing housing structures, materials, and vehicles provided information about household resources and priorities (e.g. the ownership of tractors demonstrating the economic significance of farming or the ownership of multiple motorbikes providing members of the household with access to the city for work). Agricultural livelihoods and farming strategies were recorded when witnessed (including burning the fields, use of tractors, taming the buffalo) to make observations about relevant adaptations for the village. The researcher also visited and recorded characteristics of community gathering spaces, such as the learning center, temple, and main village road. These observations helped guide questions during the fieldwork, provided an understanding of resource management and allocation, and created a picture of relative mobilities in the community.

1.5.4 Synthesis Analysis

Differences between frameworks and concepts from the institutional imaginaries to the conversations from the interviews in the case study were analyzed. Attention will be given to how livelihoods are located in and transformed by dynamic social-ecological systems (Assche et al, 2017). This section will aim to draw out how climate adaptation pathways, including mobility, are constructed relationally and connected to issues of political economy and resource access that are not well conceptualized in institutional frameworks. It will also provide recommendations based on data collected as to how understandings can be bridged and how more equitable outcomes can be created through a rights-based approach. The thesis will end by assessing how institutional policies and practices can better integrate climate mobility into frameworks for more just and transformative futures (Jasanoff and Kim, 2015).

1.6 Unit of Analysis

This thesis will use discursive collectives as the unit of analysis. Considering that imaginaries are built through contestation, they are likely to be diverse and contradictory at an individual level. The case study will shed light on diverse local imaginaries, since it should be emphasized that realities shaping the imaginary can greatly differ based on resources, identities, and motivations. However, using the individual as the unit of analysis would not be the most practical option given the thesis's purpose to provide an overview of climate imaginaries across collectives in Thailand. For this reason, comparative analysis will be conducted using collectives (organized by international, national, NGO, and local levels) that could also divide into subgroups depending on research findings.

1.7 Basis for Selection of the Case Study

While climate mobilities research is often highly context driven, Ubon Ratchathani has been selected as an appropriate case study for a thesis on climate imaginaries because of its reliance on agricultural livelihoods, like rice farming, and its notable experiences with climate variability that have shaped mobilities. The Thailand Development Research Institute (TDRI) also named Ubon Ratchathani province as one of the ten provinces at high risk of climate change impacts between 2016 and 2035 (UNICEF and TDRI, 2023). These climate projections, paired with more severe flooding and drought in recent years, have led to institutional development actors becoming more involved in addressing climate adaptation and human mobility for the province (Babel et al, 2010; Eastham et al, 2008). These factors make it an appropriate site to research climate futures and mobilities. Baan Non Daeng, within Ubon Ratchathani province, was selected because of its historic reliance on rice farming for livelihoods and its close proximity to cities. Villagers between the ages of 18-60 often pursue daily or seasonal work in the nearby cities or relocate to other Thai provinces to support elder farmers living in Baan Non Daeng. The village was also impacted by floods in 2022 and has experienced significant drought in recent years that have led to changing livelihoods to cope with its impacts.

These experiences are not unique to Baan Non Daeng but representative of larger issues of resource allocation, support networks for small-holder farmers, and changing rural-urban dynamics facing Thailand. Therefore, this specific case study will provide useful information on how institutional climate imaginaries have been adopted to a local context, while drawing out relational mobilities across local actors (Seawright and Gerring, 2008).

1.8 Research Scope

While there are many different types of climate adaptations, this thesis will primarily focus on human mobility in the context of climate change. For this reason, the thesis will use IOM strategy as the main international actor discourses on climate change and migration in Thailand. However, other organizations (UNESCAP, ILO, UNDP) do play key roles in shaping international discourse related to climate change in Thailand. Similarly, several Thai policies convey the country's climate change (including the Climate Change Master Plan 2015-2050), but primary focus will be given to the most recent National Social and Economic Plan (2017-2021) for its overview of national priorities related to development (including human movement and climate change). The thesis will not focus on natural disaster policy in Thailand since it attempts to analyze slow-onset environmental change rather than sudden on-set environmental change. It will discuss significant events like the 2022 flood in Ubon Ratchathani, but from the lens of changing storm severity and how local impacts were tied to nature resource management. Lastly, this thesis will use human mobilities instead of traditional migration theories to construct its argument. This is because the thesis aims to understand internal, local-level mobilities related to climate change; therefore, it will not address cross-border migration or seek to comment on political questions of citizenship.

1.9 Significance

This thesis contributes towards research on discourses shaping policy and practice related to climate mobility, and understanding how these imaginaries

depoliticize structural factors leading to differential mobilities in Thailand. It will make a claim about whose knowledge is considered relevant in shaping the future each actor collective believes *ought to be*, and how these imaginaries legitimize certain values and forms of decision-making in the process. This research will provide a grounded, place-based argument about how imaginaries are both shaped by and producing local realities. This will draw a better relationship between the material and the perceived while analyzing how the production of imaginaries have material implications for action on climate adaptation and mobility. Previous studies have used socio-technical frameworks; however, few have connected the concept of imaginaries to human mobility. The paper seeks to remedy this gap while drawing on political ecology and human mobility frameworks.

Considering how research on climate change and human mobility nexus is growing, this paper adds to debates on how institutions can be transformed to more flexibly protect individuals who are either trapped or made more mobile due to climate change. As a key output of the research, the thesis will make a claim about how knowledge co-production and value recognition can help institutional development actors to better frame their policies and practices on climate mobilities. Deconstructing how certain interests are legitimized in the process of organizing climate change adaptation can also help reveal how historical inequalities and marginalization are reproduced in the process of moving towards a certain future. The paper will then use mobility as a lens for understanding how climate adaptation is relational and make an argument about how being more inclusive of marginalized imaginaries can help transform society in the ways demanded by climate change.

1.10 Ethical Considerations

Part of the research process involves in-depth interviews conducted with villagers, village leadership, and subdistrict officers residing in Ubon Ratchathani, Thailand. The interviews were low risk and did not include any vulnerable groups, such as children, the elderly, and international migrants. Participants were also provided with a general structure and overview of the research topics before the interview was conducted. All information given was stored in a journal, and no

recording device was used during the interview process to allow for a more open conversation. Interviews were primarily conducted in the household, or in village communal spaces, to ensure the comfort of the participant. The exceptions being the interviews with the subdistrict officials, which were conducted at their office sites.

Verbal consent was obtained both before and after each interview. Before the interview was conducted, an explanation of the research, data collection process, data storage process, and research timeline was reviewed with the participant. The participant was informed that all data would be kept confidential and that their names would not be published in the final study. They were also informed that they could leave the interview at any time and had the right to refuse to answer any question if they felt uncomfortable. Each participant provided verbal consent before any interview moved forward. Verbal consent was obtained again after the interview, and contact information was provided to each participant in case they had any questions about the study or wished to be withdrawn after the interview process. For interviews conducted with village leadership and subdistrict authorities, verbal consent was also obtained to use their title in the final study. The consent process followed a specific script to ensure it was uniform and comprehensive for each participant.

1.11 Limitations

There were three notable limitations within this study. The first limitation was language, as the research was limited to documents written in the English language. This impacted the selection of documents to perform discourse analysis and sources selected to contextualize and triangulate findings. A translator was also used to conduct interviews. The translator has a background in public policy issues and was familiar with the specific vocabulary in this research area. There were no significant issues or concerns during the translating process. However, since the interviews relied on translation, nuances of the conversation might have been missed or lost during translation. The researcher sought to mitigate this limitation through using in-depth interviews, rather than other methodologies, to spend time drawing out the perspective of the participant.

The second set of limitations were related to the data collection process and timeline. The interviews were conducted over six days in the village. This timeline was related to financial and logistical constraints from the researcher, and more information could have been collected during repeated visits. Additionally, patterns could have been identified across several villages if given a longer timeline. However, the researcher chose to focus on a single comprehensive case study, rather than splitting time across villages, to become more immersed in the village and gain a deeper understanding of systemic issues. Additionally, most day laborers and young farmers in the village worked between the hours of 06:00-18:00, which made it difficult to find an appropriate time to interview them. Younger farmers were also largely unavailable since many were preparing to plant their rice during the time of the fieldwork. In spite of this, the researcher was still to interview some individuals from these groups during the early evening after they returned from work. Limitations were also posed by the thesis timeline of the program.

The final limitation was related to participants potentially withholding information especially related to remittances and household income. Some older farmers were hesitant to comment on support received from their children, likely because they did not want to be viewed as dependent on their children. The leadership and authorities interviewed all noted that many households use income from their children to invest in the farms, but it was difficult to draw out this relationship because individuals tended to be general about how the remittances were used. Most commented that the remittances were for living expenses or to be used as needed without question. To address this limitation, the researcher focused on asking specific questions during the interview like “What source do you receive money for the fertilizer for the rice growing season” to see whether their children help support their farming expenses. The researcher navigated questions related to household income carefully to avoid any potential discomfort.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The following topics have been selected to provide an overview of climate change and human mobility and assess gaps in the literature. The literature review starts with the field of political ecology and its relationship to development studies as the foundation for understanding how human-nature relations are intertwined with political and economic processes. From political ecology, the review narrows to focus on climate change and migration by first examining current frameworks for conceptualizing climate mobility decisions. The review then assesses key past and present discourses that have shaped the emergence of climate mobility policy and practices within the field of development. It examines climate adaptation studies with a focus on rural community adaptation before then reviewing how households are increasingly translocal as an adaptation to climate change. The review then details the conceptual lineage of "imaginaries," and its more recent use for climate futures analysis studies. Lastly, the review assess how climate change, adaptation, and mobilities have been studied as an emergent issue in Thailand. From these topics, the literature review provides a foundational understanding of relevant debates and existing frameworks underlying policy and research conceptualizing climate mobility.

2.2 Political Ecology and Development Studies

Political ecology is a growing field within environmental studies that seeks to map the ways environmental issues are shaped by social, political, and economic structures that create uneven power relations. Political ecology as a specific discipline grew out of debates in cultural ecology in the 1950s that sought to connect human-environment interactions to wider structures in political economy and in radical geography widening its appeal to ecology (Hjort 1982, Wisner 1978). The term "political ecology" was likely first coined by the anthropologist Eric Wolf's "Ownership and Political Ecology" that assessed how ecosystems served as "battleground[s]" for political, economic, and social relationships (Wolf, 1972). From the 1970s to 1980s, political ecology operated under a neo-Marxist framework,

focused on how class relations and surplus extraction negatively impacted local environments to further global capitalism (Bryant and Bailey 1997). Research also drew from peasant studies, looking particularly at rural land users, to understand their existence in a post-colonial world where countries across the Global South were becoming increasingly global market economies (Walker, 2005). Key scholars during this time also infused research with structuralist theories like dependency theory to analyze underdevelopment in periphery countries (Bunker, 1984). In turn, there was little focus on the role of the local people and their agency in resisting forces, leading to concerns of the field becoming overly deterministic. In response, there was a shift during the 1980s to 1990s to focus more on understanding global processes through an agency perspective, rather than from a structural perspective (Bryant and Bailey, 1997). This meant examining how systems and social relations are fundamentally reciprocal—regardless of their unevenness (Giddens, 1979).

Political ecology also grew increasingly discursive, focusing on the production of knowledge related to the natural sciences and deconstructing its political significance. Studies emphasized that dominant accounts of ecological change, created by government or business elites, could not be separated from their political and economic motives to industrialize, or commodify the environment (Bryant, 1991). Political ecology adopted a Foucauldian post-structuralist approach that focused on how language re-enforces social relations (Olssen, 2003). Since "nature is socially-constructed," research in the discipline analyzes subjects and processes through discursive materialism (Escobar, 1996). Both post-colonialists and post-structuralists used this method to understand how systems of oppression are inextricably linked to discourse. For example, researchers conceptualized "the pristine myth" to express how accounts of nature as untouched adopted an apolitical lens that erased the existence of indigenous and native peoples and minimized their agency (Denevan, 1992; Sluyter 1999). This view also helped justify colonialism and imperialism as it did not attach political significance to the historical transfer of resources from the Global South to the Global North. In doing so, it failed to acknowledge the lasting damage of resource exploitation (e.g. colonial overgrazing) and resource loss (e.g. the removal of native agriculture for cash crops) that continues to marginalize

communities (Melville 1990; Sluyter 1999). These apolitical ecologies continue to persist in development, and political ecology attempts to uncover the ways in which those conceptual frameworks maintain or exacerbate inequality. Many of these cited articles on resource exploitation and the "pristine myth" focus also specifically on the Americas, so testing the prominence of similar discourses in additional case studies would be beneficial.

With these foundations in mind, political ecology does not lie principally with any discipline, although it can be said to be most aligned with geography and political economy. Political ecology is differentiated from environmental politics with its non-traditional political focus, economic ecology with its more progressive focus, and other fields with its focus on the ecocentricism over technocentricism (Bryant and Bailey, 1997). However, defining political ecology beyond assessing its substance relative to other prominent fields presents more of a challenge (Wolford, 2005). The aims of political ecology vary depending on its theoretical underpinnings, but generally the field seeks to understand how environmental change is linked to political and economic processes that have led to marginalization and resulting degradation of the environment. To accomplish these core objectives, scholars have focused on researching two key groups: elites who exert power (corporations, government, or NGOs) and the marginalized who resist or adapt to that exertion (farmers, fishers, and other workers) (Svarstad et. al, 2018). These studies demonstrate how elites were directly involved with or complicit in exploiting the environment, while writing indigenous and marginalized peoples back into the narrative (Sluyter, 1999). Today, the political ecology approaches have been taken across concepts like health and disease, food security, water politics, deforestation, and tourism. Political ecology has recently started focusing more on human mobility, but a consistent framework has yet to be established (Bayrak et al, 2022; Greiner and Sakdapolrak, 2015; Middleton et al, 2018; Radel et al, 2018)

2.3 Environmental and Climate Mobility Frameworks

There are two major historical methodological foundations within climate change and migration studies: one that examines environmental degradation to predict future

migratory trends and another that attempts to delineate climate migration from other forms of migration (Piguet et al., 2011). Subsequent research in the field has focused on creating direct links between environmental change and migration for predicting climate consequences and assessing specific mobilities within a multi-level context (e.g. forced/voluntary, long-term/short-term, internal/external) (Piguet, 2010). However, both foundations typically lead researchers towards climate modelling that creates a direct link between degradation/climate change and mass migration (Boas et. al, 2019). An exhaustive analysis of climate change and migration literature from 1971 to 2016 found that most case studies on climate change and migration focused on the United States, Bangladesh, Mexico, and India, followed by several African states including Burkina Faso, Ghana, Ethopia, Mali, and Senegal (Piguet et al, 2018). This paper concludes that hotspots for research had been skewed both by funding priorities in the Global North and the overarching perception of migrants as security threats in the post-colonial era (Piguet et al, 2018). Research today tends towards more qualitative methods of analysis (McLeman, 2013), and scholars have also generally begun moving towards understanding climate change as an indirect stressor for migration rather than the primary factor influencing decision making (Wiegel et al, 2019).

There has not yet emerged a widely accepted framework for understanding how climate mobility fits into larger political, economic, and social structures. One approach, the sustainable livelihoods approach, focuses on individual capacity to create and sustain a livelihood in a way that is technocratic in nature (Brocklesby and Fisher, 2003). This means migration can positively allow for diversification of income, the sending of remittances, or increased opportunities. However, in this approach, migration is viewed as a direct and final consequence of a degraded environment rather than as a choice constructed from a multitude of social, political, economic, and environmental reasons (Van Praag and Timmerman, 2019). Disaster studies too have often used the same causal connection between the environment and migration. The new economics of labor migration approach more greatly considers the role of many factors in shaping the decision to migrate while considering that mobility appears differently across types of environmental push factors (Stark and

Bloom, 1985; Van Praag and Timmerman, 2019). Studies have also sought to connect environmental mobility to economic, political, or social opportunity (Mortreux and Barnett, 2009). While climate change and human mobility research is beginning to unpack gendered, racial, and class dimensions of mobility, there remains a need to understand how these identities intersect and create relational opportunities for migration (Baldwin, 2016; Lama et al, 2021, Tripathy Furlong et al, 2022). More recent research focuses on how mobility decisions are constructed in networks and how structural factors influence relative mobilities (Bayrak et al, 2022; Greiner and Sakdapolrak, 2016; Radel et al, 2018).

2.4 Discourses on Environmental and Climate Mobility

As the first international conferences on climate change formed in the late 1980s, the first large-scale movements and studies on climate migration focused on the "climate refugee," who was a vulnerable, apolitical agent that could link their migration directly to climate change. This group was imagined typically through the lens of Pacific Islanders, who faced losing their islands from sea level rise and would need permanent relocation. Notably, the first typologies of climate migration paid little attention to the classical distinction between voluntary and forced migration (see El-Hinnawi, 1985 and Jacobson, 1988, as cited in Gemenne, 2011). Rather, there was a continuum of control over migration that determined whether migration could be classified as involuntary, compelled, or voluntary. These classifications were further broken down into subcategories that often distinguished between "natural" and "unnatural" changes contributing to migration (Bates, 2003). This perception of a division between "natural" and "unnatural" push factors contributed towards an apolitical view of environmental change. Migration was perceived as an unavoidable, rational consequence of climate change that could be quantified and modelled (Methmann and Oels, 2015). There was an underlying assumption that risks could be effectively governed by using quantitative evidence to adapt existing systems for better governance. As security framings have become less prominent in institutional frameworks, this reliance on scientific modelling to understand and govern climate change has continued to be a dominant component of climate imaginaries.

Additionally, the “refugee” discourse popularized framing climate migrants as victims or security threats that would instigate mass displacement on a global scale. There was a connation that this displacement would happen at fixed points in time, as groups would be engaged in climate migration rather than individuals. Discourses employed water imagery (e.g. “waves of refugees”) to enforce this perception and used climate modelling to create staggering statistics that would prompt governmental action (see Myers, 2002). Media coverage and issue advocacy re-enforced simplistic understandings of climate migration that obscured how migration was linked to existing economic, political, and cultural factors, while securitizing the issue in the process. The first methodologies predicting future migration flows have since been heavily criticized for operating with vastly different conceptualizations of the climate migrant (Gemenne, 2011), but securitization of migrants remain pervasive in popular imaginaries around climate change and migration. This contributes to a dystopian imaginary of the climate crisis, emphasizing the importance of technology and innovation to model, predict, and manage climate uncertainties.

Framing climate migrants as “refugees” drove debates on whether specific legal rights should be allocated to that group through the existing refugee framework (Berchin et al., 2017; Biermann and Boas, 2010). These debates on specific rights allocated by the climate crisis have since become absorbed in the global “loss and damage” discussion, but institutions continue to debate how to apply a rights-based approach to climate migration. It is generally agreed that creating a distinct legal category for climate migrants similar to refugee status is impractical given a lack of political will (Hingley, 2017). Framings have shifted from trying to prove direct links between climate change and migration towards understanding how to protect rights in the context of interconnected push-pull factors for migration.

This has resulted in a shift towards addressing climate mobilities within the realm of development (Bettini and Gioli, 2016). Several discourses have since emerged. Vulnerability, or “situated vulnerability” discourse focuses on assessing exposure, sensitivity, and adaptive capacity (Pandey et al, 2017). The concept of vulnerability originates from environmental sciences, where it is used to measure system susceptibility to risks (Adger, 2006). This discourse is employed in a way that

creates an “imaginative geography” between vulnerable agents, typically presented in the Global South, and managerial agents who exposure to vulnerability through modernization, economic growth, and development (Escobar, 1995). Used in migration, this discourse renders migrants inherently vulnerable and does not correspond to the reality of migrant agency (Ludwig, 2016; Mendola and Pera, 2021). This discourse is still often used by policymakers and practitioners to evaluate future risks and designate protections for marginalized groups, in spite of conceptual differences in how vulnerability is measured and understood (Brown et al, 2016).

Migration is also increasingly conceptualized as climate adaptation (Bettini et al, 2017). This is representative of a more comprehensive understanding of the environment-migration nexus and a greater focus on how mobility is constructed in a complex and dynamic way (Wiegel et al, 2019). This shift towards adaptation presents migration as rational, unpolitical consequence. Corresponding international policy takes place in a post-political arena that focuses on managerial governance that is reactive rather than proactive in addressing climate issues (Swyngedouw, 2011). If migration and climate change are perceived as unavoidable, states focus instead on management of migration to understand how they can use migration to their advantage and minimize perceived risks. The climate migrant is then rendered into an agent of development, who can use the growing interconnectedness between cities and rural areas to gain resources to invest in household resilience to climate change. Compared to previous discourses, migration is not a last resort, but rather a positive opportunity (Remling, 2020). Recognized entities within this discourse also reflect a broader systemic problem of focusing on maintaining tangible goods (e.g. material well-being and capital) rather than intangible goods (e.g. spiritual or cultural considerations) (Adger and Barnett, 2009). States have often prioritized migrants achieving economic independence over other social or cultural considerations to alleviate the fear of creating a dependency that impedes national economic growth (Brown and Scribner, 2014). However, particularly in communities where their histories are tied to mobility, migration is rarely perceived as an individual, entrepreneurial endeavor (Farbotko and Lazrus, 2012). Rather, mobility is instead

perceived as a part of complex daily strategies to maintain culture, livelihoods, and adapt to changing environments (Middleton et al, 2018).

Resilience discourse is a concept born out of ecology, referring to the absorption capacity of living systems and its limits before it needs to fundamentally change its system (Adger, 2000). As a discourse, resilience has roots in rational economics and environmental security, since resilience refers to the ability to survive when exposed to threats (Reid, 2012; Taylor, 2015). Used in the context of climate change adaptation, resilience is closely linked with the sustainable development agenda. The environment is conceptualized within market-based frameworks, rendered into an economy of services that can be degraded (Folke et al, 2002). Access to markets is perceived as a key part of increasing resilience, which can include the management of resources to ensure sustained income from land (Reid, 2012). Within this discourse, labor migration becomes dominant, and remittances from migration are used to help households cope with and adapt to a changing environment (Bettini et al, 2017; Lassalle et al, 2020; Stark and Bloom, 1985). It is important to note that this labor migration is assumed to be heavily managed, from both institutional controls on migration and systemic boundaries creating relational access to migration opportunities. Resulting management legitimizes a sorting process for migration that favors younger, more educated, and resourced individuals (Remling, 2020). The process can also be biased along gender, racial, and ethnic dimensions because of social and cultural norms and discriminatory practices (Bettini et al, 2017). This “elite bias” attempts to reconcile itself through remittances, where those with the opportunity to migrate are expected to remit to spread the benefits of migration to their household and community. However, this discourse obscures how the ability to remit is a function of pre-existing resources and power relations, where voluntary migration is not a choice distributed equitably in a community. Rather, pressure is placed on the individual to become resilient and self-sufficient by leveraging existing resources. In all, by focusing on migrants as resilient, responsibility shifts away from institutions towards the household for providing adequate resources for investing in adaptation and development.

Shaping migration as a “free choice” then obscures how external pressures like climate change narrow available livelihood decisions (Methmann and Oels, 2015). This focus on leveraging resources can also obscure dimensions like gender that impact management of natural resources, such as land, and shape patterns of mobility (Thu, 2007). Within discourses around remittances, migration is also typically conceptualized as circular, since households engage in mutual dependence to shield themselves from risk (Stark, 1991). Households also engage in translocality to spread or isolate risks from local conditions (Greiner et al, 2014. These remittances can also be seen as a way to strengthen local climate adaptation and allow for investment into the community (Entzinger and Scholten, 2022). Individuals themselves contribute towards investing in “trapped” areas with limited opportunity to provide for their resilience, rather than the state (Ayeb-Karlsson et al., 2018). However, this contributes to the marginalization of identifying and claiming specific rights in the context of environmental mobility, while failing to hold historical polluting countries accountable for climate change (Bettini et al, 2017). An emergent rights-based discourse calls for a redistribution of environmental risks, rights recognition, and active participation in environmental management (Schlosberg, 2004). Unlike other more reformist environmental discourses, the rights-based discourse focuses on structural changes to political processes that create more equitable outcomes. This discourse counters the depoliticization of migration as adaptation, which relies on increasing migrant access to labor markets (Bettini et al, 2017). Instead, it calls for climate justice by refocusing on structural inequalities that have resulted in marginalization. These discourses represent the larger truth-knowledge regime shaping institutional narratives on climate change and human mobility today, which impact present action and resource allocation to address it as a development issue.

2.5 Climate Adaptation Studies

Adaptation pathways are fundamentally political (Taylor, 2014) and involve relative contestation for resources (Marks, 2022). Farm income, size, and land ownership are significant determinants of climate adaptation (Arunrat et al, 2017).

This is because larger farms tend to be more resourced and hold existing infrastructure (or can invest in technology) that make it more secure relative to other farms (Hassan and Nhemachena, 2008). Land ownership also provides an incentive for farmers to invest in stronger irrigation systems and connect to multiple water sources, since they envision their practices being passed onto the next generation (Arunrat et al, 2017). Access to credit and extension services are also critical for the ability to adapt to environmental change (Hassan and Nhemachena, 2008). Climate security is relational and related to contestation and long-term processes of financial investment, resource allocation, and infrastructure placement that provide stronger adaptative capacity to some farms over others (Marks et al, 2022). As a result, smallholder farmers might have lower levels of adaptive capacity that lead them to diversify their income through sending members of the household to the city in response to climate pressures (Brown et al, 2019; Vanwey, 2003). Farmers also engage in informal or formal debt networks in response to climate shocks. Smallholder farmers in particular tend to have a higher debt-to-income ratio as a result of insufficient access to formal credit and loans and relatively lower capacity to pay back debt (Arunrat et al, 2017). Social and economic inequality play a role in determining which groups have access to climate security and adaptation within agricultural areas, pushing migration for those with lower levels of adaptive capacity.

Despite these systemic issues, investments in climate adaptation tend to allocate resources towards projects that prioritize economic growth and entrepreneurship (Rambo, 2017). Neoliberalism encourages this perception as it focuses on individual agency without recognizing how the institutionalization of free market economics creates continual pressure on accumulating capital (Fieldman, 2011). Climate adaptation itself is measured in terms of capital within sustainable livelihood approach, measuring vulnerability by quantifying natural, financial, social, physical, and human capital to understand climate impact and risk (Pandey et al, 2017). One growing attempt to enlarge the participatory role of civil society actors in mitigating climate change is ecosystem-based adaptation. It focuses on reducing climate exposure through improved management, conservation, and restoration that integrates scientific tools with local knowledge (Munang et al, 2013). The sustainable solutions

offered are in the context of how investment in climate mitigation can help alleviate poverty, while reducing the global carbon footprint. These development strategies also focus on the management of local populations to monitor activity and evaluate systems (Burch et al., 2014). They also include natural resource management to limit degradation, but the burden of these adaptations typically falls to local communities who must find ways to adapt their livelihoods (Dey et al, 2016).

2.6 Translocality

The concept of translocality emerged out of studies of transnationalism in the 1990s that were concerned with processes of de-territorialization and new conceptions of citizenship in a global world (Appadurai, 2003; Malkki, 1992; Schiller et al, 1995). These studies focused on the production of the nation-state and national identities (Malkki, 1992). After the late 1990s, scholars re-emphasized the importance of local power dynamics in creating grounded socio-spatial boundaries (Smith and Guarnizo, 1998). This highlighted how local practices impacted the articulation and development of global-local networks in cities, neighborhoods, and households (Castells, 2011; Sassen, 2004). Translocality grew from this foundation in transnationalism to focus on the interaction between the imagination of locality and the practice of particular actors in particular locations (Freitag, 2005, as cited in Gottowick, 2010). This perspective approaches mobility and identities as being fluid, while integrating them within local material and imagined boundaries.

Translocality can be defined as “simultaneous situatedness across different actors” (Brickell and Datta, 2011, p. 4). There are two core dimensions to translocality: mobility and place (Greiner and Sakdapolrak, 2015). Movement between spaces contributes to the formation of multiple identities and senses of home. Translocality is used to draw out these complex relationships where there are “changing socio-spatial dynamics and processes of simultaneity and identity formation that transcend boundaries” (Greiner and Sakdapolrak, 2015, p. 376). It runs counter to the traditional rural-urban dualism by focusing on the interdependencies between rural and urban actors and instutitions (Lohnert and Steinbrink, 2005). These linkages include remittances and resource transfers that blur boundaries between

rural-urban relations (Greiner, 2010). Different forms of mobilities can also be analyzed, including temporary, seasonal, or daily migration.

Translocality provides a more open, less linear way of understanding of the "entanglement and interconnectedness" characterizing mobilities, exchanges, and transfers (Freitag and von Oppen, 2010, p. 1). This interconnectedness is also helpful for capturing the complexity of human-environmental relations (Greiner et al, 2014). It considers how the environment is a dynamic push and pull factor for human mobility, where movement is related to opportunity, access, and management of natural resources (Deshingkar, 2011; Peth et al, 2018). The emphasis on local conditions also makes it suitable for understanding how changes in the physical environment impact human decisions for adaptation. By focusing on the local, translocality also has an agency-orientation that considers how mobilities are reflective of existing power relations (Brickdell and Datta, 2011; Massey, 1991). The concept emphasizes how locals resist or re-negotiate spaces through mobility and use it to secure livelihoods for the household. These characteristics of translocality make it a powerful approach to analyzing practices of rural-urban migration in the context of slow on-set environmental change.

Translocality is studied through social or financial resource transfers, or remittances, that connect spaces together. In the context of climate change and migration, remittances are generally perceived as resources that rural households can use to invest in climate change adaptation, and remittances can also be used to stabilize or replace incomes during climate shocks. Rural households in Thailand depend on remittances for income generation, which makes up a greater share of income for households than agricultural activities (Hardeweg et al, 2013). However, research has shown that remittances can contribute to inter-household inequality within and between villages (Brown and Jimenez, 2008; Lipton 1980). In a 2012 study conducted by the Asian Development Bank (ABD), migration to urban areas had a significant effect for income growth in Northeastern Thai villages, but this did not apply to migrant households from the province with the lowest income level (Amare et al, 2012). This was because education and wealth disparities between the rural province and the city prevented individuals from accessing capital or being

competitive enough to enter formal occupations. Translocality also has significant implications for identity formation and culture. More progressive gender roles and identities develop as women participate in new social networks or find independence through migration to urban areas (Curren and Saguy, 2001). New patterns of social practices and consumption can become embedded in longstanding rural traditions when individuals return to their rural hometowns (Mills, 1997). Translocality contributes to changing cultural and social practices between urban and rural areas as individuals engage in migration related to climate change.

2.7 Climate Imaginaries

Modern uses of "imaginaries" are foregrounded in Benedict Anderson's *Imagined Communities* (1999) whose work on nationalism examines how a sense of belonging is formed through linkages that transcend space and time. Charles Taylor (2004) extends this idea of belonging through his writing on "multiple modernities," where he argues that people imagine their social existences differently but share a collective social imaginary upheld by common practices and a shared sense of legitimacy. He connects these imaginaries to the modern centering of the economy in social life and expresses that the public has become a space for addressing challenges and opportunities towards prosperity (Taylor, 2004). As a result, there are competing imaginaries that shape the ways in which the collective imaginary is drawn and bound.

Arjun Appadurai (2006, p. 587) emphasizes how imaginaries are negotiated within "sites of agency (individuals) and globally defined fields of possibility." Further scholarship draws out how imaginaries rely on both discourses and the material. Images rest in the domain of the imagining, shaping the ways concepts are framed, understood, and acted upon (Davoudi and Machen, 2022). However, images are not passive—they actively shape the world through how they merge understandings of the past, present, and future. Imaginaries can then be understood as a capacity of political collective (Davoudi and Machen, 2022) and are "profoundly ideological landscapes whose representations of space are entangled with relations of power" (Gregory, 1995: 474). Towards the production of a *collective imaginary*,

actors struggle to coalesce and mobilize towards realizing the imagined (Jessop, 2010). As a result, they are deeply embedded within existing economic and political structures. According to Levy and Spicer (2013), dominant imaginaries are ones that can connect with popular interests and identities while also taking advantage of material structures that create value regimes. Actors must articulate strategies that allow them to access resources (e.g., funding from intermediary institutions, support from the state, influence within media) that realize their visions (Jessop, 2010). The collective imaginary is built from these sites of negotiation and tension, of which actors have unequal power to access, participate within, and control. Despite this, it is important to emphasize that marginalized (or disregarded) imaginaries still play a role in contesting and revisioning regimes. Since imaginaries are relational within the collective imaginary, existing power dynamics create tension in the present as actors move towards or move to avoid an imagined future.

Scholars in fields such as political ecology, critical geography, and science and technology studies have built on this conceptualization of the imaginary to analyze production of environmental and sociotechnical imaginaries. First, the environment itself is an active political arena for imaginaries and imagining (Peet and Watts, 1996). Human-nature relations shape how crises are understood, and in turn, shape the ways responses are conceived by the imagination (Buell, 1995). The environment can also represent "sites of potential" (Li, 2014) that offer future opportunity. However, securitized and apocalyptic visions of the climate future create perceptions of the environment as a threat, where investment in technological intervention and innovation reduces relative risks. The environment can also be noticeably absent from imaginaries in the process of rendering technical human-nature relations to intervene or manage the future (Li and Mosse, 2011). These perceptions are not mutually exclusive, and this paper accepts that conflicts between types of knowledge and normative values complicate how climate change is framed and understood across actors. This can ultimately create wedges that lead to failure in creating durable solutions that result in maladaptation.

Sheila Jasanoff (2010) expresses that climate imaginaries are future-oriented and embody prescriptions between what *is* and what *ought* that impact how

knowledge is produced and the types of actions that are prioritized by actors (Jasanoff, 2010; original emphasis). Climate imaginaries can also focus on what *ought not to be*, relating similarly to how value regimes influence action to prevent a certain future. Importantly, climate action is constructed in the context of a politicized environment, where not all knowledge is made relevant and certain values are disregarded in the process of acting on the collective imaginary. The meaning of the "future" and possibilities for shaping it are unevenly created, and the climate future is made governable by depoliticizing aspects of the climate imagination (Death, 2022). Further research drawing out how climate mobilities become depoliticized through adaptation discourses can provide evidence for how climate imaginaries can be used towards a more transformative future.

2.8 Climate Change and Migration Studies in Thailand

Thailand faces many challenges related to climate change and environmental degradation, including lower fishing and agricultural yields, flooding, droughts, and sea level rise (Marks, 2011). These changes in the environment have pushed households to migrate to either supplement or replace agricultural livelihoods. While climate migration can be international, empirical evidence demonstrates that people tend to respond to slow on-set climate impacts through internal migration, which can be seasonal, circular, or permanent (Waldinger, 2015). Climate events can also damage infrastructure, create water shortages, or produce floods that lead people to migrate in response to livelihood shocks (Nop and Thornton, 2019; Miletto et al, 2017). This migration in Thailand has primarily been studied by analyzing in-migration from neighboring countries and internal rural-urban migration (Chamratrithirong, 2007; Chalamwong and Prugsamatz, 2009; Mon, 2010).

The rate of aging among farmers in Thailand is happening faster than the national average, with the average age of farming villagers moving from 36 in 1983 to 55 in 2008 (Rigg et al, 2012). While non-agricultural work in the 1980s was concentrated among younger men, more recent changes in social norms and education have created a more equitable split between men and women pursuing non-agricultural work (Rigg et al, 2012). Average amount of land holding has also

decreased since the 1980s, raising concerns from village and subdistrict leadership about the future of rural labor. Drawing out climate impacts from economic opportunity remains a key issue for addressing issues of climate mobility and immobility in Thailand. Research has focused on analyzing connections between livelihoods and environmental change to understand how migration decisions are made. For example, farmers in Northeast Thailand have been routinely studied through the "Nang Rong Project" as the area commonly deals with climate shocks like droughts (Entwisle et al., 2016). These studies have focused on how households have used temporary migration for income diversification and turned to the farming of cash crops such as cassava, corn, and sugar cane (Vanwey, 2005; Entwisle et al., 2005). Outside of Nang Rong, village surveys in Northern Thailand have also been used to argue that there is no direct link between migration and environment change, rather that migration most often occurred because of a loss or gain of economic opportunity where environmental change could act as a stressor (Sakdapolrak et al., 2014). Ecology studies in Southern Thailand have used commodity chain analysis to understand how local agricultural and fishing decisions can degrade the environment and worsen climate variability (Vandergeest, 2008). Farmers in the Northern Thailand have also been blamed for environmental degradation and causing lowland sedimentation and water shortages (Forsyth, 1996). However, these claims generalize local management techniques, and resulting perceptions impact integration of rural-urban migrants in Thailand. Overall, the linkages between livelihoods and environmental change are complex and related to existing issues of political economy and natural resource management.

Research in Southeast Asia has also emphasized that migration can be a strategy of risk reduction for multilocal livelihoods, where family members spread the risks of an unstable environment by working in different cities and sending remittances to the household (Porst and Sakdapolrak, 2018; Middleton et al, 2018). This typically means sending younger members to the city to remit back to the rural area, but members of the household might also engage in daily labor migration to cope with environmental change. However, these studies have also been critical of how framing migration as adaptation can obscure local community practices, values,

and challenges. Particularly for more mobile communities, individuals learn to live with certain levels of environmental risk, which practitioners may assess as risks that need to be managed (Adger et al, 2013). Institutional responses to climate impacts in Thailand have also created differential capabilities to be resilient. For example, damages from climate impacts are calculated based on household materials, so rural households receive less compensation from the government compared to urban households constructed from concrete (Middleton et al, 2018). This pushes rural households to leverage their own resources for recovery and adaptation, which holds implications for long-term marginalization from minimal state support. Research on climate migration in Thailand is also increasingly focusing on translocality, which helps shed light on how climate mobilities are related to interconnected rural-urban networks.

2.9 Conclusions

From this review of the literature, there is a gap in research connecting visions of climate change to present policy and practice on climate change and human mobility. There is a need to better understand how climate mobilities are connected to issues of resource use, access, and management that shape mobilities between different community actors. While studies have complicated migration as an adaptation strategy, there remains a gap in place-based research that draws out how climate imaginaries in Thailand support this rising policy concept. More research on local mobilities can also provide stronger insight into how its use as an adaptation strategy is constructed by existing power relations. Addressing these gaps could provide better insight into how climate mobility is depoliticized and highlight the ways adaptation pathways are differential and contested at the community level. The concept of climate imaginaries has also been primarily used in science and technology studies but could be applied to climate mobility. Analyzing differences in futures across actor collectives can also provide insight into how community practices can be better incorporated into policy and action.

CHAPTER THREE: INSTITUTIONAL CLIMATE IMAGINARIES IN THAILAND

3.1 Introduction

Discourses provide a framework for categorizing and analyzing the world that holds real implications for how resources are allocated and managed (Parker, 1990). Policy documents are institutional texts that are deliberately formed as the result of "complex chains and networks of events (committee meetings, reports, parliamentary debates, press statements and press conferences…" (Fairclough, 2013, pp. 244-245). To create a persuasive argument, institutions must often rely on many different discourses from varying fields and diverse actor backgrounds to create a narrative about the world (Hajer, 1993). They are representative of processes of sorting, organizing, and producing knowledge that advance an organization's path forward (Cummings et al, 2020). Policy processes are conducted according to discourses, and they become institutionalized through material practices and outputs allocated to address how a problem is constructed and interpreted (Hajer, 1993). As a result, policy documents reveal an organization's present priorities for realizing specific visions of the future where that perceived problem is addressed. The text of these documents can also serve as a way to legitimize existing institutional policies in their construction of a vision for the future (Hornidge, 2011).

This chapter analyzes discourses driving institutional visions in Thailand by employing Dryzek's (2013) checklist for content analysis to identify narratives and discourses. The chapter first provides an overview of knowledge production, organizational values, and method of acting towards their objectives for each institution. This information is analyzed through each organization's position and mandate to provide information about their imaginary according to the conceptual framework. Then, the chapter provides the findings of the discourse analysis, which highlight how each organization advocates for specific methods of governing towards the future. The chapter then comparatively analyzes the texts to highlight relative positioning and shared/contested visions and the implications for policy and practice. The central argument of this chapter is that institutions in Thailand are constructing

specific visions of climate mobility that advance a future where households are responsible for their climate adaptation.

3.2 Review of Key Frameworks Guiding Policy Texts

Each text mentions specific policies, strategies, and partnerships that demonstrate a systematic approach to the issue of climate adaptation, mobility, and development. These frameworks legitimize which knowledge is considered valuable for conceptualizing climate mobility. They also reveal key values guiding how resources are allocated. Publicized partnerships and collaborations provide insight into how each institution functions within Thailand to achieve their policy objectives. Partnerships require some shared understanding of concepts and priorities in order to engage in solution design and development. Sources of collaboration and investment also help explain why institutions make decisions about which concepts to engage with because they reveal priorities for gaining legitimacy, future funding, and additional partnerships. Contextualizing the discourses using the imaginaries framework will allow for a deeper analysis of how narratives around climate mobility are constructed and their function in promoting preferable futures.

IOM functions within the UN system with a mandate to lead in the field of migration towards humane and orderly migration (IOM, n.d.) As a body in the UN, IOM is guided by the principles of the UN Charter, which includes upholding human rights globally. The Migration Governance Framework (2015) sets out objectives that provide the basis for an effective approach to migration as defined by IOM. This framework emphasizes that sustainable development and economic growth are essential to the resilience of communities against natural disasters and other emergencies (IOM, 2016). IOM is an intergovernmental organization that seeks to influence national policies, so their perspective on migration necessarily reflects dialogue with national governments. The 2018 Global Compact on Safe, Regular, and Orderly Migration is a product of dialogue between member states on migration, although it is a non-binding commitment. Knowledge is collected through collaborations with high-level technical research institutes and then policy is created through workshops and meetings with UN stakeholders. IOM values are aligned with

core UN frameworks like the SDGs and human rights, and IOM allocates resources towards projects and developing partnerships that facilitate a rights-based approach to managing migration.

The Thai government takes a strong managerial stance to migration that associates migration with national security. The Ministry of the Interior (MOI) is responsible for migration policy and migrant registration while the Ministry of Labor (MOL) helps manage the migration regime through work permits (Rukumnuaykit. 2009). International organizations like IOM also play a role in advocating and facilitating safe and orderly migration in Thailand, which has signed the 2018 Global Compact on Migration. In general, national policies are constructed through top-down and rigid bureaucracy. Knowledge produced and embedded in these policies comes from the elite and technical experts aligned with Thailand's development goals. One core document guiding national policy is the Thai 20-Year National Strategy (2018), which contains six areas for improvement: the well-being of Thai people, competitiveness, human resource development, social equality, sustainable resource use, and government efficiency (National Strategy, 2018). The principles of the sufficiency economy in Thailand are also deeply embedded in development, which was introduced after the Asian Financial Crisis in 1997 by King Rama IX. The philosophy of the sufficiency economy argues that development should be rooted in Buddhist principles like moderation, community, and sustainability (Elinoff, 2014). This philosophy encourages farmers to be self-reliant by diversifying their crops and building income from local resources (Kramol and Ekasingh, 2020). Resources are heavily invested into growing the industrial economy, particularly in cities like Bangkok, and fostering private investment into the country's technical and economic development.

The TransRe project is based on knowledge primarily from academics, while holding an actor-orientated approach. The research design follows place-based and multi-sited fieldwork approaches applied in Thailand to collect its data. The project seeks to understand social resilience in the context of translocal households and interconnectivity with the objective of understanding how it can be strengthened. The research engages in academic debate to produce outputs influencing public discourse,

with a methodological foundation in concepts like Bourdieu's Theory of Practice, Social Resilience, Translocality, Sustainable Livelihoods Approach (Barrott, 2017). There is a range of partners for the project in academia (including Thai, European, Australian, and other Asian universities) and within development like IOM Thailand, German Development Institute, and Raks Thai Foundation (RTF). The partners are explicitly focused on sustainable development in their missions. Key outputs include piloting projects for community resilience-building and developing a toolkit for development policymakers and practitioners. The project aims to use its resources to communicate findings to relevant policymakers at the national and international level using collaborations with organizations like IOM Thailand, relevant NGOs, and other high-level contacts in Thailand (with the goal of communicating findings to national and international policy makers in Thailand (Universität Wien, n.d.).

3.3 Dominant Discourses Driving Institutional Policies in Thailand

3.3.1 International Organization for Migration

Table 6. Analysis of Positive Migration Discourse

1) **Basic entities recognized or constructed**
   - Administrative state
   - Migration regimes
   - Human Security
   - Human Rights
2) **Assumptions about natural relationships**
   - People are subordinate to the state
   - Environmental and climate mobility can be managed administratively
   - Science and technology can manage risks
3) **Agents and their motives**
   - International institutions facilitate the development of strong migration regimes that make legal migration more accessible

- National government takes an active role in managing migration
- Migrants rationally invest resources into migration to improve their economic opportunities

4) Key metaphors and other rhetorical devices

- Large scale statistics
- "Migrant voices"
- The "new era of human mobility" and a "changing world"
- Orderly and well-managed migration

Basic entities recognized or constructed

International institutions are recognized as entities that can operationalize responses to environmental risks. They provide resources and support through the international system, focusing on technical expertise, humanitarian responses, and migration management (IOM, 2021, p. 20). Climate adaptation represents an investment, where states can grow through their climate response. Regional and international bodies (e.g. the European Union) are recognized as institutions that can fund and supply knowledge production and innovative solution development around the world (IOM, 2021, p. 13). Partnerships between financial institutions and existing initiatives can also invest in technology to mitigate climate change and promote a "green transition" (IOM, 2021, p. 9). These partnerships legitimize existing global policy commitments including the Paris Agreement (2018), the Sendai Framework (2015), and the Nansen Initiative (2015) among other relevant climate change and human rights frameworks. Adopting a human security approach is "crucial to achieve sustainable development," and migration regimes are a key entity for improving human security (IOM, 2021, p. 14). These regimes are built around processes of registration that legitimize spaces and borders of migration through "policy areas such as border management, visas, entry and stay, consular services, evacuation, planned relocation, returns and diasporas engagement can all provide entry points to address challenges and seize opportunities" (IOM, 2021, p. 3). The state manages, regulates, and facilitates

migration within its bureaucracy, and development actors "build on existing successes to enhance effectiveness and maximize resources" (IOM, 2021, p. 16). Migration is framed as positive when it takes place in environments where recognized human rights are respected and when migration can be used as an adaptation strategy. Therefore, rights are recognized entities in this discourse, which are adjudicated through international and national legal regimes.

Assumptions about natural relationships

Environmental impacts are perceived as measurable and quantifiable, which allows experts to perform cost-benefit analysis for efficient decision-making and modelling for migration projections. Available science and technology also influence knowledge production and evidence-based outputs that shape environment and migration policy (IOM, 2021, p. 2). The environment acts as a push factor for migration, while migration can also put stress on "the environment, ecosystem, and availability of natural resources" (IOM, 2021, p. 6). The linkages between climate change and mobility are perceived as complex, particularly from slow-onset climate change and environmental degradation. However, it is still predominately conceptualized in a causal relationship. Climate change is also perceived as likely to "exacerbate underlying causes of vulnerability" (IOM, 2021, p. 12). This vulnerability is shaped by "gender roles and responsibilities," necessitating an approach that considers the "potential for empowerment and positive outcomes of migration for women and men (IOM, 2021, p. 13). From this vulnerability framing, migration is represented as an adaptation strategy to environmental changes that can address inequality through labor migration. Positive migration discourse also assumes that stronger management of migration can produce more just outcomes, which is why this discourse attempts to structure and institutionalize environmental mobility. Mobility related to the environment is presented as a modern challenge, rather than a historic aspect of more mobile communities closely connected with natural resources. This allows institutions to work towards the achievement of SDG 12.2 on "integrating climate change measures into national policies, strategies, and planning" and manage migration (as cited in IOM, 2021, p. 13).

Agents and their motives

Although migration poses a risk to the stability of the system, it can also be an opportunity for increasing competitiveness. As a result, the national government allows migration for jobs that are less favorable without necessarily acknowledging the existence of specific rights. The state acts as a facilitator of migration, and IOM provides technical and expert consultation to governments to support "national policy coherence efforts" that fulfill commitments to international agreements like the Paris Agreement (IOM, 2021, p. 24). Scientists and technical experts are considered primary knowledge experts who are responsible for designing durable solutions to climate change and migration (IOM, 2021, p. 13). These experts enable long-term development and risk reduction and are the ones who facilitate and produce knowledge for problem-solving. Migrants are perceived as rational decision-makers who can act as agents of development and positively contribute to "inclusive growth" (IOM, 2021. p. 13). They act in their own self-interest to improve their livelihoods in the context of environmental change often by moving to cities. International institutions support migrants as individuals who can "help address current and future sustainable development challenges" (IOM, 2021, p. 13). Development practitioners integrate migration as a development issue, where inclusive growth is prioritized. Measures on climate change are expected to be integrated into strategic planning for international and national development (IOM, 2021, p. 13). Importantly, this discourse does not contend that specific rights should be allocated on the basis of climate change. Rather, it advocates for the reform of migration regimes and the incorporation of climate change considerations using existing frameworks. The rights-based approach is founded on the "full use of all existing bodies of laws and available instruments" (IOM, 2021, p. 12).

Key metaphors and other rhetorical devices

Rhetorical devices are used to problematize 'chaotic migration' and suggest that expert planning and managing of migration can mitigate risk and uncertainty. Projections create a narrative of mass migration from climate change, such as

“millions more people could be on the move because of the adverse effects of climate change (IOM, 2021, p. 6). Mass displacement implies potential conflict within national borders that necessitates strong governance and control. The “changing world” narrative is also deployed to describe the need for increased collaboration and reform to meet the challenges of a new world. The IOM text refers to “a new era for human mobility” characterized by interconnectedness, using the narrative to call for an integrated approach to addresses disruptors like climate change (IOM, 2021, p. 9). This provides a call to action to integrate climate-induced migration into the contemporary migration regime (IOM, 2021, p. 13). Policies that “give a voice to migrants should be promoted” but is just to be considered “whenever possible” (IOM, 2021, p. 13). Participation is not required, and the image of ‘giving a voice’ connotes that this participation would be undertaken through a consultation process while policy design remains in the realm of the experts. Throughout the text, positive migration is referred to as migration that is “orderly” or “well-managed,” implying that it is considered positive if migration regimes take an active role in facilitating migration. Shifting narratives to focus on the positive outcomes of migration is a priority, which centers around the migrant as a contributing agent (IOM, 2021, p. 3). This is used as a strategy to make a rights-based approach appealing to national governments, who can use migration to their economic advantage without having to recognize specific new rights.

3.3.2 Thai National Government

Table 7. Analysis of Self-Sufficiency Discourse

1) Basic entities recognized or constructed • Global economic system • The Thai 20-Year National Strategy • National bureaucracy • Agriculture households

2) Assumptions about natural relationships

- Hierarchy and control
- Competition over resources
- Science and technology manages risks
- Local responsibility for environmental management ("the commons") using the national strategy
- Natural resources are used for services and production

3) Agents and their motives

- National government fosters investment and economic growth
- Local and provincial government enact and implement the national strategy
- Individuals are entrepreneurs leveraging their existing resources to produce innovative, 21st century solutions

4) Key metaphors and other rhetorical devices

- Risk modelling and statistics
- Green growth
- Leap frogging
- Thai people as entrepreneurs
- "The Thai person"

Basic entities recognized or constructed

This discourse acknowledges the global economic system and views states as competing within a system for resources. State stability is reliant on the resilience of the global economy, and development aims to make the state more secure to shocks through investment in innovation, infrastructure, and technology. Research and development is synonymous with science, technology, and innovation, which is recognized as central to development (NESDP, 2016, p. 12). Investment comes directly and indirectly from private and foreign investors who can grow their wealth while contributing towards Thailand's development. The plan is based on the

principles of “free-thinking” and “liberalization” where development can help economic corridors reach “their full potential benefits” (NESDP, 2016, p. 25). The national bureaucracy is responsible for a two-way (but mostly top-down) implementation of the strategy that manages peace, communicates policy, and fosters growth within Thai communities (NESDP, 2016, p. 29). Agricultural households are a prominent entity in this discourse, as they are responsible for developing their livelihoods and adapting to a changing environment using the self-sufficiency economy philosophy. The household leverages social and financial networks in order to diversify and stabilize their income.

Assumptions about natural relationships

Resources are managed according to laws and subject to governance and extraction for human consumption and production. Resources like land are privatized and allocated through institutional state processes that control access (NESDP, 2016, p. 5). Since the environment is an entity that can be controlled and managed, this discourse emphasizes hierarchy and “top-down” resource management (NESDP, 2016, p. 4). There is also an assumption that the environment is used for the production of services. Industry is prominent in this discourse because it is perceived as the future of economic activity as a way to increase productivity. There are limits to the “carrying capacity” of the ecosystem, implying that there is an optimal extraction amount for present and future economic growth (NESDP, 2018, p. 7). This optimal level is a figure that can be calculated through expert cost/benefit analysis. Resulting “sustainable consumption and production” is made possible through “highly efficient and environmentally-friendly production systems (NESDP, 2018, p. 8, 24). Thai farmers are encouraged to achieve “economies of scale [through collaboration with] cooperatives, partnerships, and commercial companies” (NESDP, 2016, p. 6). represents resources that can be extracted or serviced for economic development. Since environmental resources are considered finite, there is also an assumption that individuals compete for resources in the absence of state intervention. In this discourse, system reform can help mitigate risk and violence that might result from

environmental degradation and climate change, which makes it complementary to environmental security discourses.

Agents and their motives

To remain competitive with other states and lower cost labor in Southeast Asia, the Thai government is focused on generating new "technology and services which can incorporate modern technology of various forms" (NESDP, 2016, p. 11). While there is an emphasis on how technology can industrialize agricultural processes, there is a focus on creating a more globally competitive workforce (NESDP, 2016, p. 11). Individuals are expected to develop 21st century skills that help them adapt to a globalized world, and there is a greater focus on industry investment (NESDP, 2016, p. 5). The national government enables these changes by transforming the economy into one based on services and digital technologies (NESDP, 2016, p. 15). Sustainability is a concept that enables environments to be more accommodating to "future industrial expansion" (NESDP, 2016, p. 9). While the state administers national rules for natural resource use and implements related projects, communities are expected to leverage their existing resources to reduce poverty and generate sustainable sources of income. Provincial and local authorities encourage fair and sustainable land distribution and management that promotes "community entrepreneurship" (NESDP, 2016, p. 6). Households are engaged in agricultural livelihoods and are motivated to invest resources into improving their land and becoming self-sufficient Thai farmers. This involves incorporating "value-added" products and diversifying their income (NESDP, 2016, p. 6). Households engage with several different types of agricultural livelihoods in order to increase their productivity in the absence of buying more land. The state supports these efforts by providing access to financial institutions like the Bank for Agriculture and Agricultural Cooperatives (BAAC) and microfinancing opportunities (NESDP, 2016, p. 18). The state is also responsible for monitoring and managing demographic changes, arguing that migration "can be problematic if proper screening processes and judgements are not in place" (NESDP, 2016, p. 11). Rural-urban migrants are expected to use migration to develop skills and support national development as they

engage with a competitive employment landscape. Greater connectivity between rural and urban areas is a priority for the state, but resources are allocated towards supporting “high quality growth in urban areas” (NESDP, 2016, p. 9). The state grows and develops urban and peri-urban areas to “provide an opportunity to spread prosperity and improve people’s incomes (NESDP, 2016, p. 24). Urban areas bring in additional investment, and there is an assumption that wealth and the benefits of development will trickle down to lower income villages. In this discourse, individuals are motivated by self-interest and see the city as an opportunity for improving their incomes.

Key metaphors and other rhetorical devices

In this discourse, scientific modelling and statistics are used to convey risk and promote investment in science, technology, and innovation (NESDP, 2016, p. 5). Leap-frogging and leaping forward are images used to describe how investments in technology will jump-start and accelerate economic growth (NESDP, 2016, p. 11, 24). “Green growth” is referred to as a term for sustainable development that increases economic productivity. This image is evoked to convey how green technology will improve resource management, food, energy, and water security, and general quality of life for Thai citizens (NESDP, 2018, p. 8). Green technology is constructed as a problem-solving strategy that can foster stronger investment into Thailand. This discourse also focuses on systems imagery like “intense globalization” to encourage households to increase their competitiveness (NESDP, 2016, p. 3). The national government refers to a “borderless world” that has caused Thailand to face more stresses and risks, naming the “free mobility of people” as a cause for increased competition (NESDP, 2016, p. 3). Throughout the text, individuals are described as being “entrepreneurs” who can meet the challenges of a changing world. The NESDP text places significant emphasis on how the Thai state needs to foster “a new generation of entrepreneurs and social entrepreneurship” that can be self-reliant while reducing poverty (NESDP, 2016, p. 15). This discourse emphasizes migrants as being entrepreneurial agents who can produce new economic opportunities (NESDP, 2016, p. 6). The image of the “Thai person” is also used to emphasis the self-sufficiency

discourse. “Thainess” is described as possessing discipline, and the Thai person should be “receptive to learning, practical, well informed, responsible, physically and mentally healthy, spiritually refined, [and] self-sufficient” (NESDP, 2016, p. 15). Self-sufficiency is described as being essential to Thai identity, which enforces the narrative that households should be self-reliant.

3.3.3 TransRe Project

Table 8. Analysis of Community Adaptation Discourse

1) **Basic entities recognized or constructed**
   - Public participation
   - Translocal households
   - Remittances
2) **Assumptions about natural relationships**
   - Community resource management
   - Public consultation, dialogue, and deliberation are essential to informed solutions
   - Individuals are presumed to be equal
   - Science and technology manages risks
3) **Agents and their motives**
   - Provincial and local government support community interests and collaborate with local community for adaptation
   - Migrants remain connected with their communities socially and economically to actively transfer resources
   - Development practitioners promote migration as community development
4) **Key metaphors and other rhetorical devices**
   - “Retirement farmer”
   - Moving images

- Networks
- Tapping potential

Basic entities recognized or constructed

The community works within the existing state structure to make decisions regarding the environment and climate adaptation. Local leaders are encouraged to participate alongside members of the community to discuss key issues and work towards problem-solving (TransRe, 2018, p. 28-31). Forums for community dialogue are recognized as essential for a better understanding of systemic factors and stakeholder influence "regulating, enabling, and constraining migration" (TransRe, 2018, p. 28). Households are also constructed as a dynamic and mobile concept, which is not bound by physical, geographic boundaries. Individuals within the household engage in translocal practices that connect specific localities together (TransRe, 2018, p. 11). Communities are constructed through social, financial, and cultural networks that encourage fluid mobilities (TransRe, 2018, p. 24-27) . This interconnectivity between localities can help communities mitigate climate risks and foster networks that produce change (TransRe, 2018, p. 62). Remittances are a key part of this discourse since resource transfers allow for innovation and enable households to invest in adaptations. These remittances can be social, taking the form of idea-sharing and knowledge that "change social norms and institutions" (TransRe, 2018, p. 11). Financial remittances can be used for living costs, investment, and security and are typically based on individual or household decisions. However, they can also be used for community projects or pooling resources that help the community invest in their future (TransRe, 2018, p. 56). This discourse recognizes resource transfers from mobility as significant for capacity building that builds community resilience to climate change and environmental degradation.

Assumptions about natural relationships

This discourse is similar to democratic pragmatism (Dryzek, 2013) by placing nature as subordinate to human decision-making processes while leaving decision-making to the people. To make agriculture more sustainable, public dialogue and consultation are guiding principles (TransRe, 2018, p. 20). The community deliberates using an organized process and individuals are able to communicate issues and adaptations that foster collaboration knowledge and understanding about the environment (TransRe, 2018, p. 25). The community has a responsibility to adapt to a changing environment together and migrants should be integrated into "community level decision making processes" (TransRe, 2018, p. 54). The environment presents opportunities for subsistence and income generating farming that sustains village livelihoods (TransRe, 2018, p. 60). While the environment produces non-economic benefits, there remains a hierarchical relationship since this discourse still engages with human resource regimes. Advancing technology is also perceived as an opportunity for becoming resilient to environmental changes by connecting translocal communities (TransRe, 2018, p. 11). Technology can also help mitigate environmental risk by fostering innovative adaptations that benefit smallholder farmers (TransRe, 2018, p. 10, 58).

Agents and their motives

The TransRe text acknowledges that migration can have complicated impacts that differ across households, and that migrants have diverse aspirations shaping migration decisions (TransRe, 2018, p. 32-25). Development practitioners enhance the benefits and mitigate the drawbacks of migration through mapping its impact and encouraging collaborative discussions about its use as an adaptation strategy within the community (TransRe, 2018, p. 40). In this discourse, the community is motivated to maintain networks and foster new ones that are aligned with the public interest. Participatory community development work is considered a guiding principle for the TransRe guidebook, which includes methods like participatory rural appraisal (PRA) and participatory facilitation approaches (TransRe, 2018, p. 20). Public participation involves a diverse group of community members, local leadership, and provincial

authorities who have equitable opportunities to shape the decision-making process. Individuals lead by example to promote community adaptation, as described in the example of Sanya from Bangkok (2018, p. 65). Sanya used savings and his bonus payments from his factory job in Bangkok to implement an integrated farming method, which other villagers began to follow after seeing his success. His story demonstrates how individuals use networks to support the community in accessing resources for adaptation. This discourse assumes that individuals maintain a close relationship with their agricultural households and use migration to invest in the future of agriculture. Migrants share new ideas, knowledge, and skills that can lead to innovation related to social change (TransRe, 2018, p. 62). Modern communities can also use technology to remain connected across spatial dimensions that enable migrants to act as agents of development (TransRe, 2018, p. 4). Development practitioners can also "leverage the economic dynamics of remittances, migrant investments, and migrant philosophy" to foster community development (TransRe, 2018, p. 72). However, the TransRe text acknowledges that remittances are a household and individual decision that "can (and should) only be influenced to a certain degree by development interventions" (TransRe, 2018, p. 56). Practitioners implementing local-level projects facilitate processes of knowledge sharing and problem visualization that enable participatory assessments of how communities can improve adaptation (TransRe, 2018, p. 44-46). The community shares knowledge and information about migration to minimize potential negative impacts and raise awareness of potential difficulties and hardships at the place of destination (TransRe, 2018, p. 68-69).

Key metaphors and other rhetorical devices

The phrase "tapping the potential" of migrants is used as an image encouraging rural-urban migration (TransRe, 2018, p. 19, 57, 64). This view portrays the migrant as a resource that can be directed to support growing community resilience and investment in climate adaptation. The migrant provides assistance in the form of social (e.g. knowledge sharing) or financial (e.g. remittances) capital that allows them to act as "incubators or catalysts of agricultural change" (TransRe, 2018, p. 10). These changes

involve investing in alternative sources of income or developing small-scale businesses centered around networks with the city (TransRe, 2018, p. 35). Declining rural labor availability exacerbated by migration has contributed to changes in farming that are described as “retirement farming” in the text (TransRe, 2018, p. 12). The “retirement farmer” is described as an older individual who farms rice for subsistence and adapts their livelihoods to activities like taming buffalo and raising fish, chickens, or pigs. The “retirement farmer” is reliant on remittances from non-agricultural work in order to sustain their livelihoods. This description is used to describe some of the negative consequences of migration as climate adaptation, particularly when the community lacks large, interconnected networks. When discussing interconnectivity, moving vehicles, cellphones, and planes are used as images in the TransRe text (2018, p. 8, 11). Mobility decisions are described as “[usually] taken in times of need, and are therefore mostly short-term decisions (TransRe, 2018, p. 69). This impermanence highlights the flexibility of mobility, as well as how networks increasingly span across spatial boundaries. Despite some of the negative imagery like the “retirement farmer” narrative, this discourse focuses primarily on conveying how networks represent new opportunities for innovative community adaptations. They do this through “leveraging their resources” and shifting to adaptive models like integrated farming (TransRe, 2018, p. 65).

3.4 Comparative Analysis

Each institution contributes to a shared governing of climate adaptation and migration in Thailand, which is reflected in language and narrative similarities across the documents. There is evidence they engage at least partially with each other with cross-references in the texts, and the inclusion of shared frameworks and conceptual emphasis which could be attributable to shared policy spaces, conferences, and other forms of engagement between organizations on the issue. For example, the foreword of the TransRe text is written by the Chief of Mission of IOM Thailand, suggesting agreement with the outputs of the project. As an international body, IOM also facilitates the development of migration policy and practices in an advisory role to national governments. While it could be argued that IOM has exerted little influence

on Thailand's migration policies (a state which has not formally recognized the 1951 Refugee Convention), the state still places a large emphasis on strengthening connectivity with existing global and regional frameworks (NESDP, 2016, p. 15). This includes a recognition of "economic, social, and environmental objectives which have been developed by international organizations, such as the SDGs" (NESDP, 2016, p. 2). This commitment to collaboration alludes to some level of shared interaction at a policy level. The TransRe text is formulated within the Thai context, which underscores its engagement with existing Thai development principles such as the sufficiency economy philosophy cited by the guide's case studies (TransRe, 2018, p. 64). The activities within the guide also suggest that lower-level government officials were also involved in the "activities for implementation" on topics like financial remittances and community resilience (TransRe 2018, p. 54, 57).

These associations contribute to conceptual links between the texts, which facilitate knowledge building that favors a managerial and developmental perspective on climate migration. The IOM text applies existing migration policy and rights-based rhetoric to the issue of climate migration to legitimize its role as a technical advisory to national governments. The Thai national development plan also constructs a specific vision that assumes the need for expert led solutions, similarly to the administrative position of IOM, to justify the government's relative power. NESDP acknowledges its international commitments to the climate change agenda through its references to the sustainable development goals (SDGs) and the Paris Agreement, which it expresses will shape Thailand's future development agenda (NESDP, 2016, p. 11). This illustrates how expert-led solutions are acknowledged at the national level to create a shared landscape for global dialogue and action. TransRe also references the SDGs and the 2018 Global Compact on Safe, Regular, and Orderly Migration, which is central to the global migration regime (IOM, 2021, p. 20; TransRe, 2018, p. 9). Since TransRe engages with IOM in Thailand, the collectives have shared concepts like resilience that are evident in both policy texts to create space for collaboration (TransRe, 2018, p. 15; IOM, 2021, p. 16). TransRe also focuses on entrepreneurship in Thai villages, and documents examples of adaptation inspired by the sufficiency economy philosophy (TransRe, 2018, p. 64). Both the TransRe and

NESDP documents assume that technology and innovation can reduce environmental risk, although they reach this conclusion from different perspectives on facilitating innovation (TransRe through participatory development activities and NESDP from increasing investment and public-private partnerships). TransRe's guideline was developed using evidence and practices from villages in rural Thai communities, so it is reasonable the documents share elements of discourses. Across all the documents, there was a focus on sustainability, which reflects how each collective has bound climate mobility as a development issue to advocate for migration as adaptation.

However, while there is a shared understanding of how migration as adaptation can serve national development, there are differences between the collectives on how this migration is conceptualized that impact the types of policies advocated. From the positive migration discourse, migrants are perceived as agents who can contribute towards the achievement of the SDGs through their adaptation (IOM, 2021, p. 20). These individuals make rational, future-orientated decisions that enable them to use their migration as an opportunity to invest in making their households more resilient to climate change. Within the positive migration discourse, the IOM text did not address how environmental marginalization contributed to differential migration, although the TransRe text examined these structural issues using the activities outlined in the document. The NESDP text stresses how agricultural intensification and entrepreneurship could allow households to mitigate risks with limited resources. However, this conceptualization obscures state responsibility for addressing political economy issues causing differential adaptation by focusing on household-level management. The IOM and NESDP texts also focus on administering technical and expert-led solutions. Both organizations called for participation (IOM, 2021, p. 12; NESDP, 2016, p. 13), but in forms that emphasized consultation and assessment. This reflects a wider conceptualization of local knowledge as a helpful supplementary design to an existing system of governance and development, rather than as fundamental to its functioning (Cooke and Kothari, 2001). The TransRe guidebook, on the other hand, emphasizes the need for more equitable and deliberative natural resource management practices to address climate change and environmental degradation. The positive benefits of migration as

adaptation could be integrated by development practitioners through participatory dialogue, knowledge production, and activities that encourage diverse perspectives. Together, these discourses create frameworks for understanding climate mobilities that shape policies and practice on climate adaptation and migration in Thailand.

3.5 Conclusions

This chapter answers research question 1.A by finding that dominant discourses on climate mobility in Thailand conceptualize a future where migrants act as adaptative agents that can promote sustainable development and invest in their own resiliency. There are differences in how this future is conceptualized and realized across the discourses, whether through migration regimes, public-private partnerships investing in technology, or participatory environmental management. The TransRe text complicates this vision by drawing out potential drawbacks of migration as adaptation and implications for the social fabric and economic resources of rural communities in Thailand (although there was still a focus on how migrants can positively invest in communities considering the text is a practitioner guide rather than a critical text). Each of the texts analyzed touch on changing rural-urban boundaries and the development of new networks and risks for rural communities. However, in the process of managing uncertainties, alternative and diverse perspectives can be lost or simplified, and certain interests can be marginalized to maintain the system (Scoones et al, 2007). Particularly through administrative and expert-led responses, there is an assumption that systemic issues can be addressed by outside-in managerial processes and transfers of technical expertise (Thompson and Scoones, 1994). Knowledge about climate change and migration are produced by and represented through facts, displacing human experience “in favor of an impersonal, but naturalized, object of concern” (Jasanoff, 2010, p. 237). Practicality and rationality are values guiding this approach to development in Thailand, influenced by the state’s prioritization of economic development. As a result, individuals within this imaginary hold relatively similar positions as agents of development and are expected to make economically sound adaptation decisions in response to climate change. However, the construction of monolithic and simplified ‘truths’ about climate

mobility obscure how these decisions are relational, complex, and negotiated. It also fails to account for relative power, and how socio-cultural practices function alongside climate change to influence mobility practices in Thailand. The following chapter complicates institutional imaginaries of climate in Thailand imaginaries by examining how migration is connected to existing power relations and political economy issues that create differential pathways for climate adaptation in rural communities.

CHAPTER FOUR: CASE STUDY ON BAAN NON DAENG, UBON RATCHATHANI, THAILAND

4.1 Introduction

> "In the past, Thailand was known for its agriculture. Now, there are issues, and the root problems haven't been addressed" (Villager N, Interview, 27 April 2023).

This chapter complicates the institutional climate imaginaries driving action in Thailand on climate mobilities through a case study in Ubon Ratchathani, Thailand. The chapter first provides an overview of rice farming in Thailand and the context of environmental change and farming Ubon Ratchathani province. Then, the chapter narrows to focus on the characteristics of Baan Non Daeng and practices of mobility in the village. The rest of the chapter uses data collected from the interviews to assess perceptions of the environment and draw out how mobilities are constructed. The chapter analyzes how adaptation pathways to environmental change are connected to underlying political economy issues and natural resource access and examines how this creates differential adaptation pathways. It then refers back to the institutional imaginaries from the third chapter and examines who engages with mobility and how it is used in Baan Non Daeng, tying findings to existing research on climate adaptation and mobility in Thailand. The chapter finds that agricultural households are responsible for leveraging their existing resources to adapt to climate change, which pushes households with less access to resources or existing debt to mitigate risks or cope with environmental shocks by pursuing non-agricultural work in the city.

4.2 Background on Rice Farming in Thailand

Rice is a significant crop in Thailand for both domestic consumption and international trade. Thailand is the second-largest rice exporter in the world after India, exporting 7.69 million tons of rice with a value of 14.2 billion baht in 2022 (Arunmas, 2023). Approximately one third of land in Thailand is used for rice growing, and the agricultural sector employs 42 percent of the working-age

population (Khunthongjan, 2016). The country first began commercially selling rice in 1851, during the reign of King Rama IV, but the government only became heavily involved in rice financing and the global rice trade after World War II (Siamwalla, 1975). During the Cold War period, investment into Thailand increased to support infrastructure programs like irrigation systems and transportation while the government strongly intervened in rice production (Laiprakobsup, 2019). As the driest and lowest income region, Isaan received a significant share of economic development projects in a process characterized as the "Greening of Isaan" (Molle et al, 2012). Since the 1980s, rice production systems evolved from traditional practices to adopt modern technology like high-yield varieties of rice, fertilizers, machinery, and pesticides to intensify rice production (Kramol and Ekasingh, 2020). Widespread commercialization of rice and mechanization of the farming process allowed for multiple crops in a year, intensifying land-use (Faysse et al, 2020; Suebpongsang et al, 2020). Beginning in the 1990s, smallholder farmers started developing ponds for storing water that would allow them to grow during the off-season (Grandstaff et al, 2008).

After the economic crisis in 1997, rice farming experienced a drop in profitability, and the Ministry of Agriculture and Cooperatives had their budget reduced by a quarter to significantly decrease state programs like irrigation and agricultural extension (Goss and Burch, 2010). It was during this period that principles of sufficiency economy were introduced by King Rama IX. The Asian Development Bank also provided a 300 million USD loan to restructure the Ministry of Agriculture and Cooperatives and liberalize resource planning and management to involve agribusiness (Goss and Burch, 2010). In 2004, the government set up a revolving fund with the purpose of financing the development of more farm ponds that would allow farmers to grow commerical crops during the off-season (Suebpongsang et al, 2020). This would help farmers generate more profitable yields and more intensively use the land, especially in drier regions like the Northeast. Government agricultural policies and assistance programs continue to favor projects like the building of small ponds and providing resources like seeds and trees that encourage villagers to allocate land to profitable commerical crops.

Agricultural credit and assistance programs remain a crucial point of policy between the Thai state and small-holder farmers. Many farmers rely on regular loans from the Bank of Agriculture to support farming investments like seeds and fertilizer or to expand and develop their land. Provision of credit is a key policy instrument for the state to drive agriculture commercialization and maintain competitiveness. In 2011, the government introduced a rice pledging scheme with guaranteed prices that were much higher than the market price. However, the scheme eventually fell apart because of rice overproduction that caused a significant decrease in the rice price (Laiprakobsup, 2019). The instability from the scheme contributed to growing political turmoil in Thailand, culminating in a new military government in 2014 that pivoted to rice assistance programs aimed to reduce farmer production costs. In recent years, the government has focused on embedding micro-finance principles into credit allocation (Kramol and Ekasingh, 2020). Relative economic importance of rice production has since declined in Thailand, but rice remains deeply ingrained in Thai culture, economics, and politics.

4.3 Context of Environmental Change and Farming in Ubon Ratchathani

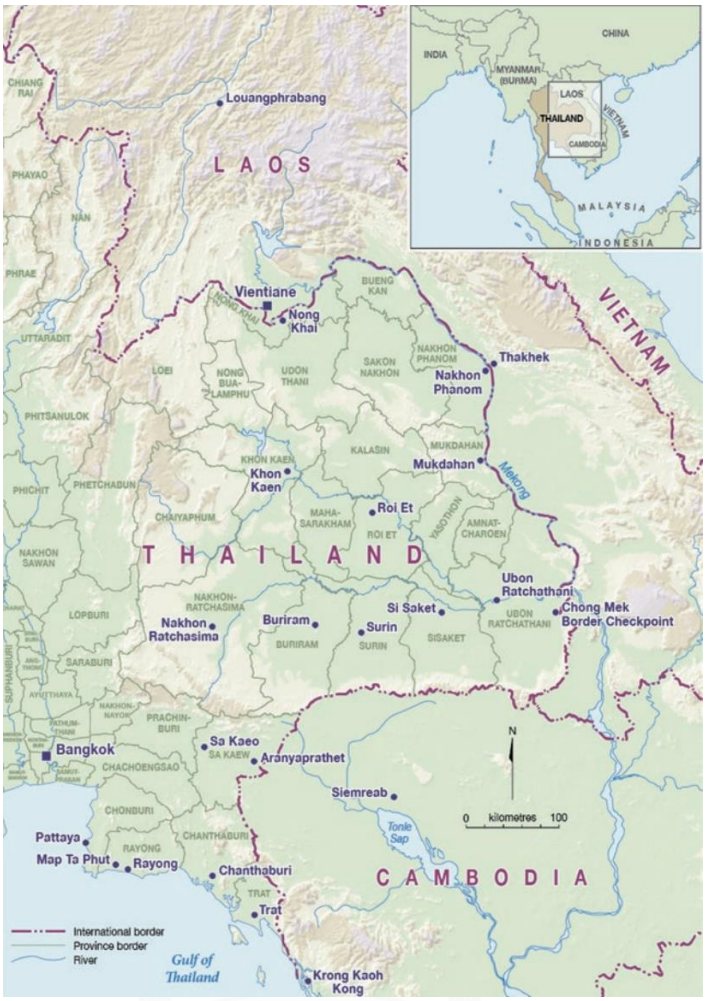

Figure 1. Map of Isaan (Suebpongsang et al, 2020).

Ubon Ratchathani is one of Thailand's 76 provinces, located in the southeastern part of Isaan along the Thai-Laos border, as shown in Figure 1. Ubon Ratchathani holds 4.9 million rai, and the province is a key area for jasmine rice and sticky rice production (Junpen et al, 2018; Rattanacharoen and Yamada, 2021). The province is located on the Khorat Plateau, which is characterized by a drier climate and soil with lower fertility and water-holding capacity (Tongpoonpol, 2012).

Compared to other regions, Northeastern Thailand experiences more erratic rainfall during the wet season and a lack of rainfall in the dry season, which limits agricultural productivity (Heckman, 1979). Ubon Ratchathani experiences both

flooding and drought, which is projected to worsen with rising temperatures, changes in the seasons, changes in precipitation levels, and water scarcity (Eastham et al, 2008; Srivoramasa et al, 2023). Notable recent experiences with environmental change in Ubon Ratchathani were the 2020 drought across Thailand and the 2022 floods, which were the worst recorded floods in the history of the province and partially a product of inadequate public planning resulting in a loss of natural water retention in the area. Only 10 percent of cultivated land in the northeast are connected to an irrigation system, and farming households in Ubon Ratchathani rely primarily on the Mun River (a tributary of the Mekong River) or rainfall (Suebpongsang et al, 2020). According to the 2013 Agricultural Census, farmers own an average of 21.5 rai, and the agricultural sector employs 68 percent of working-age individuals in Ubon Ratchathani (Agricultural Census Northeastern Region, 2013). Most households in the province rely on rice growing for income and consumption (Khunthongjan, 2016). During the off-season, farmers grow vegetables or pursue daily work in the city.

4.4 Characteristics of Baan Non Daeng

Ubon Ratchathani province is divided into 25 districts (*amphoe*) that are further divided into subdistricts (*tambons*) and villages (*mubans*). Baan Non Daeng (village) is located in Pho Yai sub-district within Warin Chamrap district. Pho Yai subdistrict contains 13 villages covering 46,250 rai. There are approximately 8,000 people living in the subdistrict, or 1,583 households. The majority of villagers in Pho Yai are farmers who grow rice, corn, and cassava. Ban Non Daeng holds around 1,000 rai of land. There are 248 households in the village (see Figure 2), with 1,600 individuals or about 800 over the age of 18. The majority of people physically living in the village are between the ages of 35-49 and work as both farmers and day laborers to support their household. Many households in Baan Non Daeng also have younger children who work in other cities and provinces and send money back to the primary household in Baan Non Daeng. Individuals over 40 are typically at an elementary or secondary education level, while individuals under 40 are educated at a vocational, high school, or undergraduate level.

The average farm size in Baan Non Daeng is 10 rai, with the largest farm holding 100 rai and the smallest farms holding less than a rai. Most villagers have formal deeds to their land, although some villagers rent land from other villagers or unofficially hold some amount of land. The farmland is located in lowland, midland, and highland areas. Some villagers have farmland outside of Baan Non Daeng in neighboring villages. Villagers grow in-season rice and have recently started growing vegetables and trees during the off-season to supplement their income.

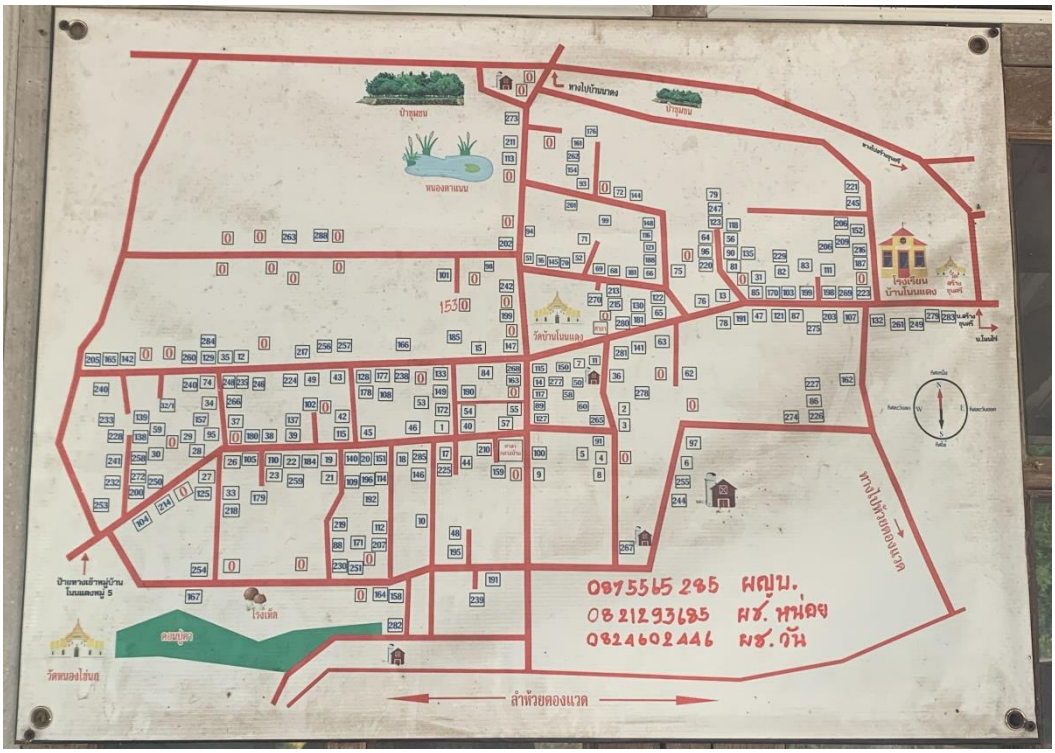

Figure 2. Map of Ban Non Daeng from the Village Head (Clare Steiner, 26 April 2023).

The main road in Baan Non Daeng has community meeting spaces like the Learning Center and the central Buddhist temple in the village. Baan Non Daeng also has a school with approximately 370 students enrolled from ages 4 to 15. While the village has no factories directly within its boundaries, there is an Ubon Bio Ethanol factory, a cassava polymer factory, and a Charoen Pokphand Group (CP) chicken factory that are nearby. Regarding leadership structure in the village, there is a village

head (aged 36) and two deputy village leaders. The village head reports to the Pho Yai subdistrict authorities. There are also two community organizations with a significant presence: the village health volunteers and the community enterprise organization. There are 25 village health volunteers, and they treat patients with chronic health issues. The community enterprise organization has 22 members, and they promote the principles of sufficiency economy by helping members diversify and increase their income through local ingredients.

4.5 Practices of Mobility

The village is approximately 15-17 km away from the city of Warin Chamrap and 30-35 km from Ubon Ratchathani City. Infrastructure in the area is well-developed, making transportation to these cities easily accessible. As a result, agricultural households pursue diverse livelihoods and are translocal. There are relatively low levels of in-migration into the village, and, and in-migration is usually related to from marrying into a household from Baan Non Daeng (as the case with Villager P). Instead, the village engages in diverse practices of mobilities where the household in Baan Non Daeng represents the center of the household unit. Villagers interviewed had an average of four people in their household, which spanned three to four generations. Families were sometimes split into different physical houses in the village based on whether they were actively farming or not farming but maintained a close connection. Individuals participate in daily, seasonal, and long-term migration that is primarily localized or cross-provincial. Scales of mobility were strongly correlated with age, education, and resources. When interviewed, subdistrict and village leadership divided mobility practices using generations as a unit of reference.

Villagers aged 20-30 years old typically travel the furthest from Baan Non Daeng to work in factories in central Thailand and remit part of their income to support the household. This group generally have higher education levels and wide networks from technology use. Interviewed members of this group discussed finding jobs in other provinces from friends, attending school, or from online advertisements. This group overwhelmingly works in industry jobs and have minimal experience with farming. Villagers aged 30-60 years old usually work in a combination of farming and

off-farm work in Warin Chamrap or Ubon Ratchathani City. This group works in daily jobs that transport them from Baan Non Daeng to the city in industries like cleaning, construction, food selling, driving, and local factory work. Members of this group vary in the level of off-farm and farm work they engage in for income—some pursue off-farm work just during the off-season while others derive income exclusively from off-farm work year-round. Those working regularly in off-farm work typically work 40-60 hours per week, working either every day or with one day off per week. Members of this group are also employed in more than one industry if they worked informally as their primary source of income, working in industries like ride-share, online selling, and food delivery. On the other hand, those working in formal industries mostly hold just one off-work occupation, including food selling, grocery work, office work, factories, and construction/contracting. Those doing off-farm work during the off-season generally work in daily construction/contracting positions, which allows them to flexibly choose their hours. This was an observed practice from households impacted more strongly by seasonal changes and by environmental shocks since they could rely on daily contracts when faced with risk or uncertainty.

Almost all members of this generation farm for subsistence and/or income-generation. Villagers farming exclusively for subsistence relied on off-farm work year-round. Villagers farming for both subsistence and income-generation either grew exclusively rice (in which case they worked primarily in contract positions) or grew a combination of rice and vegetables or trees (and could rely more on entrepreneurial farming to make their livelihood). This group also has varying education levels, with those above 45 usually noting an elementary/secondary level while those under 45 generally hold high school, vocational, or undergraduate degrees. However, this is only meant to demonstrate general generational differences. Villagers aged over 60 years old typically contribute towards farm-work or childcare for the household since they are of retired age in Thailand. This often includes taking care of the children of the generation working in other provinces. This overview of mobility practices in Baan Non Daeng demonstrates that mobilities are constructed by a range of economic, political, social, and cultural factors fostering complex migration decisions within households across generations.

These practices of mobility are not unique to Baan Non Daeng—rather, similar patterns of localized and provincial mobility have been recorded across Northeastern Thailand (Rigg and Salamanca, 2011). Isaan people historically engage in temporary migration to support the rural household (Piotrowski and Tong, 2011). These mobility decisions are shaped by economic, social, political, cultural, and environmental factors that are context-driven (Boas et al, 2022). Mobilities in Baan Non Daeng should be understood within the context of advancing technology and development processes leading to a greater shift towards entrepreneurial farming and off-farm work in Thai villages (Rambo, 2017). These trends are a part of a larger culture of mobility in Isaan that has reworked the notion of the "household" and developed a "mosaic of networked relations—material, function, emotional, and imagined" (Rigg and Salamanca, 2011, p. 554). Greater interconnectivity has fundamentally changed flows of ideas and values shaping mobility, while changing resources and technology alter experiences with hazards and relative risk positioning. The practices of mobility in Baan Non Daeng are a product of these shifting social systems, widening markets, increasing educational opportunities, and changing social and cultural norms that are transforming rural livelihoods in Thailand. Environmental and climate change affect each aforementioned dimension, which ultimately contributes to differential mobilities. While mobility was not cited as directly related to climate change in the majority of cases, worsening environmental conditions (e.g., relative water insecurity), shocks (e.g., droughts, flooding), and more unpredictable seasons were significant to adaptation discourses and practices in Baan Non Daeng. This thesis does not attempt to draw a direct link between slow-onset climate change and migration, since proving a link is not necessary to argue about the production of imaginaries. Instead, the following sections demonstrate how environmental knowledge, values, and relative positioning to environmental change are shaping perception and exposure to risk that impact mobility decisions in Baan Non Daeng.

4.6 Local Knowledge and Perceptions of Environmental Change

Knowledge is the basis of climate imaginaries, since it informs boundaries and meanings informing *what is*. Environmental knowledge can be derived from

experiences and assumptions, as well as from scientific inquiry (Jasanoff, 2010). When asked about their perceptions of environmental change, all villagers said there were environmental changes happening. The changes mentioned included rising temperatures, more intermittent rain, changing season lengths, flooding, and drought. Individuals cited direct experiences with flooding and drought in recent years, as well as from past generations, to explain their understanding of the present climate. Impacts were measured by how they influenced daily life in the village (e.g. walking outside in the afternoon less because of the hotter temperatures), as well as the nearby farmlands. Villagers, regardless of dependence on agricultural income, expressed concern over environmental changes. Two female members of the community development organization who grow rice and trees among other crops stated:

> “During the dry season, there is usually drought, and the grass is all dry, which impacts the animals and makes the cows very skinny and difficult to tame” (Villager N, Interview, 27 April 2023)

> “Last year, my lands were flooded, and I made less produce. In some years, there is drought and dry spells, making the rice not fully grown and dry” (Villager W, Interview, 29 April 2023).

Both of them rely solely on agricultural jobs for income and have adapted to these changes by diversifying their income by investing in enterprises like catfish and vegetable selling. Other villagers also commented on how these changes are unusual, which has caused them to seek out other income. One female farmer explained that her family now relies solely on her husband’s one-day contract jobs and income from her sons (one who works in the local factory and another who works in Khon Kaen province) because they believe the weather is becoming too unpredictable:

> "The droughts and floods have been so severe that we have chosen not to grow. There are also prolonged seasons where the rain is delayed. I am concerned about these changes because when it rains, it is not usual. The storms get severe, and the rains are heavier” (Villager J, Interview, 26 April 2023).

While there were environmental shocks in the past, they seem to be less frequent and severe according to most middle-aged and younger villagers. Older villagers more often maintained that these changes were not too different, citing examples of extreme flooding and drought from previous decades that impacted farming. Most villagers explained that these changes are worsening from their parents' generation, which was a result of natural phenomenon and human decisions. One male villager who works in construction during the off-season and whose wife does daily labor argued:

> "I think these changes are because of deforestation and global warming. It is worse now than in my parent's generation because the rain is delayed and there are dry spells. Usually the rain comes in April, but now it can be delayed to June or July. I have rice that has died even though I have a pond because the pond dried," (Villager R, Interview, 28 April 2023).

Some villagers believe that the changes were due to El Niño and La Niña climate patterns, changes in the Earth's orbit, or global warming—but others state these changes are by the will of nature. A male farmer who makes the majority of his income farming 30 rai of corn and rice explained:

> "I am worried because when the flood comes the chickens die and I have to move to live on the second floor rather than the basement. The trees I plant die and the rice cannot be harvested. The grass for the cows also dies" (Villager B, Interview, 25 April 2023).

He continued to explain his concerns but resigned that these changes were natural and often set in suddenly without the community being able to prepare. His children work in the factories in Bangkok and do not farm, sending money for daily expenses on a monthly basis. A younger male villager whose family relies primarily on managing a store in the village for income expressed it could be a combination of factors causing the perceived changes:

> "The seasons are changing, and you cannot rely on the natural waters anymore…These changes are because of two causes. First, the El Nino and La Nina phenomenon, which is natural. Then, there is deforestation to make fields for farming…If there are 100 land owners, and they each have 5-6 rai, and

> they decide to cut down the trees, what happens to the environment?" (Villager D, Interview, 26 April 2023).

Several other villagers agreed that human decisions could be creating the changes, citing field burning and deforestation:

> "I think the flooding is caused by natural reasons, but I think the deforestation is causing worse flooding," (Villager C, Interview, 25 April 2023).

> "The villagers who burn their fields are not aware of how it will affect the future, and they take these issues for granted. It will cause air pollution, but I can't control what other people think even though the government has ordered the burning to stop" (Villager N, Interview, 27 April 2023).

In general, the older generations believed that the changes were more natural compared to the younger generations, although this was not always the case. This general pattern could be related to differences in lifestyles, education, and mobility across generations that have created more translocal experiences and access to broader networks of information particularly for younger generations. This section demonstrates that knowledge about climate change is linked to both community-level experiences and individual exposure to risk. Environmental perceptions are shaped by daily experiences and concerns. They are also based in knowledge networks, and mobility patterns likely contribute towards differential understandings of recent environmental changes as being natural or unnatural. The next section details actions taken based on environmental knowledge and perceptions to cope with changes or manage risks towards a more stable future.

4.7 Adaptations Related to the Environment

4.7.1 Changing Rice Farming Method

Villagers in Baan Non Daeng have taken actions to adapt their rice farming method, switching from the transplant method of rice growing to the paddy pound method in the last ten years. The transplant method is the most common method of establishing rice crops in Asia and involves transplanting rice seedings into fields to

create a uniform crop that is less susceptible to weeds (International Rice Research Institute, n.d.). However, the method is limited by the length of time required, its labor intensity, and risk that the seedling will die before rain arrives for areas reliant on surface water. In Baan Non Daeng, villagers believed that the soil was too dry and that the unpredictable seasons made it difficult to use the transplant method:

> "During the past 10-20 years, farmers relied on natural resources according to the seasons. Now, people have changed their method from transplanting to paddy pound," (Villager D, Interview, 26 April 2023).

> "When there is a drought, I wait for the rain to plant the seeds using the paddy pound method. Today, we cannot do the transplant method because of the droughts" (Villager K, Interview, 27 April 2023).

This change is method appeared to be universal in the village because the paddy pound method was perceived to be easier and more reliable. As described by the villagers, the paddy pound method involves dispersing rice seeds by hand after one of the first rains of the season. This method is faster, does not require much time or labor, and is not as limited by environmental conditions. There is a difference in rice quality that was noted by village leadership. Since rice seeds are not evenly spaced out, seedlings compete for soil nutrients that leads to weaker rice. Rice also does not have a head start in development using the new method, and farmers must use chemical fertilizer, herbicides, and pesticides to protect the rice and support its growth. The subdistrict administration organization noted that these changes are connected to both the environment and changing rural livelihoods:

> "The transplanting costs a lot of money and requires a lot of labor. In the past, the cost of labor was 200 baht per day. If you have 30 rai, it takes one month to finish everything. With the paddy pound method, it takes one day with a low investment. However, even with this lower investment, the farmers are still making less profit…Now, farmers also use a lot of chemical fertilizer and herbicides. The government campaigned that the villagers should use biofertilizers instead of chemical fertilizers. But, if you grow rice with chemical fertilizers, it only takes 3 days for the rice to grow. If you use the

> biofertilizers, it takes one month and there are many processes you have to do before you can begin using it," (Executive of Subdistrict Administration Organization, Interview, 28 April 2023).

He describes the low incentive to invest in more sustainable processes in spite of the official recommendation, which is also a function of the governmentality that villagers are expected to profitably leverage their existing resources. However, the dispersal of seeds rather than the planting of seedlings mean that households reliant on rainfall are at greater risk of losing their seeds if the rainfall is too intermittent. It was observed that farmers were hesitant about the timing of planting, especially if they did not have supplementary sources of water like ponds. If the farmers lose their seeds, they must either rely on their household to provide income for new seeds or must take out a loan. This leaves farmers without children remitting, as well as farmers reliant on rainfall, in a more precarious position. For farmers where both conditions are the case, they are compelled to pursue off-farm work when facing environmental risk. The switch in methods was cited most frequently among villagers when asked about farming adaptations related to environmental changes, but the risks of this adaptation are not felt equally.

4.7.2 Groundwater Technology and Ponds

Other environmental adaptations cited were the groundwater solar system and the building of ponds to cope with intermittent rainfall and drought (see Figure 3). Other studies have noted that farmers in the Northeast reported using ponds along with other changing land-use approaches to get through dry periods, making it an important investment (Grandstaff et al, 2008; Pandey et al, 2007). Outside of the financial resources needed for building, ponds are costly because farmers must make the decision to allocate land away from their crops towards the pond. This makes it difficult for rice farmers who own less land to invest in ponds, which was also observed in Baan Non Daeng.

Figure 3. The solar system pumps groundwater into a pond owned by a villager in the highlands (Clare Steiner, 28 April 2023).

Since Baan Non Daeng is not centrally irrigated, there is a reliance on groundwater technology and pond-building. Given the lower investment, small-scale irrigation projects and pond building are the preferred government strategy for improving water infrastructure for smallholder farmers in Northeastern villages. There are three main departments from the central government that have been involved in building a water system to support the farmers in Baan Non Daeng and address dry spells and drought. The Royal Irrigation Department (RID), under the Ministry of Agriculture and Cooperatives, manages small- and large-scale pump-irrigation systems that allocate water and promote off-season growing (Suebpongsang et al, 2020). RID is known for its focus on engineering and technical knowledge, rather than social and participatory irrigation projects (Ricks, 2015). Baan Non Daeng has a groundwater system that was developed by RID, with a central area for storing water. The Land Development Department (LDD), also under the Ministry of Agriculture and Cooperatives, is the organization responsible for soil surveys, land improvement projects, and land planning in Thailand (LDD, 2014). LDD prioritizes building small-

scale water holding projects to support rice farmers and has built ponds for villagers in Ban Non Daeng to help them adapt to water scarcity (LDD, n.d.).

It was observed that most villagers personally develop their own ponds, or they share ponds between neighbors or family members. Ponds have been strategically built by the government in highland paddy areas to support off-season activities (Sukchan et al, 2014). The Department of Disaster Prevention and Mitigation (DDPM) under the Ministry of Interior focuses on disaster risk reduction and management related to climate change (CFE-DM, 2022). DDPM supported the digging of a pond and the dredging of water to develop a large public pond for use in the highlands of Baan Non Daeng. The size of the public pond varies greatly by season and was observed to be mostly dried given the delay of the rainy season (see Figure 4 below). Limited available water for those reliant on rainfall was a concern during the study, which contributed towards the perception that allocating resources towards water infrastructure could reduce future environmental problems.

Figure 4. This is a picture of the public pond dug by DDMP. During the rainy season, the water typically fills the entire ravine past the trees, but it was dry in April because of the delay in the start of the rainy season (Clare Steiner, 28 April 2023).

One young daily worker (whose family farms only for subsistence) advocated:

> "Many villagers use the groundwater and those who can afford the solar system use it to pump up the groundwater. Another thing the community can

do is dig ponds to store the water in the dry season," (Villager X, Interview, 30 April 2023).

The subdistrict office mentioned a project for increasing the number of solar systems in the village because of limited availability of electricity in some farmland. The village head also expressed that he is hoping to work with the Department of Water Resources (DWR) under the Ministry of Environment to create a centralized water system. Village leadership and villagers were united in imagining that groundwater technology and pond building could help villagers adapt to environmental changes.

4.7.3 Vegetable Growing and Enterprise Farming

Since rice is not very profitable (around 20,000-30,000 baht annually from villager estimates), villagers have begun growing more vegetables in the last couple of years. This adaptation is linked to environmental change, as well as other political, economic, social, and cultural factors. The ability to grow vegetables is dependent on water and land politics that determine resource access and use. Off-season growing requires supplementary water supply from either groundwater or from ponds. Commerical crops are often water intensive, which both limits off-season growing for more resourced farms and also poses long-term risks to the environmental health of the land. In spite of this, vegetable growing still represents a significant part of the climate imaginary in Baan Non Daeng because it a strategy of mitigating risk that farmers value and desire for their future. This is aligned with other studies that demonstrate how farmers might diversify land use and crop choices to cope with shocks and mitigate future risks to their livelihood (Lehmann et al, 2013, Birthal et al, 2015, Nguyen et al, 2017). Compared to large farms, smallholder farmers still rely on crops for domestic consumption, which makes them more likely to choose high value crops like vegetables to supplement income over other crops (Fafchamps, 1992). Members of the community development organization in particular discussed how they applied the principles of the sufficiency economy to leverage their existing resources and protect themselves from risk while maximizing their income from the land:

> “I sell fish and transform it into products like grilled fish and fish paste…In the future, I want to have a shrimp pond in the groundwater pond…I grow standing timber and mulberry, but in the future, I plan to cut them out and grow vegetables instead…I will decrease the among of rice to grow vegetables instead. I will grow rice to eat and not for selling. In the past, I used to grow more rice, but now I have split the area to make the fish pond” (Villager N, Interview, 27 April 2023).

There is also less perceived risk because vegetable growing is perceived to bring stable income. For example, one young male farmer who vegetables during the off season commented:

> "I am not really concerned with the environmental changes. The rain came at the right time last year, so this year there might just be a dry spell. If this season is dry, I will just focus on the other crops besides the rice” (Villager M, Interview 27 April 2023).

Growing vegetables appeared to be the dominant strategy of more resourced farms to adapt to a changing environment.

4.7.4 Local Off-Farm Work

Agricultural intensification and specialization has also led to increasing reliance on more mobile, translocal agricultural households (Rambo, 2017). Since non-agricultural work in the city is fairly accessible in Baan Non Daeng, households are able to more frequently and flexibly use non-agricultural work as an adaptation when faced with environmental change or climate shocks. A young female farmer who relies on rainfall for rice growing explained that working off-farm can be a coping strategy

> "I lost rice from the environmental changes. The rice in my field died. I had to work an extra job to cope with that…Farming makes less profit now and the market price of rice is decreasing. Working in an extra job is the solution for us,” (Villager Z, Interview, 30 April 2023)

Compared with farming, there is a lower initial investment and smaller time-scale to turn a profit with daily work. The relatively quick availability of income especially benefits households constrained by systemic factors and resource limitations. One day laborer whose family owns just one rai explained that the household often cannot rely only on farming for subsistence:

> "I need to rely on both farmwork and construction to have something to eat. But, when there is not enough, I have to rely more on the construction work," (Villager L, Interview, 26 April 2023).

For households engaging in both non-agricultural and agricultural work, non-agricultural work contributed more than double (in one case, 40x more) than rice growing to household income, which is why it is perceived as a highly rewarding adaptation. Villagers also commented on how contract work is flexible and accessible—for example, they can choose that day to find work at a construction site without issue. Informal work provides similar flexibility, and they can use work to support living costs when experiencing environmental changes that impact farming timelines. Having discussed environmental knowledge and action comprising climate imaginaries in Baan Non Daeng, the following section focuses on relative political and economic positioning and the impact of these relations on relative climate adaptation and mobilities. Social and cultural factors are also drawn out from the interviews.

4.8 Structural Factors Influencing Adaptation Pathways

4.8.1 Land Location, Size, and Ownership

Villagers experience different forms of environmental change depending on their land location. The lowlands and midlands experience flooding during heavy rainfall and are relatively less impacted by drought. The highlands are significantly impacted by drought and also have lower availability of water resources in the area (see Figure 5 compared to Figure 6 below). This has an impact on priorities and values related to adaptation, as well as the material adaptations needed to cope and prepare for environmental changes. Farms in the highlands were less likely to grow

vegetables or large amounts of rice because they require more water resources, and many villagers with land in the highlands rely on daily off-farm work as adaptation.

Figure 5. This picture depicts dry soil from a field in the highlands. Rice has not yet been planted because farmers are waiting for the rain, which was supposed to have arrived at the beginning of April (Clare Steiner, 28 April 2023).

Figure 6. Cassava grows in a field in the midlands, where farmers have water to grow vegetables in the off-season (Clare Steiner, 28 April 2023).

There are also issues of land fragmentation in Baan Non Daeng resulting in more limited abilities to farm for income or subsistence (Achmad et al, 2022). A member of village leadership explained that land is being increasingly divided:

> When they have children, they pass down the land to them. However, that makes it so there is not enough land for farming because they need to seperate the land and fields become smaller. Sometimes, the younger generations are married to people from other villages, so they also move" (Head of Academic Affairs at Baan Non Daeng School, Interview, 28 April 2023).

With less land, households are less able to allocate land towards investing in climate adaptations like ponds and this also contributes towards land intensification. Most villagers interviewed either owned the land or were using land that formally belonged to their family members, but some villagers said that they rented their land. Those who owned and currently farmed their land were more likely to discuss farming in the future and that their children would come back to farm. On the other hand, villagers who were renting their land were more likely to focus on how their future was tied to non-agricultural work. Both groups still expressed a desire to keep their land:

> "I think my children will come back to continue farming. My daughter has already bought the land," (Villager H, Interview, 26 April 2023).

> "I will probably give the land to my son. If he doesn't farm, he will probably lend the land like I do, rather than selling the land," (Villager I, Interview, 26 April 2023)

Several villagers also noted that some villagers cut down trees to sell them to private companies. which was a form of livelihood diversification related to private land ownership:

> "When some households have a deed, they tend to cut down trees to make space for their farms. The majority of people who sell trees sell them to factories like Ubon Ethanol and CP. Then, some cut trees to sell coal," (Village Head, Interview, 26 April 2023).

Many members of the community noted that this selling was harmful to the long-term ability of the village to withstand environmental changes since the trees provide shade, improve soil health, reduce air pollution, and absorb runoff. There are also areas near the village where land ownership is unclear, and it is contested whether the land belongs to a conserved forest or if it is degraded. If it is degraded, villagers are allowed to use the land for development and farming. Since formal land ownership is contested, some villagers have gone into the area to cut down trees and build their own farms. This issue has been on-going for the last few decades and is related to general trends of deforestation in Isaan. To address issues with deforestation, the provincial government has provided seeds and other incentives for growing trees in the villages, but it still occurs. The amount of land, land location, and land ownership were all determinants of the types of adaptations or investments that villagers made into their farms and the kind of future they envisioned (Eitzinger et al, 2018).

4.8.2 Water Management

> “Each household can access the groundwater, but they are responsible for their own irrigation” (Village Head, Interview, 25 April 2023).

Most villagers rely on the rainwater to grow their crops, exposing them to more environmental risk when the rains are delayed, the temperatures rise, and dry spells occur (Ngetich et al, 2014). A few villagers believed that the amount of groundwater was the same, while others believed it was decreasing because of the off-season farming and rising temperatures. One villager commented that groundwater levels are related to community water use politics and that villagers take out more groundwater when they perceive future risk or want to invest in growing during the off-season:

> "Some people do not wait for the rain. They store it for themselves, and there is more drought… My parent's field relies on ponds and groundwater, but these fields require more water. The number of villagers has impacted the availability of water, and water availability also depends on the ownership of the groundwater. This makes farming more unstable" (Villager D, Interview, 26 April 2023).

There are no regulations on groundwater use in the village, so those with access to the groundwater can pump it during any point of the year. Those with the solar system are able to pump groundwater at a faster rate with lower expenses than those with a motorized system that require electricity. Those with the resources to build ponds can use the solar system to fill the pond with groundwater, which allows them to expand into new agricultural sources of income like fish, snail, and shrimp ponds. Villagers with greater access to water not only have a greater ability to make agricultural income, but are also impacted less by environmental changes:

> "I have not really been impacted by the changes like flooding and drought because I have my own pond and I can pump up my own groundwater using the solar system. In total, I have eight ponds: three are really deep and five are average height. Even when I do not have enough water, I can pump groundwater…Some people pump up the groundwater, and then run out during a severe drought." (Villager N, Interview, 28 April 2023).

The findings demonstrate that there was not necessarily a lack of resources for adaptation available; rather, access to those resources were inequitably distributed (Thomas et al, 2019). Since growing vegetables requires significant water resources, it can also decrease the water available for in-season rice growing across the village (especially if the village experiences delayed rainfall). This means that households have differential and relational capacities to be self-sufficient. Villagers with land in the highlands were far less likely to grow vegetables because they experienced drought and water scarcity at higher rates:

> "I haven't dug the hole to get the groundwater, so I can't grow vegetables…I tried to grow new crops, but it didn't work because my land is in the highlands. There is not enough water, and the weather is changing," (Villager V, Interview, 29 April 2023).

> "During the dry season, she [my sister] doesn't grow vegetables because there is insufficient water," (Villager Y, Interview, 30 April 2023).

> "I don't farm during the dry season, but many in this village grow corn in the dry season. I don't grow corn because it is water intensive. Many people here

> use groundwater to grow it, and the corn needs work to take care of it," (Villager P, Interview, 28 April 2023).

As more resourced households continue to draw more water, they contribute to growing resource inequality that prevents some households from being able to adapt to changes using farming. This pattern complicates the concept of self-sufficiency from village leadership since households with greater access to agricultural resources can invest in their farms while those with less resources are pushed towards working in the city as adaptation. The underlying implication that households can adapt themselves obscures these inequalities and looks to the market to administer "successful" adaptation pathways. Individuals are expected to be entrepreneurial, which depoliticizes how structural factors contribute towards whether they engage agricultural or industrial entrepreneurship.

4.8.3 State Compensation Process for Flooding and Drought

Lengthy and bureaucratic processes of reporting and receiving compensation for environmental shocks also push less resourced farms (without significant remittances) to work in daily off-farm contracts. The process for receiving compensation from the lower subdistrict to higher provincial authorities is as follows:

> "When there is a drought or a flood, I communicate with the villagers about who is experiencing it, then I go to the field to their homes, take a picture, and send it to the district office to ask for support. Usually when we send the report, it comes with data and evidence. Sometimes, when we come and do fieldwork in the early stages, we provide supplies for the villagers, which usually comes from Red Cross. Eventually the government will provide compensation for impacted villagers," (Subdistrict Head, Interview, 27 April 2023).

This can take months to process, and villagers might also have to keep degraded fields and houses for weeks before an inspection takes place. One villager who lost their rice from the 2022 flood commented:

> "The process for flooding compensation usually takes 3-6 months. I think it takes a lot of time," (Villager O, Interview, 27 April 2023).

Compensation is also related to registration, materials of the house, or type of crop lost. The farmer must be enrolled in the Department of Agriculture system. This compensation is also not sufficient to cover losses because of limited capacity:

> "Compensation is 1,000 baht during the growing season and 500 baht during harvesting. The regulation of the Ministry of Finance also provides compensation related to crops: rice receives 1,300 baht per rai, cassava receives 1,980 per rai, and vegetables receive 1,200 per rai," (Subdistrict Head, Interview, 27 April 2023)

One villager mentioned that she had to rebuild their house after the floods but was unable to receive state compensation:

> "When I was rebuilding, I didn't receive compensation for my house. I received a loan from the Bank of Agriculture to rebuild my house, as well as support from my son-in-law" (Villager E, Interview, 26 April 2023).

In the absence of state compensation and intervention, she had to rely more on her son-in-law, who works in the delivery industry, and taking out additional loans. Farmers without children working in central Thailand face additional difficulties financing their own losses but are still expected to be resilient. Especially for farmers without working children, environmental shocks might push villagers into debt or off-farm work.

4.8.4 Decreasing Rural Labor

The availability of young rural labor is considered to be an advantage to beginning processes of community adaptations (Vo et al, 2021). It allows households to engage in more labor-intensive climate adaptation measures or introduce more innovative technologies to aging farm populations (Anley et al, 2007; Asravor, 2023). Social networks are also important for farmers to learn and engage with new experiential knowledge, which can help with adaptation (Skaalsveen et al, 2020).

However, decreasing rural labor has become a concern for the future of farming (Riggs et al, 2012) as significant out-migration impacts the community:

> “In the past, farmers and their family worked in the field. Today, they lack labor because the children go to work in the town. Farming doesn't make a lot of income and it is unstable. During the dry season, you cannot grow anything,” (Executive of the Subdistrict Administration Organization, Interview, 28 April 2023).

Subdistrict leadership noted that the “aging farmer” is an issue because it impacts rural livelihoods:

> "I don't think the children of the farmers will continue to farm because they are moving to Chonburi and Bangkok to industry and factory jobs. Most of the people staying in the villages are elderly or middle aged. I think this will be a future issue because it already places a burden on the elderly to take care of grandchildren while working in the fields. The community already has a shortage of young labor,” (Subdistrict Head, Interview, 27 April 2023).

This means resources are being drawn towards cities in Thailand and factory labor, rather than invested into the village. While households are translocal, the younger generations are both working and visiting less in Baan Non Daeng. These demographic changes impact the knowledge and values guiding the community, as well as the capabilities and agency of the farms to implement adaptations. This change is also due to increasing access to education and socio-cultural values around pursuing longer education rather than dropping out to farm in the region:

> “I think more students will go to work in the cities in the future. There is a high chance that they will work these jobs. In the past, the mandatory schooling was elementary or secondary school, but now students tend to go to higher education, and they can have their own full-time job. They might farm or have an extra job in the sense that they are growing rice for eating and selling,” (Head of Academic Affairs at Ban Non Daeng School, 28 April 2023).

Education has opened up the types of jobs that are available to the younger generations, but also raises questions about future land use, renting, and selling—particularly if the younger generations have less incentive to leave their occupations and return to the village when they are older. Since fewer young villagers work on the farms or know how to farm, the community might also have to rely on future investment in technology and development to compensate for a lack of rural labor. However, there remain barriers to accessing formal employment that might drive some younger individuals back to the farm in the future:

> "I think my children must come back to work on the farm because they won't have anything else to do. My eldest son graduated from secondary school, and my daughter graduated from high school. They don't have a higher degree. My children will also farm because it is easier to do now. It takes only one day to finish the process, and then they can go work in the town," (Villager O, Interview, 27 April 2023).

Rural livelihood decision-making is constrained by a labor shortage and impacted by competition between farm and non-farm work (Rigg and Nattapoolwat, 2001; Jansuwan and Zander, 2021). Farmers without the guarantee of future labor might choose to pursue non-agricultural work instead of expanding or diversifying their farms, illustrating relational mobilities (Bayrak et al, 2020).

4.8.5 Urban Bias

Although these mobilities are not new, technology and growing connectivity have fostered landscapes where mobility is more accessible (Brickell and Datta, 2011). Industry and services are increasingly prioritized over an agricultural economy, which has implications for how institutional resources are allocated and for the fabric of the rural community. Since farming is an old tradition in Northeastern Thailand, there is a perception that farming is not a desirable occupation in the modern era, particularly from younger generations. Many older villagers commented about how the children are losing their culture or are losing specialized skills and knowledge related to

agriculture. One of the leaders of the community enterprise organization expressed concerns that agricultural education and values are being lost to modernization:

> "It all starts from early education that we cultivate norms about agriculture. Today, kids have games, mobile phones, entertainment, and Facebook, so people from 18-35 are moving to work in the town and neglecting agricultural jobs. But when they see or face challenges in their job, they think they can just stop and come back to the farm. Some of the younger people are now supporting their family and investing in their fields for the future when their parents are not able or capable of farming. Then, they will come back" (Deputy Executive of the Community Enterprise Organization, Interview, 29 April 2023).

As values have shifted and more young people are interested in moving to the city, state resources have shifted away from promoting farming in Baan Non Daeng:

> “In the past, there used to be projects to train younger people. Participation in these projects decreased because people started going to the city, and children do not join anymore. This was a provincial government project that has stopped because there is no longer an incentive to host the project,” (Head of the Village Health Volunteers, Interview, 25 April 2023).

Subdistrict leadership also noted that some children do not even know where their farms are located. This was also observed during a couple of interviews with young laborers who work in other provinces, as they relied on their parents to supply information regarding environmental change in the village, their farm characteristics, and farming investments. Despite clear social and financial connections between members of the household across space, this bias towards urban areas has significant implications for the future of environmental knowledge and decisions regarding level of investment in farming.

4.8.6 Level of Remittances

Remittances from off-farm work also help families cope with environmental shocks or changes (Warner and Afifi, 2014), while improving adaptive capacity and resilience (Banerjee et al, 2018). They do this by creating safety nets for farmers and aiding production costs in the absence of sufficient institutional support to adapt to environmental changes (Porst and Sakdapolrak, 2020). Children in Baan Non Daeng might send money to the household monthly for general living and farming costs, or they might send one-time payments to help their family recover from shocks to their livelihood. For example, a young woman who works in a factory in Samut Prakan province explained that her income supports several family activities:

> “I send money for day-to-day living expenses, paying back the Bank of Agriculture loan, and buying seeds and fertilizer…Normally, when they ask, I provide 3,000-4,000 per month. Whether I send money for the farm depends on my mother…My mother [once] asked me for money to buy new seeds because the old seeds didn’t grow because of the drought” (Villager U, Interview, 29 April 2023).

Two older female farmers highlighted that they received support from their children in Bangkok when they experienced environmental changes:

> "Growing rice is not very stable, so the income varies. Our sons send money to support our daily living costs…I am worried about these changes because I have lost profits and when I sell rice, it doesn't cover the costs I have invested,” (Villager C, Interview, 25 April 2023).

> “The temperatures are rising. The floods, rain, and drought also cause crop loss and profits to decrease…After the floods, my daughter sent 10,000 baht to support the family” (Villager G, Interview, 26 April 2023).

These two villagers each have 25 and 30 rai, and their experiences draw out relative agency provided both by remittances and more resourced farmland. It was observed that families with children working in Bangkok generally had more land and access to

water, which could provide children with more agency to work off-farm in further distances. When asked how they found their off-farm work in Bangkok, families explained that their children found jobs through connections, visiting friends, or attending school in the city. It can be inferred that many of these children already had resources and networks that provided them with greater relative access to central Thailand. These families also benefit from higher relative wages in Bangkok compared to the local area, which allows them to invest more into the household in Baan Non Daeng:

> "80% of the younger generation who go to work in the factories in Bangkok are successful. They send money back to their families, but they only come back twice a year for Songkran and the New Year festival in December. The money they send is divided into three categories: living costs, farming investment, and savings. The successful younger generation spend money on the land to build their house. Three people living around here went to work in Bangkok, and in one year, they could afford to buy a car," (Executive of the Subdistrict Administration Organization, 28 April 2023).

However, additional studies on remittances as a source of adaptation financing have shown that remittances do not necessarily improve household resilience to climate change (Maduekwe and Adesina, 2022). For migration to be used for long-term farming investment, the household needs to have identified a future with farming (Faysse et al, 2020). In Baan Non Daeng, more resourced households appeared to have greater climate resilience because they already had resources to support cross-province mobility and could use that network when faced with environmental change.

4.8.7 Debts from the Bank of Agriculture

Another source for investment includes taking out loans from the Bank of Agriculture. However, droughts and flooding have made farming more unstable and fostered rural precarity related to loans. Particularly for farmers with less land, they are pushed into off-farm work to pay back their debts:

> “I have a debt problem. I got a loan from the Bank of Agriculture to use on the household and farming. I use the money from the construction site to pay the debt and my wife is working, just for us to pay the interest…The farming income in unstable. When the rain comes at the right time, I have a lot produced, but when it is a dry spell, I have less produced,” (Villager R, Interview, 28 April 2023).

> "I have taken loans from the Bank of Agriculture. I have had to work extra to pay back the loans. I also work in the village health volunteers and at the construction site…I have had to have an extra job to make up for the lost income from the droughts,” (Villager V, Interview, 29 April 2023).

Relying solely on annual lump-sum incomes becomes incredibly risky when households are also facing debt. This creates pressure for households to get money quickly to pay back interest, while creating additional constraints on their agency to farm. One villager working primarily in off-farm work expressed that farmers are growing increasingly reliant on off-farm work because of rising costs:

> "A lot of villagers work in construction site jobs. This is because villagers farm once a year during the rainy season, and they make low profits. Their income comes in a lump-sum payment, and the villagers get loans from the Bank of Agriculture that they need to pay back. In some years, the market price is low, so they make less profit. At the same time, the fertilizer price is gradually increasing,” (Villager P, Interview, 28 April 2023).

Farmers in Baan Non Daeng expressed that it is relatively easy for them to access Bank of Agricultural loans; however, several households noted that the reliance on loans placed constraints on their decision-making. In the absence of other institutional support, this pushes less resourced farms towards off-farm work compared to farms that can use loans to invest in their already resourced farms. This amplifies future risk for households without farming security and highlights how marginalized farms face additional barriers limiting their agency when they must invest in loans to cope with climate shocks.

4.8.9 Limited State Investment

Limited state investment has contributed towards the perception that households are responsible for their own adaptation, as well as the continuation of environmentally harmful practices like burning. Burning is a common practice in the northern and central regions of Thailand, used to remove waste residue and control weeds before the next crop cycle (Junpen et al, 2018; See Figure 7). In January 2023, the subdistrict held a workshop for village leadership on pollution and respiratory problems related to the burning fields. The provincial government has a zero burning field policy, and they held a campaign using sirens in the villages in March 2023 to deter burning. There was also a workshop on alternative methods held for villagers, but "burning still happens because it is what they are used to" (Village Head, Interview, 26 April 2023). Several villagers noted frustration that government officials have not been able to hold individuals accountable for the burning. Since state investment is primarily to issue warnings, villagers feel there is not enough incentive to stop environmental degradation.

Figure 7. Villagers burn their fields to prepare for the rice growing season. Many fields were burning next to each other (Clare Steiner, 28 April 2023).

State investment has also been largely centered on building water infrastructure as noted earlier. The state also helps with the development of additional ponds in villagers can afford to pay additional fees:

> “The Land Development Department supported the building of ponds, but the villagers had to pay for their oil costs at 2,500 baht per villager.” (Executive of Subdistrict Administration Organization, Interview, 28 April 2023).

This makes it easier for more resourced farms to build their water infrastructure without necessarily supporting the adaptation of less resourced farms. There is also cognitive distance constructed from the limited involvement of the central government in the rural area as demonstrated by one villager:

> “I don't think anyone can solve the problem with the water because the Royal Irrigation Department is pretty far from here and we don't have resources from the Mun River like other areas,” (Villager K, Interview, 26 April 2023)

Villagers recognize that limited involvement leaves them largely responsible for their own adaptations to environmental changes. It was observed that community members censured certain behaviors (e.g. burning and deforestation) through processes of localized accountability rather than state accountability. Villagers were also divided on whether preparing and adapting to environmental changes were a household or community issue, which is partially a result of how natural resources like water are managed by a system of public and individual investment. Many villagers believed that responsibility for thinking about the future of the community lies with village leadership, the authorities of the subdistrict, and agricultural extension officers since they were perceived as the ones with resources to invest in projects that would make farming more sustainable.

4.8.10 Access to Decision-Making Processes

Government interventions represent an assemblage of dynamic interactions (Li, 2007), where the government sets conditions prompting people to “do as they ought” rather than necessarily imposing their sovereignty to control behavior (Scott,

1995, p. 202) Power is fundamentally a relation informed by differences in positioning (Foucault, 1991). In Baan Non Daeng, limited state investment contributes towards the relative power of local leadership in determining community norms and values. Key state policies and challenges in Pho Yai district are discussed and communicated in monthly meetings organized between village leaders in the 13 villagers and subdistrict authorities. Workshops are used to convey state messages to the village and can include the dissemination of knowledge about issues and adaptations, as well as hands-on involvement:

> "[During the floods in 2022] there was a workshop about natural disasters that was mainly about promoting understanding of natural disasters and how to prepare. Afterwards, we went to dredge the water to release it during the flood. This workshop was more of a warning according to the information provided by the Meteorological Department," (Subdistrict Head, Interview, 27 April 2023).

However, these workshops resulting from the meetings appear to have limited involvement and participation from villagers, especially those who have less power and authority in the community. While they knew about the workshops, villagers stated they could not attend this workshop because of time constraints or because they were dealing with the flood. Some noted receiving information from the subdistrict administration office from the Meteorological Department to build their understanding of the flood. Since then, however, besides this information, there have not been additional community discussions or workshops to help villagers prepare. One older female villager noted that there should be greater community involvement:

> "I think the authorities should be the ones preparing for these environmental changes and collaborating with villagers. They have monthly meetings where they talk about changes in the village and development. They also talk about issues like natural disasters, forest fires, deforestation, and pollution from the burning. Villagers should help each other when these disasters happen, and they should also prepare for natural disasters. The community needs to stop the field burning as well" (Villager E, Interview, 26 April 2023)

Outside of the workshops, villagers have relative power over decision-making processes and behaviors based on their resources. Villagers who were more present in village affairs tended to be villagers with more land and farming infrastructure, which might provide relative power in building community networks and influencing decision-making processes. These farmers tended to echo and implement the principles of the sufficiency economy. On the other hand, villagers with seemingly less influence on central decision-making appeared to be ones that primarily worked off-farm, which created both imagined and material distance away from the village and subsequent decision-making. Each of these structural factors influence relative positioning in the community, that produce differential mobilities while advancing certain environmental knowledge, values, and actions over others in Baan Non Daeng.

4.9 Conclusions

The relationship between climate change and migration was not direct in the case study, but rather climate change created risks that influenced decision-making and pushed individuals to work in the city. There is a culture of mobility in Baan Non Daeng, but there are differences in relative environmental, political, economic, and social positioning that nudge households towards specific adaptation pathways. This positioning also influences networks of environmental knowledge and experiences with environmental change that inform values and perceptions of risk. Environmental knowledge and values shape action, which was demonstrated by analyzing how investments were made by households. More resourced farms appear to have more relative agency with mobility and adaptation because they hold greater power over community structures, management, and strong networks. Their ability to successfully adapt contributes towards the internalization of national discourses of self-reliance and development within the village, which fail to illustrate how mobilities are constructed and implications for long-term farm security as shown in the case study. Households also generally view actions on environmental change as projects for authorities, illustrative of how households have been rendered individualistic in the process of managing climate adaptation. The case study answers Question 1.B by examining how migration is relational and connected to resource access and other

structural political economy issues. As a result, marginalized households with less access to resources have to rely more on contract and informal off-farm work in the absence of state or community intervention helping them adapt to climate change.

CHAPTER FIVE
ANALYSIS AND CONCLUSIONS

5.1 Introduction

Mobility can help agricultural households adapt and respond to climate change, but it is important to contextualize how mobilities are constructed by power relations and natural resource management. The third chapter analyzed how discourses at different institutional levels in Thailand conceptualize climate mobility. It found that administrative positioning, where expert-led solutions are advanced and prioritized, tends to depoliticize the act of migration. In presenting migration as an opportunity for economic growth and livelihood diversification, these managerial discourses obscure diverse experiences with migration. A causual relationship between environmental change and migration also oversimplifies how mobility is flexible and produced from a range of interplaying political, economic, social, and environmental factors (Wiegel et al, 2019).

The fourth chapter complicates these visions of climate mobility by presenting interviews and observations of how mobility presented as labor migration can re-produce systemic inequality by failing to engage with root issues of marginalization. The case study also highlights the existence of intra-household inequalities and how that leaves households exposed to varying levels of risk when faced with climate impacts. It provides a more critical lens to positive narratives about migration as adaptation, since the utility of mobility is tied to existing resources, connections, and networks that can be leveraged. Households with lower levels of education, less children, and/or smaller networks might derive less significant benefits from migration since they tend to engage with mobilities at smaller scales. The case study also questions the extent to which non-agricultural work is used to invest in the future of farming considering that farmwork is being percieved as increasingly less stable and younger generations do not have the same farming skills. This holds significant implications for how resources are invested between rural and urban areas to contest whether mobility significantly reduces existing cycles of precarity. In this final chapter, the thesis argues for a re-imagining of participatory resource management

and community decision-making towards a future where unequal mobilities are better addressed.

5.2 Analysis of Imaginaries

As demonstrated with the case study, individuals have varying perceptions and conceptualizations of constructing cliamte change that impact how they act (see Section 4.7). These constructions have material implications for how development is practiced and the types of adaptations individuals or institutions engage with (Pettenger, 2007). While almost all the interviewed villagers percieved that change was occuring, they relied on different frameworks to conceptualize these changes—including but not limited to changes in profit, agricultural output, landscape changes, personal feelings, scientific understandings, or changes in farming timelines. These different discourses around environmental change represent diverse positionings on climate knowledge, values, and risks (Fleming and Vanclay, 2010). Knowledge on environmental change depended on networks and education. Perceptions of risk were relative to existing infrastructure and networks. As examples, households with children working in other provinces could expect remittances to help cover costs from climate shocks, and households with existing technology like ponds were less likely to feel threatened from changes like drought. Values and action were greatly informed by their understanding of farming as a stable or unstable livelihood, which was influenced by structural factors. More resourced farms could take advantage of longer distance mobilities (e.g. factory work in Bangkok) that ultimately help them become more climate resilient. Less resourced farms tend to experience climate shocks more frequently and severely, which leads to them percieving farming as unstable for their future. This contributes towards a larger investment in off-farm work and daily mobilities. Village leadership (with more resourced farms) echoed self-sufficiency discourses from the national level, which places pressure on marginalized households to adapt using existing resources.

It is important to note that imaginaries of environmental change in Baan Non Daeng were also politicized--discourses of blame circulated strongly when discussing reasons for environmental changes. Some villagers, especially more resourced

farmers, discussed the impacts of practices like burning and deforestation on the community. There was a general frustration among leadership at the difficulty of enforcing accountability for environmental degradation within the community given a widespread culture of practice and an acceptance of limited state capacity to deal with the issues. These narratives could potentially be used to perpetuate systems of exclusion regarding community resource management and decision-making. The culture of self-sufficiency might also hinder community-level adaptation by failing to account for root causes of marginalization. Institutional framings of climate change, development, and migration as issues requiring technical expertise can also exclude smallholder farmers, who are already engaging in adaptation. Cognitive and material distancing between institutions and farmers risks policies failing to address competing pathways and encouraging a shared conceptualization of impacts and opportunities (Vanclay, 2004). Processes of knowledge co-production and more inclusive decision-making can help remedy these gaps.

5.3 Towards a More Inclusive Approach

Counter to the sedentary peasant paradigm, translocal and complex mobilities in agrarian Thailand are not new (Rigg and Salamanca, 2011). These narratives like the “new era of human mobility” conveyed by IOM remain deeply rooted in conceptualizations of climate mobility that oversimplify rural community networks (IOM, 2021, p. 9). They also fail to capture the spectrum of (im)mobilities and adaptation processes that are on-going. Policies addressing climate mobility should be understood in the context of an already existing culture of mobility (Rigg and Salamanca, 2011) to focus on how differential mobilities are produced by structural factors. Integrating local knowledge is essential to assessing how mobilities are tied to perceptions of environmental risk. At the national level, institutions should use local participation as an integral, rather than supplementary, part of policy design. At the local level, policies and practices should focus on network sharing, whereby migrants can transfer ideas, knowledge, and skills to help the community learn from each other and create shared imaginaries of the future. Greater connectivity can contribute towards successful community adaptation, and local management needs to commit to

translocal visioning and incorporating migrant perspectives into action (TransRe, 2018, p. 48-50).

Current framings of climate mobility at the national and international level do not pose climate mobility as a matter of (in)justice (Bettini et al, 2017). Rather, institutions tend towards a modernist developmental trajectory that fails to comprehensively engage with processes of political and economic marginalization producing relative (im)mobility. Resulting policies support concepts like "migration as adaptation" that are reformist and rely on a system that has distributed environmental risks inequitably. To move towards a more inclusive policy intervention, there needs to be systemic changes that resist and contest framing adaptation as an individual practice. This first requires situating practices of climate mobility within scales and using an intersectional lens to better recognize how diverse and alternative experiences with mobility are produced. Since shocks are the result of interactions between natural hazards and human decision-making (Chmutina and Meding, 2019; Marks, 2011), there needs to be more investment in recognizing and redressing the ways system design contributes to marginalization (Cooke and Kothari, 2001). It is through greater communication and justice in environmental management and access to decision-making that root issues of marginalization can be addressed (Punpuing and Musikaphan, 2006; Bodin and Crona, 2008). Thus, it is essential to conceptualize climate mobilities as negotiated and contested in ways that are place-bound and immaterial to produce more inclusive solutions.

5.4 Recommendations

The thesis offers several actionable recommendations towards redressing unequal mobility pathways. First, it draws on the argument made by the TransRe guidebook that network building is essential to community adaptation. Investing in complex social support networks that facilitate exchanges of resources during times of need can assist with protection gaps (Rockenbauch and Sakdapolrak, 2017). As detailed in the thesis, a lack of community management contributes to a fragmented and uneven response to climate change that favors more resourced groups. To counter this issue, there needs to be investment into developing more participatory natural

resource management strategies. Concepts like sustainability of resources should be engaged in community discussions to produce more equitable agreements about resource commons (e.g. groundwater usage). Providing opportunities for alternative perspectives to voice concerns or opportunities can also contribute towards the development of more inclusive adaptative policies. Transformative policy development requires continual loops of feedback between individuals and leadership, where actors can control different stages of the process (Arnstein, 1969). There should be more active and participatory forums that allow individuals to share their knowledge and experiences to have an effect on how the community allocates resources towards the future.

There also needs to be greater access to institutions and increased knowledge-sharing related to environmental management to improve social capital and agency (Punpuing and Musikaphan, 2006; Bodin and Crona, 2008). Workshops and meetings in Baan Non Daeng were relatively closed for village leadership and government officials, which creates a top-down approach to community problem-solving. There was also distance created between leadership and villagers, which contributes towards a perception that climate adaptations should be taken on a household—rather than community—level. The lack of engagement between the state and villagers was also evident by how some policies were communicated (e.g. through loud speakers rather than through forums). It is unreasonable to expect that increasing meetings would increase participation, which is why it is important that engagement is participatory and active while focused on collective problem-solving. There should also be meetings about how mobility can be utilized at the community level. Examples of how this would be practically realized can be found in the second half of the TransRe guidebook, which highlights how community leaders can use their expansive networks to create new opportunities for investment and interconnectivity in rural communities.Translocal visioning can also help draw out relative (im)mobilities across households that allow for more inclusive policy interventions. Mapping external and internal stakeholders within villages will provide a clearer understanding of available resources, as well as blindspots that might require community-level intervention. These recommendations answer Question 1.C and highlight the need for

bridging conceptual differences that foster competing adaptation pathways through participatory development strategies.

5.5 Directions for Future Research

Future research should draw on the initial conclusions of this thesis to perform a more in-depth study complicating climate mobility as adaptation. Especially considering the growing popularity of the climate change, human rights, and human mobility nexus in development policy, future research could look at how adaptation discourses influence rights recognition in the context of slow on-set environmental change. A potential question could examine how the state externalizes responsibility for rights recognition by assessing the roles of development practicioners, civil society, or corporations in governing climate mobility. Another area for future research would be to assess more critically how identities like gender, ethnicity, and religion shape climate mobilities by problematizing land ownership, land access, and resource management. This would allow for a deeper reflection on processes of environmental marginalization that influence relative climate (im)mobilities. Building on the thesis, this could also involve looking at institutional imaginaries using the concept of intersectionality to see how narratives around climate mobility either simplify the issue or contribute to problematic assumptions that justify maladaptive policies. There should also be additional inner-household research to assess relative (im)mobilities within families. Another direction of additional research could be to look more closely at the impact of technological investment on mobility decisions and implications for resource investment between rural and urban areas. This research could ask how technology alters farming timelines and how this influences practices of translocality. These questions provide some directions for future research without being exhaustive, considering the wide and diverse impacts of climate change and climate mobility.

5.6 Conclusions

This thesis finds that institutional development collectives in Thailand construct climate mobility as a way to foster national development. Considering that

climate mobility has become a part of the development agenda, institutions recognize and legitimize frameworks like the SDGs and Global Compact on Safe, Orderly, and Regular Migration (2018) in their approach. However, their imaginaries of climate mobility render rural households into self-sufficient entrepreneurs who are expected to rationally invest in their own resilience to climate change. The migrant is perceived as an agent with the capacity to develop both urban and rural communities through their translocal experiences and networks. Using these conceptualizations as a frame for action, institutions then focus on promoting technical expertise and facilitating expert-led solutions that obscure the politics of climate migration through their management of it. Frameworks like the TransRe guidebook acknowledge these shortcomings by advocating for a community approach to adaptation. By imagining climate mobility as fundamentally a product of power relations rather than of adaptation, institutions can move towards assessing how inequalities are reinforced in practice across multiple scales—from local resource management to state approaches to development.

The case study in Baan Non Daeng demonstrates how current conceptualizations of climate mobility fall short of recognizing how climate mobilities are formed within dynamic socio-ecological systems. Household adaptations are tied to existing knowledge and assumptions about climate change as well as material resources and practices shaped by villagers, leadership, and external forces like markets. The case study examines how certain groups are more mobile than others because they face greater environmental risks during shocks as a result of structural factors that are often relational (e.g. overuse of groundwater or pumping groundwater early contributing to drought for other villagers). Initial findings show that villagers with less resources to grow vegetables, develop ponds, or invest in diverse agricultural livelihoods were more likely to perceive the environment as unstable and relying on farming for household income as untenable. These patterns illustrate how future climate resilience is structured in present regimes determining access to resources for households. While villagers use mobility to the city as an adaptation, this adaptation does not address root causes of agricultural insecurity, which has implications for the future of farming and food security. There are also

limited opportunities for villagers to engage with leadership on climate change in the case study, creating the perception among many (especially the more mobile) that community adaptation is not within their control.

These findings highlight that while mobility can be an adaptation, it should not be conceptualized primarily as adaptation because this framing obscures how political and economic factors shape adaptation pathways. Instead, institutional policies need to better recognize and address how competing adaptation pathways are produced and maintained by investing in a more critical view of how climate mobilities are constructed. More imaginative solutions related to increasing access to decision-making and institutions, knowledge co-production, and translocal visioning are needed to address systemic inequality. Climate change represents a significant opportunity for a re-imagining of how societies ought to be, and investing in practices that better address context-specific productions of marginalization can lead to more equitable and just futures.

APPENDIX

Appendix 1. Guiding Questions for Villager Interviews[5]

1) Basic Demographic Information

- Name, Age, Gender, Ethnicity, Religion, Education
- Farm size, Crops, Farm location, Land ownership, Access to water
- Occupation(s), Household size, Household demographic information

2) Perceptions of Environmental Change

- Have you noticed any changes in the environment like different seasons, flooding, or drought?
- Why do you think these changes are happening?
- Do you feel impacted by these changes?
- Do you think these changes are natural or unnatural?
- Do you think these changes are worse or the same as your parents' generation?
- Do you feel worried about these changes?

3) Adaptation

- Has your household experienced any challenges like food insecurity or lost crops because of environmental changes?
- Have you changed any farming strategies in response to environmental changes?
- Did you need to take out any loans because of environmental changes?
- Do you or members of your household do non-agricultural work?
    - What kind of work? How often do you work at each job per week?
    - Where do your children work? How did they find their job?
- Approximately what percentage of your household income comes from farming and how much comes from non-agricultural work?

[5] The following list of open-ended questions were created as a way to bound a conversation around climate change, adaptation, and human mobility. This list is not exhaustive of questions that were asked but were used as a general guide for respondent driven interviews.

    - Do your children send money home to support the household? How is the money used? Have your children sent money to support the household after experiencing environmental change?
- Have you used non-agricultural work to replace or support your farming income after experiencing environmental changes like flooding or drought?

4) The Future

- Do you believe that preparing for environmental change is possible?
- Who do you think has the responsibility to help the community prepare for future flooding or drought?
- Have you received information or participated in workshops with local leadership related to environmental changes?
- Do you believe that preparing for flooding or drought is an individual or community issue?
- Do you believe that agricultural income is becoming less stable? Do you think you will pursue more non-agricultural work in the future?
- Do you think your children will come back to work on the farm?

Appendix 2. Guiding Questions for Village and Subdistrict Leadership Interviews[6]

1) Basic Demographic and Position Information

- Name, Age, Gender, Ethnicity, Religion, Education
- Position, Length of tenure, Area of responsibility
- Main responsibilities

2) Perceptions of Environmental Change

- Have you noticed any changes in the environment like different seasons, flooding, or drought?
- Why do you think these changes are happening?

[6] The following list of open-ended questions were created as a way to bound a conversation around climate change, adaptation, and human mobility. This list is not exhaustive of questions that were asked but were used as a general guide for respondent driven interviews.

- Do you think these changes are natural or unnatural?
- Do you think these changes are worse or the same as your parents' generation?
- Do you feel worried about these changes?

3) Adaptation and Responses within the Community

- What kinds of agricultural policies are being communicated and implemented related to environmental changes?
- What kinds of workshops or meetings have there been related to environmental change? Who typically attends these workshops?
- How do villagers report damage or lost crops from flooding or drought? What is the process for receiving compensation?
- What kinds of land use changes have you observed? Why do you think households are changing how they use their land? Why are some farmers choosing to farm during the off-season?
- What is your perspective on why people are moving to the city to work in non-agricultural jobs? Do you see this as a problem or opportunity for the village?
- Do you think remittances are being used to invest in the farm? How are they being used?

4) The Future

- Are there any specific strategies households should be using to prepare for droughts or flooding?
- What kind of work do the younger generation engage in? Are there any practices or policies encouraging children to learn about farming?
- Do you have any concerns about the future of farming in the village?

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